Winter Energy Market and Electric Reliability Assessment

2025-2026

A Staff Report to the Commission

November 20, 2025

FEDERAL ENERGY REGULATORY COMMISSION

Office of Technical Reporting and Economics

Office of Electric Reliability

This report is a product of the Federal Energy Regulatory Commission staff. This report does not necessarily reflect the views of the Commission or any Commissioner.

Preface

Slide 1

The 2025-2026 Winter Energy Market and Electric Reliability Assessment (Winter Assessment) provides Commission staff's outlook for this winter – December 2025 to February 2026. It focuses on energy markets and electric reliability. The report contains four main sections. The first summarizes the findings of the Winter Assessment. The second details the weather outlook for the upcoming winter. The third discusses notable considerations for the upcoming winter. The last section discusses energy market fundamentals, primarily natural gas and electricity supply and demand expectations.

The 2025-2026 Winter Assessment is a joint product from the Commission's Office of Technical Reporting and Economics and the Office of Electric Reliability.

Winter Outlook

Slide 2

Winter Outlook

- Slightly warmer conditions expected in the southern and eastern U.S.
- Natural gas prices 26% higher compared to previous winter despite increased production.
- Electricity demand growth supported by generation and transmission additions.
- Resources and operating reserves adequate in all NERC assessment areas for normal winter conditions.
  - Possible reliability challenges in ERCOT, NPCC-NE, SERC-Central, SERC-East, WECC-Basin, and WECC-NW in extreme winter conditions

Winter Outlook In Summary

This winter, slightly warmer temperatures are expected compared to last winter, potentially contributing to lower domestic natural gas and electricity demand. A prolonged cold weather event could still affect prices and availability of natural gas and electricity. Drought and elevated wildfire risk conditions are forecast to continue in multiple regions and could affect grid operating conditions and reliability.

Notwithstanding the forecasted slightly warmer temperatures, natural gas prices are expected to rise slightly compared to last winter. As of November 4, futures prices for the Henry Hub national benchmark averaged $4.39/Million British thermal units (MMBtu), 26% higher than winter 2024-2025 settled prices. Total U.S. natural gas demand is forecasted to exceed production this winter, as in previous winters, with the difference met by storage inventory withdrawals. While warmer weather could cause residential and commercial demand to decline, net exports are expected to continue their long-term growth trend. Natural gas storage inventories began the withdrawal season above the five-year average but marginally below the starting level of last winter, which was the highest since 2016. Overall natural gas storage inventories are forecasted to remain relatively robust throughout the winter.

Electricity markets will see generators add 56.1 GW of net winter capacity nationwide, compared to last winter, with 64.7 GW of new additions offset by 8.6 GW of retirements. Solar and batteries comprise 80% of new capacity additions, while coal and natural gas will account for 88% of retired capacity. Winter electricity consumption is projected to be 2.7% above the five-year average, with total monthly consumption expected to peak in January at 352 TWh. If realized, the projected consumption for this winter (1,035 TWh) will represent the second-highest level of the past five years, second only to last winter's record of 1,041 TWh.

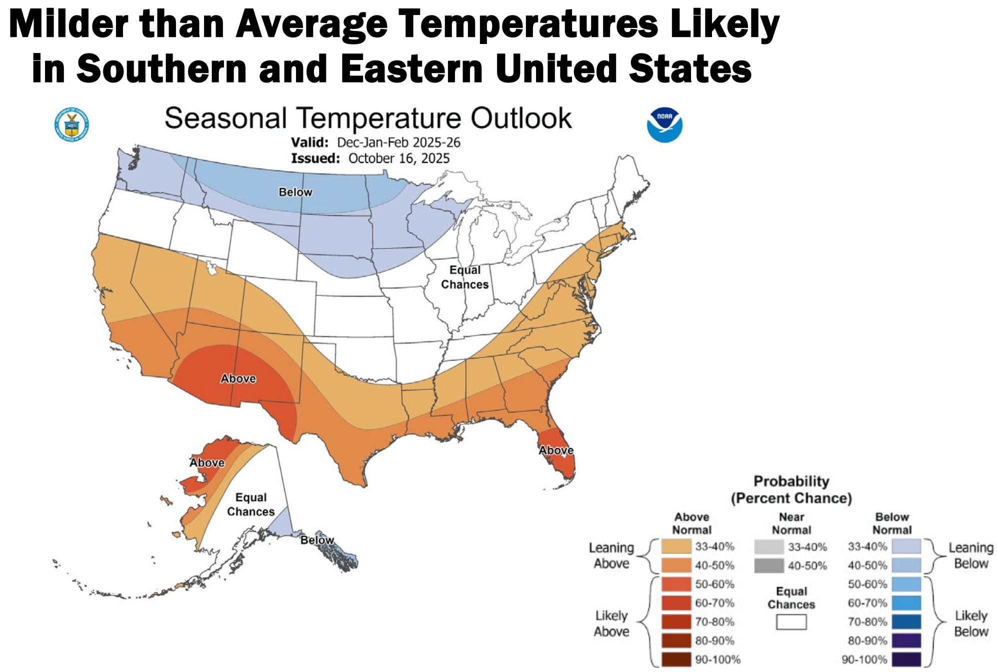
To support the grid, 3,132 new electric transmission projects totaling 19,008 miles of line will be available this winter. Of this total, 14,736 miles were placed in service between March and November 2025, with another 4,272 miles expected to be completed between December 2025 and February 2026. The primary drivers for these projects nationwide are storm and fire hardening (7,101 line-miles) and system reliability (4,238 line-miles), which together account for nearly 60% of all projected mileage. Other significant drivers include load growth (2,785 line-miles), asset renewal (2,738 line-miles), and generation interconnection (903 line-miles).

While the costs to produce electricity have remained relatively stable, in recent winters uplift payments have increased significantly during extreme weather or as a result of proactive operator actions taken to maintain reliability and continue to serve load.

Looking at the broader picture, all North American Electric Reliability Corp. (NERC) assessment areas are expected to have adequate generating resources to meet expected winter demand and operating reserve requirements under normal operating conditions. Under extreme weather conditions, the Electric Reliability Council of Texas (ERCOT), Northeast Power Coordinating Council-New England (NPCC-NE), SERC Reliability Corp. Central (SERC-Central), SERC-East, Western Electricity Coordinating Council-Basin (WECC-Basin), and WECC-Northwest (WECC-NW) face a higher likelihood of tight generation availability, which may require operational mitigations to prevent potential reliability issues. However, NERC and the assessment areas have initiated various activities, such as readiness surveys of generators and facility inspections, to prepare for winter and increase the likelihood of their continued operation in the event of severe winter weather.

Weather

Slide 3



Weather Outlook

For the upcoming winter, the National Oceanic and Atmospheric Administration (NOAA) is predicting a weak La Niña phenomenon. La Niña refers to the large-scale, ocean-atmosphere climate phenomenon characterized by periodic cooling in sea-surface temperatures across the central and east-central equatorial Pacific. Based on the prediction, NOAA expects mildly wetter-than-average conditions in the northern Mountain West and Ohio River Valley regions and mildly drier-than-average conditions in the southern United States. As shown by the blue colors in the map on **Slide 3**, NOAA expects mildly colder-than-average temperatures in the Pacific Northwest and northern Midwest. The orange colors indicate mildly warmer-than-average temperatures along the East Coast, extending down through the South and West into the Desert Southwest and into California. The rest of the continental United States – shown in white – has equal chances of above or below average temperatures this winter. For its part, the U.S. Energy Information Administration (EIA) expects the population-weighted number of nationwide Heating Degree Days[1] in December, January, and February to decrease by 8% relative to last winter. This decrease reflects a slightly warmer winter nationwide.

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[1] Heating Degree Days are a measure of how cold a location is on a given day or during a period of days. A Heating Degree Day compares the mean (the average of the high and low)

It is important to note that NOAA's long-range predictions are dynamic and may change as more data becomes available. Furthermore, extreme winter storms, such as polar vortexes, are difficult to predict far in advance and are typically forecasted much closer to the event dates.

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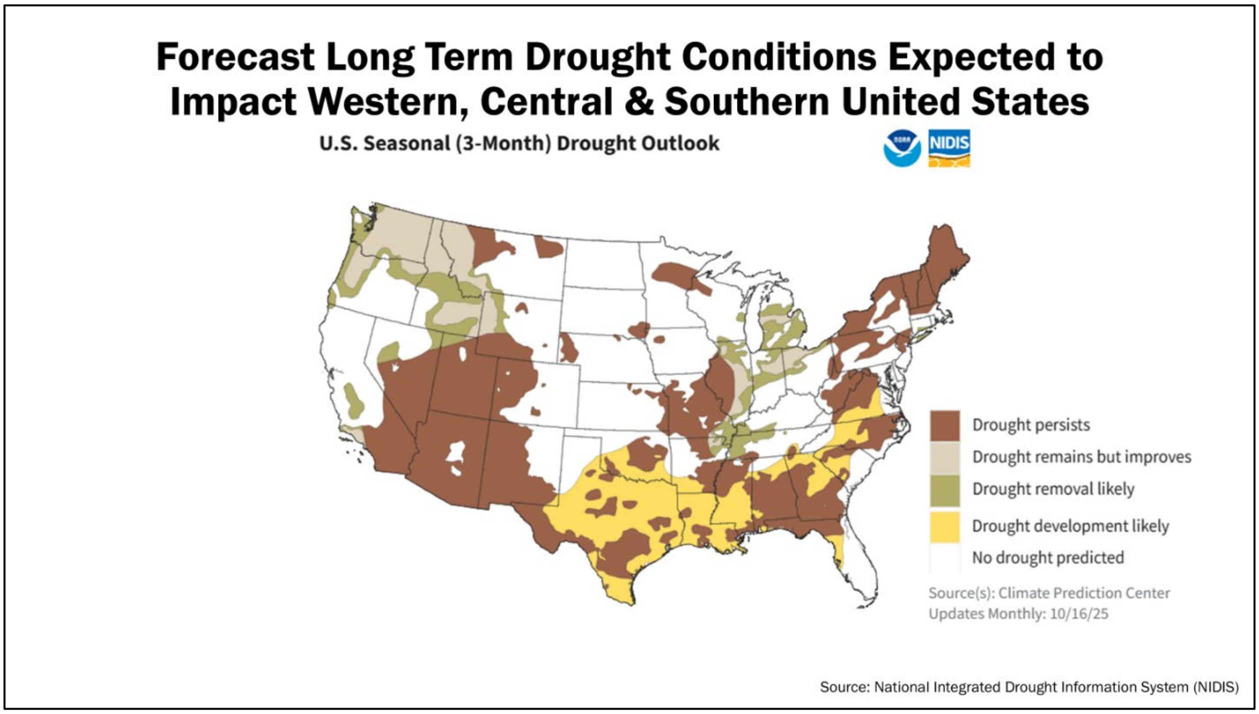
outdoor temperatures recorded for a location to a standard temperature, 65° Fahrenheit (F) in the United States. The colder the temperature, the higher the number of heating degree days. Natural gas is sometimes traded in a "Winter Strip" between November and March, which may have a different HDD forecast trend due to the two additional months.

Slide 4



Weather – Drought Condition Impacts

Drought conditions, illustrated by the dark brown areas in the map on **Slide 4**, persist across much of the western and central United States and are expected to continue into winter. If below-average snowfall, runoff, or conditions similar to this past spring occur this winter, significant impacts to water supplies in multiple basins are possible. Based on the La Niña forecast and current conditions, drought persistence is likely in the Southwest. This puts water basins in the southwestern United States at an especially high risk of water shortage impacts in early to mid-2026. In the South-Central and eastern regions of the United States, drought development, shown in yellow, is expected. Finally, minimal drought improvement, shown in tan and green, in the Pacific Northwest is also forecast for this winter.[2]

This winter, these dry conditions in the West are expected to reduce output from a significant portion of hydroelectric resources in WECC, including those in the Colorado River and Yakima Basins. Output in the Pacific Northwest will also continue to be limited. In early fall, reservoir levels throughout the western United States dropped sharply because withdrawals occurred at a greatly accelerated rate. For example, withdrawals in Utah were at twice the

[2] NOAA, National Integrated Drought Information System, *The Western Drought Issue* (Sept. 3, 2025), https://www.drought.gov/news/western-drought-issue-2025-09-03.

typical rate and high withdrawals ended the water year[3] several weeks early in multiple irrigation districts in Washington state. If key headwaters do not receive above-average precipitation, it will not be possible to restore water supplies in the Pacific Northwest, Colorado and Great Basins to previous historical levels. The Colorado River Basin lost about 27.8 million acre-feet of groundwater between 2002-2024, roughly equal to the storage capacity of Lake Mead. As a result, water levels in Lake Powell are expected to fall into a lower balancing tier this winter, requiring reductions in output at the Glen Canyon Dam. Forecasts indicate that water levels could fall low enough to stop hydropower generation at the reservoir within the next year.[4] Impacts are also expected at downstream facilities, including at Hoover Dam, which is forecast to be in a Level 1[5] shortage condition this winter and fall to a Level 2[6] shortage by early spring 2026. This puts water basins in the southwestern United States at an especially high risk of water shortage impacts in early to mid-2026.

Also notable this winter, drought conditions are expected to continue in the central and southern United States. In the Mississippi River Basin, drought and extremely dry conditions have rapidly expanded due to above-average temperatures and low rainfall. As the region is entering what is typically a drier period, without significant and widespread rainfall, drought is expected to persist and expand across a significant portion of the Mississippi River Basin through December 31, 2025. For example, the Ohio River typically contributes 50% of the Mississippi River's flow. Recently, the Ohio River contribution fell to 8%. These low water levels have impacted small hydroelectric facilities and restricted navigation, which could affect fuel transportation for some coal generators.[7] Further downstream, low water levels on the Mississippi River may lead to the risk of saltwater intrusion and high-water temperatures, which could pose operational risks to thermal generators that use once-through-cooling

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[3] A water year is defined as October 1 to September 30 for surface water reports and water allocation planning.

[4] Bureau of Reclamation, *24-Month Study Inflow Scenarios* (Aug. 15, 2025), https://www.usbr.gov/uc/water/crsp/studies/images/PowellElevations.pdf.

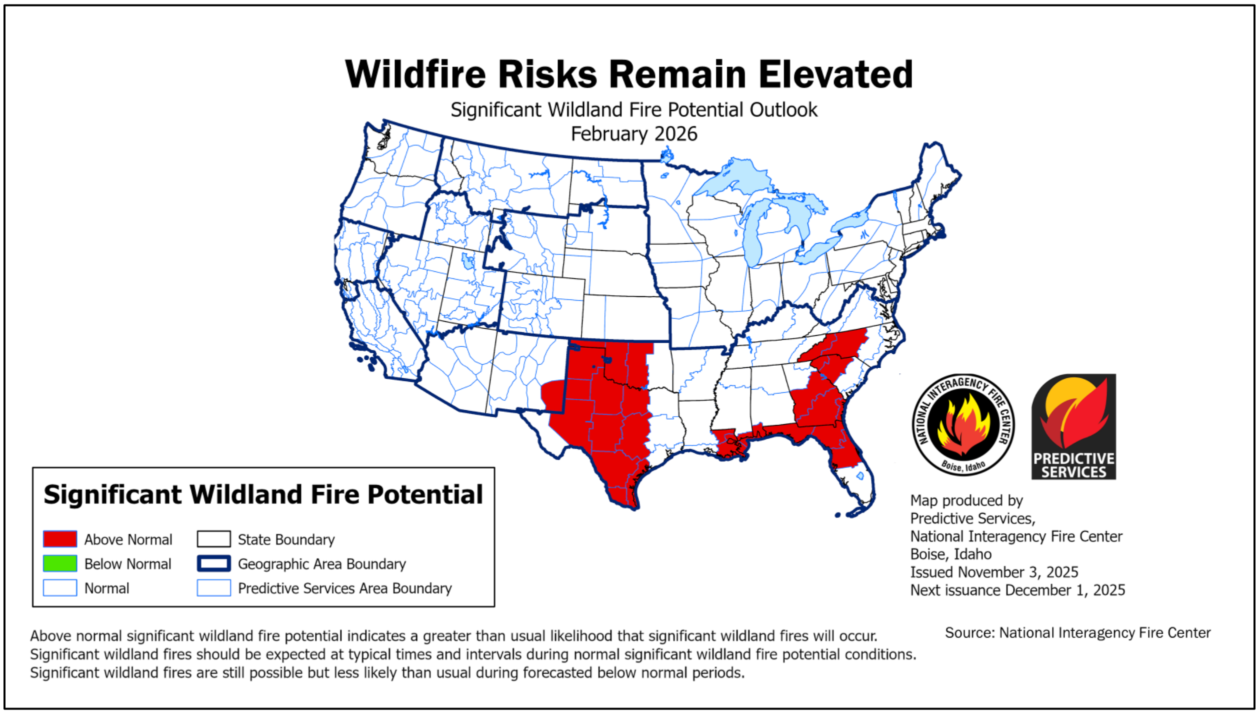
[5] A Level 1 Shortage Condition is triggered when Lake Meade's elevation falls below 1,075 ft. under the *2007 Interim Guidelines and the Lower Basin Drought Contingency Plan* and reduces total deliveries to 7.167 million-acre-feet.

[6] A Level 2 Shortage Condition is triggered when Lake Meade's elevation falls below 1,050 ft under the *2007 Interim Guidelines and the Lower Basin Drought Contingency Plan* and reduces total deliveries to 7.083 million-acre-feet.

[7] NOAA, National Integrated Drought Information System, *Drought and Water Update for the Mississippi River Basin* (Sept. 18, 2025), https://www.drought.gov/drought-status-updates/drought-and-water-update-mississippi-river-basin-2025-09-18.

equipment. While temperature and water level impacts are possible all along the river, salinity impacts are most likely for generators located in high demand areas at the mouth of the river in southern Louisiana.

Slide 5



Weather – Wildfire Risk

Due to persistent high temperatures and a lack of rainfall in the western, central and southern United States, the risk of wildfires remains elevated in several states. Specifically, as indicated by the red areas on the map on **Slide 5**, risks remain elevated throughout Texas as well as in the Southeast from Louisiana to Florida and up through the Carolinas. These regions all experienced persistent drought, high temperatures, and dry conditions from late summer into fall. They experienced similar circumstances at the start of last winter.

This elevated wildfire risk can translate to significant infrastructure and operational risks for utilities. During dry conditions, utilities may temporarily turn off power to specific areas through a practice known as a public safety power shutoff. This is done to reduce the risk of electrical infrastructure starting a fire or to protect equipment from damage by nearby fires. While shutoffs have been used primarily in western states, they are now increasingly used in other regions to mitigate wildfire risk, including the central United States (South Dakota and Minnesota) and eastern states such as New Jersey. Wildfires can also cause significant electric transmission disruptions, potentially leading to extended outages due to damage to grid equipment or supporting infrastructure.

Notable Items

Slide 6

Notable Items

- Cold Weather Reliability Standards
  - Extreme Cold Weather Preparedness and Operations: EOP-012-3
  - Transmission System Planning Performance Requirements for Extreme Temperature Events: TPL-008-1
- Gas-Electric Coordination
  - Infrastructure vulnerabilities in key components
  - NPCC Northeast Gas/Electric System Study
  - Industries improving coordinationl more progress still needed
  - NAESB NOPR

Cold Weather Reliability Standards

As winter 2025-2026 approaches, NERC Reliability Standards for generator winterization plans are becoming enforceable, and new additional requirements will require generator owners and operators to implement plans to remain operational in extreme cold temperatures. This is a shift from the now-retired Reliability Standard EOP-012-2 (Extreme Cold Weather Preparedness and Operations),[8] which mandated that generator owners and operators develop and implement extreme cold weather preparedness plans by winter 2025-2026. Its successor, Reliability Standard EOP-012-3,[9] additionally requires existing generators to begin implementing their plans to operate at their calculated unit's Extreme Cold Weather

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[8] The purpose of this Reliability Standard was to address the effects of operating in extreme cold weather by ensuring each Generator Owner has developed and implemented plan(s) to mitigate the reliability impacts of extreme cold weather on its applicable generating units. *Order Approving Extreme Cold Weather Reliability Standard EOP-012-2 and Directing Modification*, 187 FERC ¶ 61,204 (2024).

[9] *Order Approving Extreme Cold Weather Reliability Standard EOP-012-3 and Directing Data Collection*, 192 FERC ¶ 61,229, at PP 34-37 (2025).

Temperature by October 1, 2025.[10] The Commission directed NERC to collect and submit generator owners' cold weather temperature reports detailing readiness for extreme conditions every May 15 beginning in 2025.[11]

Separately, Reliability Standard TPL-008-1 (Transmission System Planning Performance Requirements for Extreme Temperature Events) was approved earlier this year, with a phased implementation to begin in April 2026. Under this requirement, Planning Coordinators, in conjunction with their Transmission Planners, must conduct an extreme temperature assessment at least once every five years. These assessments evaluate future Bulk Electric System performance during extreme heat and extreme cold benchmark temperature events. The assessments required by this standard address a known reliability issue in which extreme temperatures cause operational failures by identifying vulnerabilities before those operational failures occur.[12]

Together, these standards will begin to help grid planners and operators anticipate and withstand any severe weather disruptions during winter 2025-2026.

Gas-Electric Coordination

Gas-electric coordination remains a critical focus for ensuring reliability across the electric grid, particularly during extreme cold weather events that could occur between December 2025 and February 2026. However, electric utilities, regional transmission organizations (RTOs), independent system operators (ISOs), and NERC have also taken actions to prepare for potential natural gas scarcity conditions based on lessons learned from past winter storms.

Cold weather vulnerabilities of natural gas infrastructure further compound risks to electric reliability. Cold weather-sensitive components such as electric-powered compressor stations and unprotected wellheads remain susceptible to freezing, and electrical or mechanical failures

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[10] Extreme Cold Weather Temperature refers to the lowest 0.2 percentile of the hourly temperatures measured in December, January, and February from 1/1/2000 through the date the temperature is calculated; NERC, Questions and Answers: Cold Weather Generator Data Request (Accessed Oct. 10, 2025), https://www.nerc.com/pa/comp/ColdWeatherGenDataDL/NERC_Cold_Weather_1600_DR_FAQ.pdf#:~:text=Extreme%20Cold%20Weather%20Temperature%20-%20The%20temperature,through%20the%20date%20the%20temperature%20is%20calculated.

[11] NERC, Questions and Answers: Cold Weather Generator Data Request (Accessed Oct. 10, 2025), https://www.nerc.com/pa/comp/ColdWeatherGenDataDL/NERC_Cold_Weather_1600_DR_FAQ.pdf#:~:text=Extreme%20Cold%20Weather%20Temperature%20-%20The%20temperature,through%20the%20date%20the%20temperature%20is%20calculated.

[12] *North American Electric Reliability Corporation*, 190 FERC ¶ 61,099, at PP 4-8 (2025).

at these points can disrupt natural gas deliveries to generating units during critical periods. While vulnerabilities at the production, gathering, and processing stages fall outside the Commission's jurisdiction, these vulnerabilities underscore the need for continued improvements in equipment winterization efforts and operational coordination.[13]

A study conducted by the NPCC, released on January 21, 2025, evaluated gas supply and pipeline constraints across New York and New England under extreme winter conditions. The study concluded that natural gas infrastructure in these regions is fully, or nearly fully utilized, during modeled cold weather events and found that any gas-side contingency, such as a pipeline disruption or a prolonged cold snap that affects gas production, could significantly stress the electric and natural gas systems and threaten electric grid reliability.[14]

On a positive note, the natural gas and electric industries have improved their coordination. For example, the performance of the Virginia-Carolinas Reliability Coordinator (VACAR) South region during the January 2025 Arctic cold wave illustrated notable gas-electric coordination.[15] According to a joint FERC-NERC report, improved performance in regions, including VACAR South, were made possible by enhanced coordination between pipeline operators and electric grid and generator operators, including proactive issuance of Operational Flow Orders[16] and real-time situational awareness calls.[17] Additionally, the same report highlights how natural gas infrastructure, including wellheads, compressor stations, and local distribution systems experienced minimal disruptions despite record-breaking demand of over 150 billion cubic feet per day (Bcfd). This marked improvement over previous winter storms was attributed to widespread winterization efforts and planned use of natural gas

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[13] FERC, NERC, and its Regional Entities (a joint staff report), *January 2025 Events: A System Performance Review* (April 17, 2025), https://www.ferc.gov/media/report-january-2025-arctic-events-system-performance-review-ferc-nerc-and-its-regional.

[14] NPCC, *NPCC Northeast Gas/Electric System Study* (Jan. 3, 2025), https://www.npcc.org/news/npcc-northeast-gas-electric-system-study.

[15] VACAR is a division within the SERC Reliability Corporation that includes systems located in Virginia, North Carolina and South Carolina. VACAR South are the VACAR companies that are not located in the PJM BA area.

[16] An Operational Flow Order is a directive issued by a natural gas pipeline operator to maintain the operational integrity of the pipeline system during periods of imbalance. It typically occurs when forecasted pipeline inventory, either too high or too low, threatens system reliability.

[17] FERC, NERC, and its Regional Entities (a joint staff report), *January 2025 Arctic Events: A System Performance Review,* at 12 (April 17, 2025), https://www.ferc.gov/media/report-january-2025-arctic-events-system-performance-review-ferc-nerc-and-its-regional.

storage assets. The Mountain Valley Pipeline, which was placed into service in 2024, also played a pivotal role in maintaining electric reliability in VACAR South by sustaining stable pipeline pressure during peak demand. Additionally, some dual-fuel generators switched to alternate fuels to maintain gas system balance, while battery storage was used to alleviate stress on both the electric grid and pipelines during critical hours. Collectively, these actions demonstrate how targeted collaboration, infrastructure hardening, and flexible energy resources are beginning to close long-standing coordination gaps between the gas and electric sectors.[18]

To further strengthen gas-electric coordination, the North American Energy Standards Board (NAESB) Wholesale Gas Quadrant (WGQ) recently updated business practice standards collaboratively developed by NAESB's gas, electric, and retail working groups.[19] The Commission issued a proposed rule on October 16, 2025, that proposes to incorporate by reference into the Commission's regulations certain modifications and one new standard to Version 4.0 of the NAESB WGQ standards. These proposed modifications aim to improve transparency and situational awareness across the gas-electric interface by requiring interstate natural gas pipelines to publicly post scheduled quantity information for power plants directly connected to the pipeline grid, including their location, affiliated RTO/ISO, and total scheduled volumes.[20]

In summary, while infrastructure vulnerabilities continue to challenge gas-electric coordination, enhanced collaboration between the gas and electric industries along with improved winterization efforts have begun to close critical reliability gaps. As the natural gas

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[18] *Id.* at 2.

[19] The NAEB Wholesale Gas Quadrant Business Practice Standards Version 4.0 Revised were jointly developed on a consensus basis by NAESB's Wholesale Gas Quadrant, Wholesale Electric Quadrant, and the Retail Market Quadrant. The Wholesale Gas Quadrant includes the following five co-equal segments: Producers; Pipelines; Local Distribution Companies; End-users; and Services. The NAESB Wholesale Electric Quadrant includes the following seven co-equal segments: Transmission; Generation; Marketers/Brokers; Distribution/Load-Serving Entities; End Users; Independent Grid Operators/Planners; and Technology and Services providers. The NAESB Retail Market Quadrant includes: Retail Electric Service Providers/Suppliers; Retail Electric Utilities; Retail Electric End Users/Public Agencies; and Retail Gas Market Interests. For more information on the NAESB Quadrant Segments and Subsegments see: https://www.naesb.org/pdf/quadrant_description.pdf.

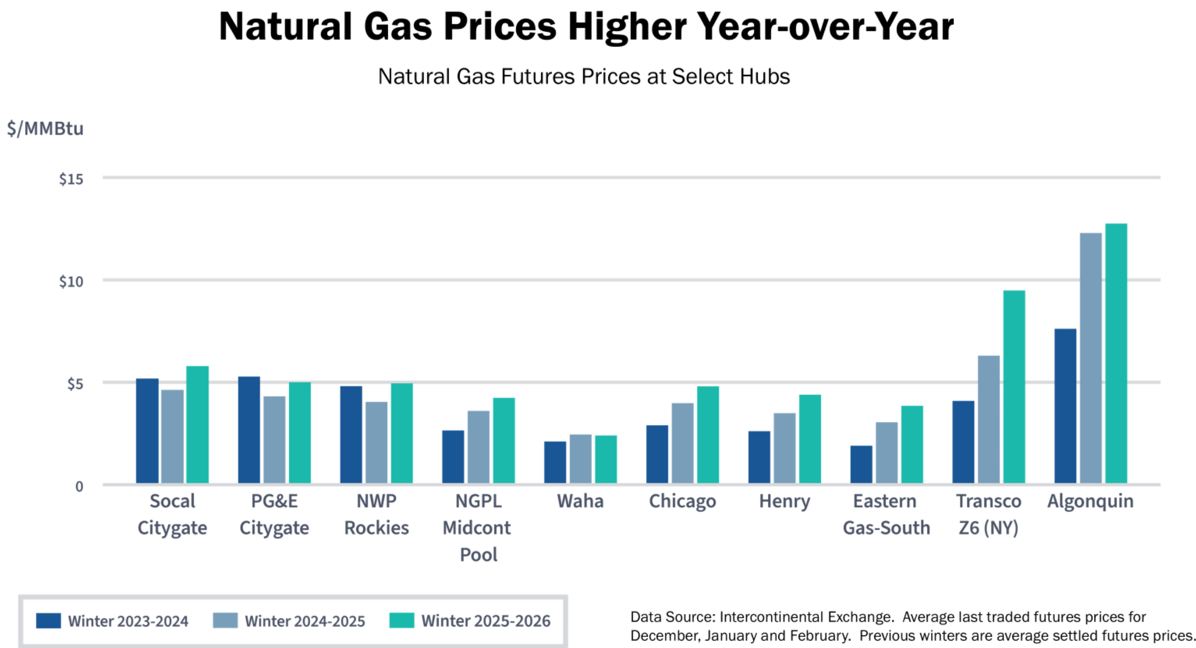
[20] *Standards for Business Practices of Interstate Natural Gas Pipelines*, Notice of Proposed Rulemaking, Docket No. RM96-1-044, (issued Oct 16, 2025).

and electric systems become more interdependent, sustained coordination between the two sectors will remain essential to safeguarding electric grid reliability.[21]

[21] For more on gas-electric coordination, see Chapter 3: Gas-Electric Interdependency, in FERC's *Energy Primer, a Handbook for Energy Market Basics,* http://www.ferc.gov/sites/default/files/2024-01/24_Energy-Markets-Primer_0117_DIGITAL_0.pdf.

Natural Gas Fundamentals

Slide 7



Natural Gas Prices

Natural gas futures provide expectations for natural gas prices at key hubs for the upcoming winter, as illustrated by the chart on slide 7. The chart displays futures prices for three consecutive winters, with the light green bars representing futures prices for the upcoming winter (2025-2026) and the gray bars showing prices from last winter (2024-2025). In particular, natural gas futures in New England, New York, and California for winter 2025-2026 are currently trading higher than at other major hubs, and elevated natural gas demand is expected to drive prices higher on average across much of the United States. Heading into winter 2025-2026, higher natural gas futures prices at most major trading hubs across the United States are partly driven by rising futures prices at the Henry Hub national benchmark hub. **Slide 7** includes the Henry Hub, located in Louisiana, and nine other major supply and demand hubs in the Lower 48 States. As of November 4, Henry Hub futures averaged $4.39/MMBtu for this winter, up 26% from last winter's settled average of $3.49/MMBtu.[22]

[22] Natural gas futures prices are price quotations of contracts for the exchange of natural gas, as either a physical or financial settlement, at a specified time in the future. Winter futures prices in this section are the average quotes of the last traded futures contracts, as of November 4, 2025, for the winter months of December 2025, January 2026, and February

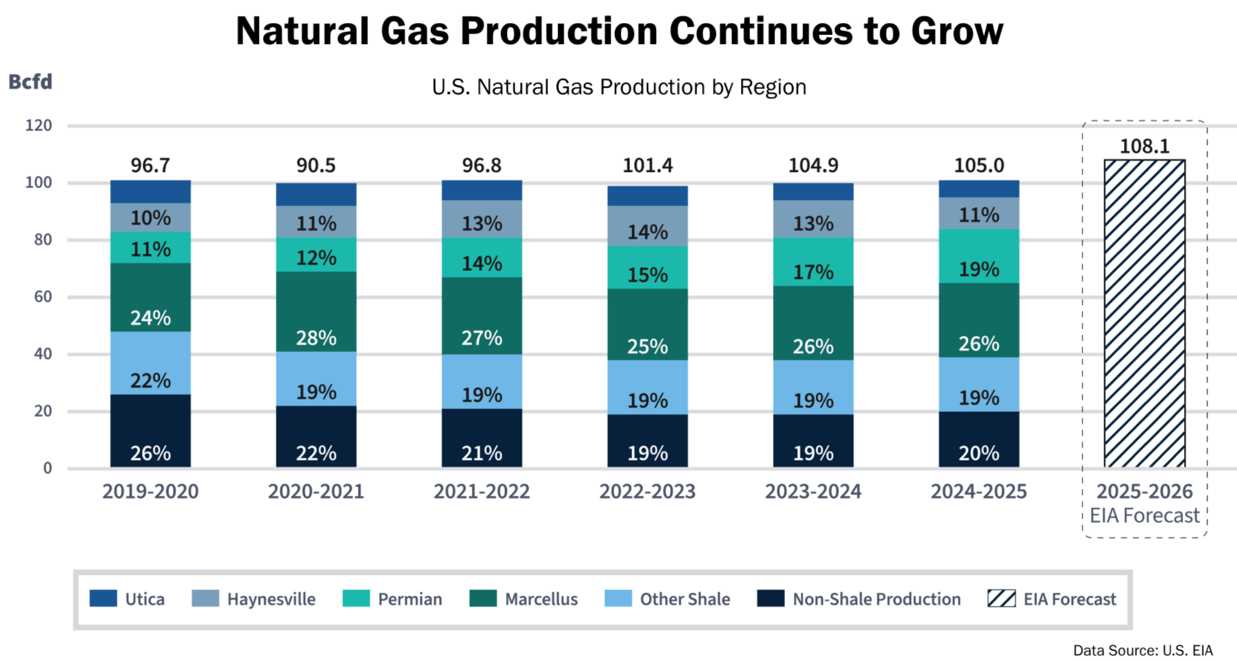
Rising demand for natural gas in the South-Central region, including from liquefied natural gas (LNG) export facilities, is contributing to higher commodity prices at Henry Hub, which operates as a benchmark for regional hub pricing.[23]

Consistent with previous winters, natural gas futures in New England, New York, and California for winter 2025-2026 are currently trading higher than at other major hubs. As shown in **Slide 7**, the Algonquin Citygates hub near Boston could see the highest prices in the country, averaging \$12.76/MMBtu, a slight increase of \$0.47/MMBtu from last winter's average. New England relies on imported LNG in the winter to help meet peak natural gas demand, and the region continues to compete for LNG volumes with Europe and Asia. Additionally, storage inventories in the East are currently 3% below last year's level and slightly below the five-year average. New York's Transco Zone 6 futures prices averaged \$9.48/MMBtu, above last winter's average of \$6.30/MMBtu, as that hub may face supply constraints this winter. California natural gas futures prices averaged \$5.80/MMBtu at the SoCal-Citygate hub in southern California and \$5.01/MMBtu at the PG&E-Citygate in northern California, both above last winter's levels by an average of \$0.94/MMBtu. Infrastructure constraints continue to keep California natural gas prices among the highest in the country, but high regional natural gas storage inventories should help moderate price volatility this winter.

2026 as retrieved from InterContinental Exchange, Inc. Previous winter averages are the final settled futures prices for each month as retrieved from InterContinental Exchange, Inc.

[23] Regional natural gas prices are calculated by adding the Henry Hub winter futures price to the winter basis futures prices at major trading hubs in the United States. Regional basis prices reflect, among other things, the distance from producing basins, availability of natural gas transportation, and local weather expectations for the coming winter.

Slide 8



Natural Gas Production

Domestic natural gas production indicates the market's ability to meet U.S. demand this winter. As of October 7, 2025, EIA forecasted winter 2025-2026 dry natural gas production to average 108.1 Bcfd.[24] This represents a 2.9% increase from the winter 2024-2025 average of 105.0 Bcfd and is 7.7% higher than the five-year average. As illustrated on **Slide 8,** this reflects a fifth year of consecutive growth in production since winter 2020-2021, when the COVID-19 pandemic reduced natural gas production and demand. The different colored segments within each bar break down the total production by region, illustrating how various shale plays contribute to the overall volume.

Although overall natural gas production is projected to increase this winter, lower oil prices will suppress a subset of the production known as "associated gas," which is gas produced

[24] "Natural gas production" refers to dry production, or gross withdrawals less gas used for repressuring, quantities vented and flared, and nonhydrocarbon gases removed in treating or processing operations. The term includes all quantities of gas used in field and processing plant operations.

through drilling activity in oil-rich basins.[25] Lower crude oil prices typically dampen drilling activity in such basins and—because their output is linked—reduce production of both oil and gas.[26] As of August 2025, there were 538 oil and natural gas rigs in operation, about 7% below the same time last year.

Over the past five winters, total U.S. dry gas production increased by at least 14.5 Bcfd in aggregate although occasional freeze-offs (freezing of oil and gas wells and pipes) reduced gas output during winter events, particularly Winter Storm Uri (2021), Winter Storm Elliott (2022), Winter Storm Heather/Gerri (2024), and the winter storms of January 2025. To prevent potential loss of production, the upstream natural gas sector has ramped up winter preparedness and equipment winterization efforts.[27] While winter storms are not directly comparable, operators reported fewer issues in winter 2024-2025, when Northeast natural gas production dropped only approximately 2 Bcfd, compared to 11 Bcfd that came off-line during Winter Storm Elliott two years earlier.[28] During the January 21-22, 2025 winter storm, the U.S. natural gas system mitigated reduced production from freeze-offs and unplanned outages and supported a record-setting peak domestic demand of 150 Bcfd without requiring load shedding by electric utilities.[29]

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[25] EIA, *Short-Term Energy Outlook*, at 9 (Sept. 9, 2025), http://www.eia.gov/outlooks/steo/archives/sep25.pdf.

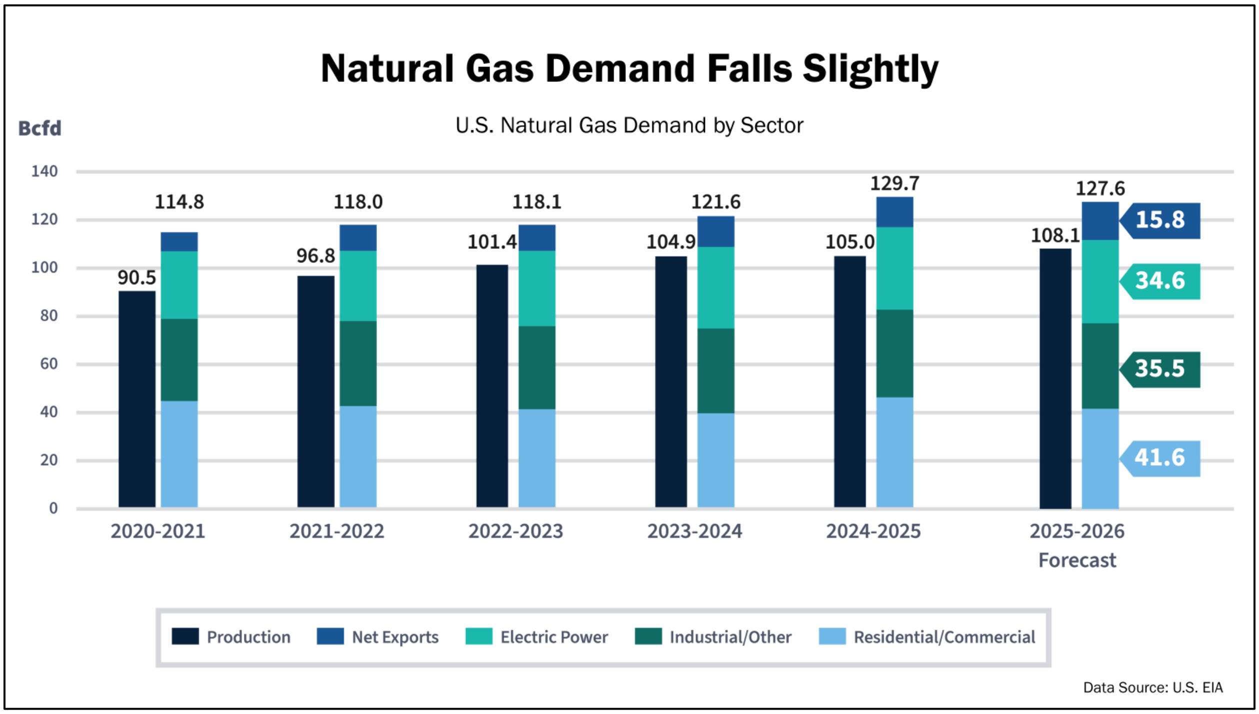
[26] Crude oil prices for West Texas Intermediate at the Cushing Interchange in Oklahoma, the U.S. crude oil benchmark, are expected to average $48.33 per barrel, 32.7% lower than the five-year average and 33.3% lower than the average winter 2024-2025 price of $72.46 per barrel. *See* EIA, *Short-Term Energy Outlook*, at 6 (Sept. 9, 2025), http://www.eia.gov/outlooks/steo/archives/Sep25.pdf.

[27] American Gas Association, *Special Edition: Natural Gas Market Indicators – January 9, 2025* (Jan. 9, 2025), https://www.aga.org/research-policy/resource-library/special-edition-natural-gas-market-indicators-january-9-2025/.

[28] PJM Operating Committee, *Cold Weather Operations January 18–23, 2025,* at 22 (Feb. 6, 2025), https://www.pjm.com/-/media/DotCom/committees-groups/committees/oc/2025/20250306/20250306-item-15---january-2025-cold-weather-update.pdf.

[29] FERC, NERC and its Regional Entities (a joint staff report), *January 2025 Arctic Events: A System Performance Review,* at 1 (April 17, 2025). https://www.ferc.gov/media/report-january-2025-arctic-events-system-performance-review-ferc-nerc-and-its-regional.

Slide 9



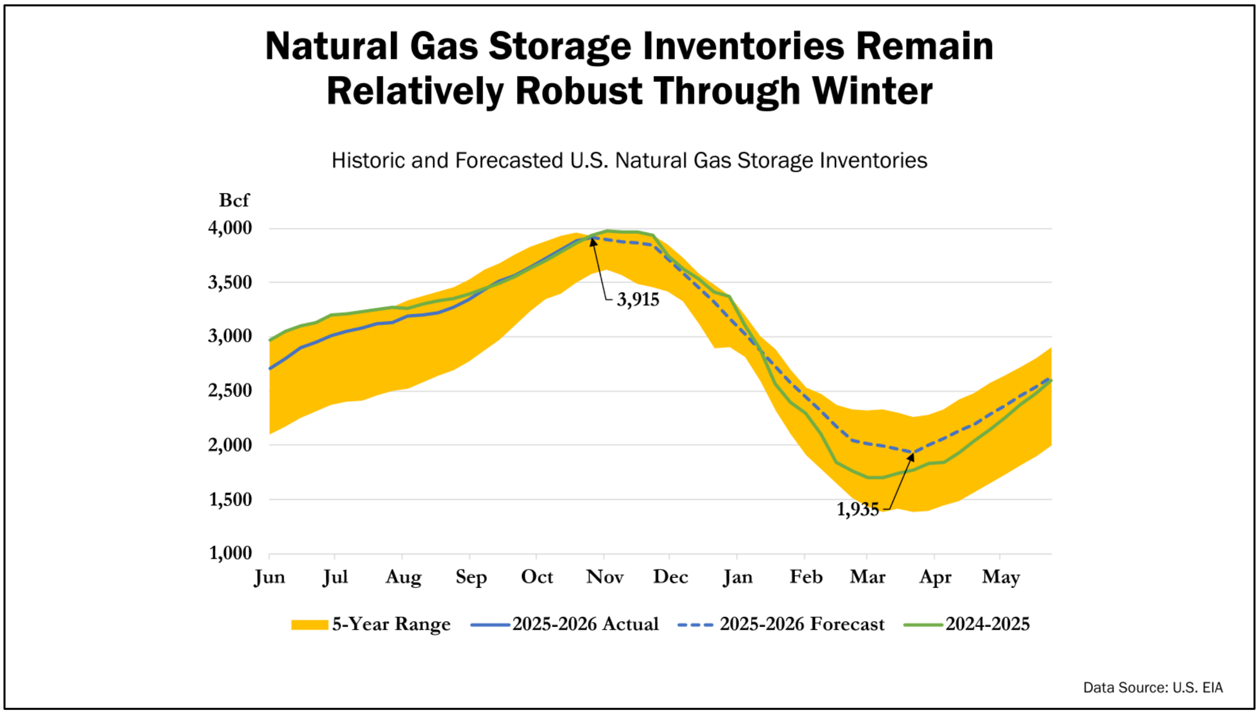
Natural Gas Demand

Total U.S. natural gas demand, represented by a core set of demand drivers, indicates the market need for natural gas this winter, as shown in the chart on **Slide 9**. Natural gas demand is forecasted to average 127.6 Bcfd in winter 2025-2026, 1.6% lower than the 129.7 Bcfd in winter 2024-2025. As the chart illustrates, total U.S. demand, represented by the height of the stacked bars, has grown over the last several years. Forecasted demand for winter 2025-2026 remains higher than the previous five-winter average by 5.6%. The different colored segments of each bar break down total demand into its components: residential, commercial, and industrial demand; natural gas consumed for electricity generation (power burn); and net exports. Total U.S. domestic natural gas consumption, which excludes net exports, is expected to average 111.7 Bcfd in winter 2025-2026, a decrease of 4.6% from winter 2024-2025 levels and a 2.1% increase from the previous five-winter average. Exports are discussed in greater detail in the *Natural Gas Exports and Imports* section below.

The light blue segment of the bar represents the residential and commercial sector, which is forecasted to comprise a 32.6% share of total U.S. domestic demand mostly for winter space heating. EIA forecasts the residential and commercial sector to consume 41.6 Bcfd, a decrease of 10.2% from the notably high demand seen during winter 2024-2025 due to the January 2025 winter events. Lower residential and commercial demand usually reflects a warmer winter, resulting in lower demand for natural gas used for space heating. The light green portion of the bar represents power burn, which comprises 27.2% of domestic demand and is expected to remain relatively flat compared to last winter, averaging 34.6 Bcfd in winter

2025-2026. Natural gas-fired generation is forecasted to provide 38.6% of total U.S. electricity generation output in winter 2025-2026, nearly the same as the 38.3% share in winter 2024-2025, but slightly higher than the previous five-winter average of 37.6%.

Slide 10



Natural Gas Storage Inventories

Natural gas storage inventories help to balance natural gas supply and demand and thus are fundamental to winter natural gas price formation. The chart on **Slide 10** illustrates the current storage forecast in the context of recent history. Traders and wholesale consumers watch storage inventories for signs of a supply and demand imbalance.[30] The solid and dashed blue lines on the chart tracks inventory levels for the current winter (2025-2026). The U.S. natural gas storage withdrawal season began in early November with 3,915 Bcf in working gas inventories. At the end of the withdrawal season on April 1, 2026, EIA currently forecasts 1,935 Bcf remaining in storage, as shown in slide 10. The starting inventory level was above the five-year average of 3,811 Bcf but lower than the previous season (2024-2025) when the starting inventory level was the highest since 2016. The ending inventory level is expected to be slightly higher than the five-year average level and much above the previous withdrawal season's level (1,698 Bcf on March 6, 2025). EIA expects total withdrawals of approximately 1,980 Bcf throughout the 2025-2026 withdrawal season, 13% less than 2024-2025 winter withdrawals but 2.3% more than the previous five-winter average. As such, overall natural gas storage inventories are forecasted to remain relatively robust through winter.

Regionally, natural gas storage inventories in the East and Midwest are expected to start the winter withdrawal season approximately 3% below last year's level but just 1% below the five-

[30] U.S. natural gas storage inventory data listed in this section is for the Lower 48 states.

year average. The lower-than-average storage inventories in the East and Midwest are expected to be offset by storage levels higher than the previous five-winter average in the Mountain, Pacific, and South-Central regions.[31]

Generators fueled by petroleum and liquid fuels, such as distillate or residual fuel, provide a small portion of the overall electric generation capacity in the United States but play an important reliability role during critical periods in the Northeast.[32] As of October 31, 2025, distillate fuel oil inventories, which include heating oil, were at 111.6 million barrels for the United States,[33] 8.8% below the five-year average.

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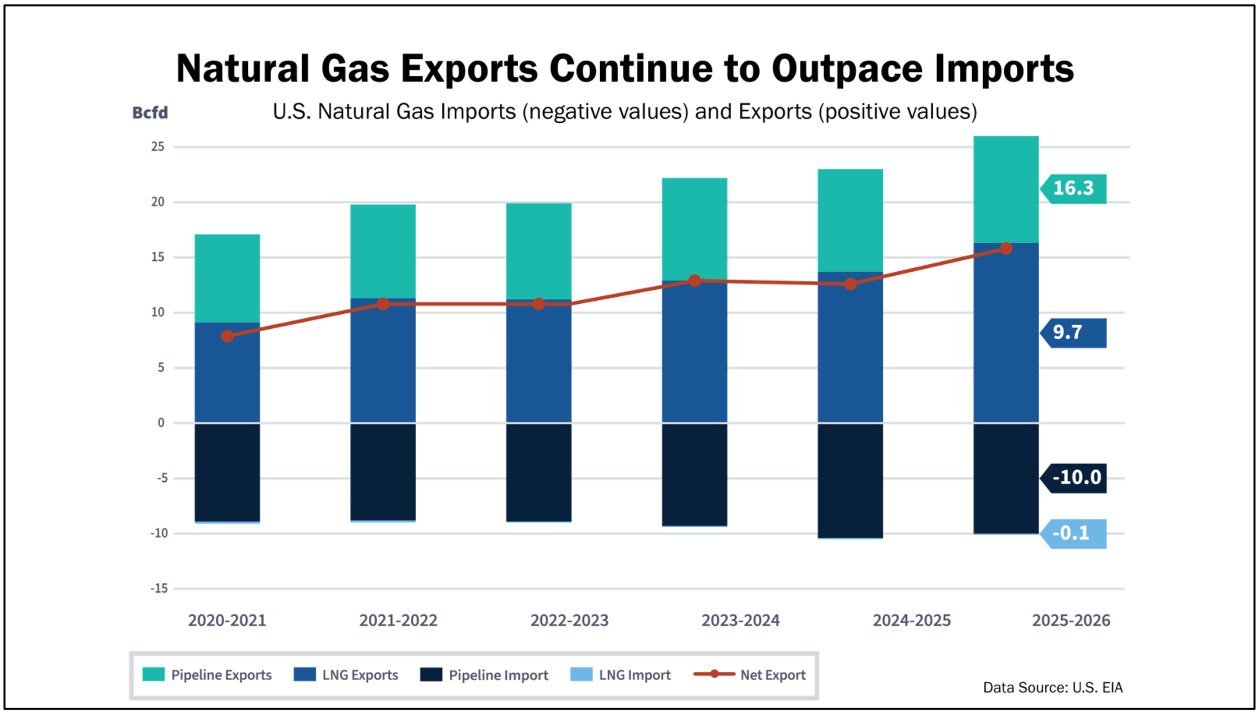
[31] For more on storage and its role in U.S. energy markets, see the Natural Gas Storage section (page 25) in FERC's *Energy Primer: A Handbook on Energy Market Basics,* http://www.ferc.gov/sites/default/files/2024-01/24_Energy-Markets-Primer_0117_DIGITAL_0.pdf.

[32] For more on oil and its role in U.S. electricity generation, please see Chapter 4: U.S. Crude Oil and Petroleum Product Markets in FERC's *Energy Primer: A Handbook for Energy Market Basics*, http://www.ferc.gov/sites/default/files/2024-01/24_Energy-Markets-Primer_0117_DIGITAL_0.pdf.

[33] EIA, Weekly U.S. Ending Stocks of Distillate Fuel Oil (Oct. 31, 2025), https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WDISTUS1&f=W.

Slide 11



Natural Gas Exports and Imports

Natural gas exports represent the fastest growing demand segment in the U.S. market and are expected to outpace natural gas imports this winter. The chart on **Slide 11** illustrates this trend, breaking down the volumes of U.S. natural gas LNG and pipeline imports and exports. The stacked bars are segmented to show the volume of LNG exports (in blue), pipeline exports (in light green), and pipeline imports (in black). Net natural gas exports are expected to increase this winter from last winter, primarily due to increased LNG export capacity from Calcasieu Pass LNG, Corpus Christi LNG Stage 3, and Plaquemines LNG, along with an expected increase in natural gas pipeline exports to Mexico. As seen in slide 11, EIA forecasts U.S. gross LNG exports to average 16.3 Bcfd in winter 2025-2026, up 18.7% from winter 2024-2025. The United States remains the world's largest LNG exporter, with FERC-authorized liquefaction capacity in the Lower 48 United States expected to increase to 20.1 Bcfd by the end of the winter.[34]

While LNG imports play a minor (and declining) role in the U.S. gas balance, they are still important in pipeline-constrained New England. Additionally, some U.S. LNG export facility operators such as Cove Point in Maryland have allowed for the delivery of re-gasified LNG

[34] FERC, *North American LNG Export Terminals – Existing, Approved not Yet Built, and Proposed* (Oct. 14, 2025), https://www.ferc.gov/media/us-lng-export-terminals-existing-approved-not-yet-built-and-proposed.

stored on site to provide additional supplies to market areas near export facilities during peak winter demand days.[35] Altogether, the United States is expected to be a significant net exporter of natural gas this winter, with natural gas exports, including LNG and via pipeline, expected to exceed natural gas imports by an average of 15.8 Bcfd, compared to 12.6 Bcfd in winter 2024-2025.[36] This growth in net exports is represented by the blue line on the chart. Gross pipeline exports, including flows to both Canada and Mexico, are forecast to be 9.7 Bcfd, which is 0.3 Bcfd above average exports in winter 2024-2025. In total, the United States is a net gas importer from Canada and a net exporter to Mexico (via pipeline and trucks; the latter on a very small scale).

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[35] Cove Point's LTD-3 service allows shippers to liquefy domestic natural gas, inject LNG into storage, and then withdraw that stored LNG at any time. *See* Cove Point LNG, LP, FERC Gas Tariff, Tariff Record No. 1., Third Revised Volume No. 1., http://www.ferc.gov/sites/default/files/2020-05/066131_000110__contents.pdf.

[36] For more on LNG markets, see the Liquefied Natural Gas section (page 14) of FERC's *Energy Primer: A Handbook for Energy Market Basics,* http://www.ferc.gov/sites/default/files/2024-01/24_Energy-Markets-Primer_0117_DIGITAL_0.pdf.

Slide 12

Natural Gas Infrastructure Additions

- LNG Export Capacity Grows to 20.1 Bcfd
  - Two new projects in-service since start of last winter
- Pipeline Projects Added 2.2 Bcfd in Capacity in 2025
  - Additional capacity to support LNG export facilities
  - Increased takeaway capacity in the Southwest and Texas
- Natural Gas Storage Capacity Grows by 6.5 Bcf
  - New working gas capacity added in December 2024

Natural Gas Infrastructure

Natural gas infrastructure additions measure the growth in capacity used to process, transport, and store natural gas as it moves from initial production (or import) to ultimate delivery (including export). Natural gas infrastructure additions since last winter included expansions to export capacity, pipeline capacity, and storage capacity. New LNG export facilities and expansions are expected to bring peak LNG capacity to 20.1 Bcfd by the end of the winter. Pipeline projects placed in-service since last winter added 2.2 Bcfd of new transportation capacity, and an expansion project added 6.5 Bcf in new underground natural gas storage capacity.[37]

The United States was the world's largest LNG exporter in 2024, and U.S. natural gas exports are expected to increase again this winter, supported by two major projects completed since last winter.[38] Plaquemines LNG Phase 1 began operating in Louisiana in late 2024 and Corpus Christi LNG Stage 3 in Texas began in March of 2025, while Plaquemines LNG Phase 2 is

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[37] This calculation is based on EIA's pipeline project database cross-referenced with FERC certificate filings and in-service announcements. EIA, Natural Gas Pipeline Projects (July 2025), https://www.eia.gov/naturalgas/pipelines/EIA-NaturalGasPipelineProjects_Jul2025.xlsx.

[38] EIA, *The United States remained the world's largest liquefied natural gas exporter in 2024* (March 27, 2025), https://www.eia.gov /todayinenergy/detail.php?id=64844.

expected to ship its first cargo in the fourth quarter of 2025. Including the new additions, by the end of the winter FERC-authorized U.S. LNG liquefaction capacity will be 20.1 Bcfd.[39]

Since November 2024, several interstate natural gas pipelines have increased pipeline capacity. Most notably, the Evangeline Pass Expansion Project Phase 2 entered service and increased the pipeline's total capacity to 2.2 Bcfd to deliver feedgas to Venture Global's Plaquemines LNG liquefaction and export facility. Several smaller pipeline expansion projects now in service are also expected to support production growth and demand, including the 0.19 Bcfd Texas to Louisiana Energy Pathway project which increases capacity between Haynesville production and Gulf Coast markets, and the 0.18 Bcfd East Lateral Xpress, which will supply the Plaquemine's LNG terminal.

Adding to natural gas storage capacity, the Tres Palacios Cavern 4 Storage Expansion project entered service in December 2024. Located in Texas, Tres Palacios Cavern 4 adds 6.5 Bcf of working gas capacity to the facility's existing 34.9 Bcf.[40] As a salt dome site, Tres Palacios can inject or withdraw gas quickly, supporting variable loads from a variety of users including LNG terminals.

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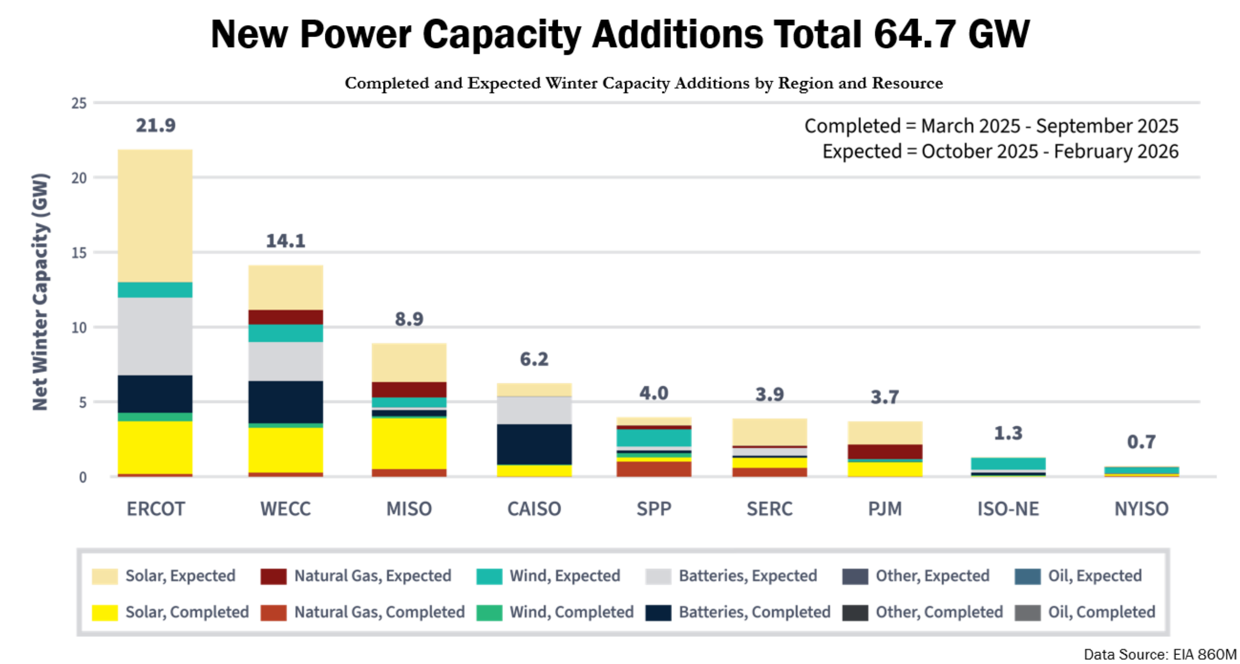
[39] EIA, U.S. Liquefaction Capacity (Sept. 17, 2025), https://www.eia.gov/naturalgas/data.php#imports; FERC, *North American LNG Export Terminals – Existing, Approved not Yet Built, and Proposed* (Sept. 18, 2025), https://www.ferc.gov/media/us-lng-export-terminals-existing-approved-not-yet-built-and-proposed.

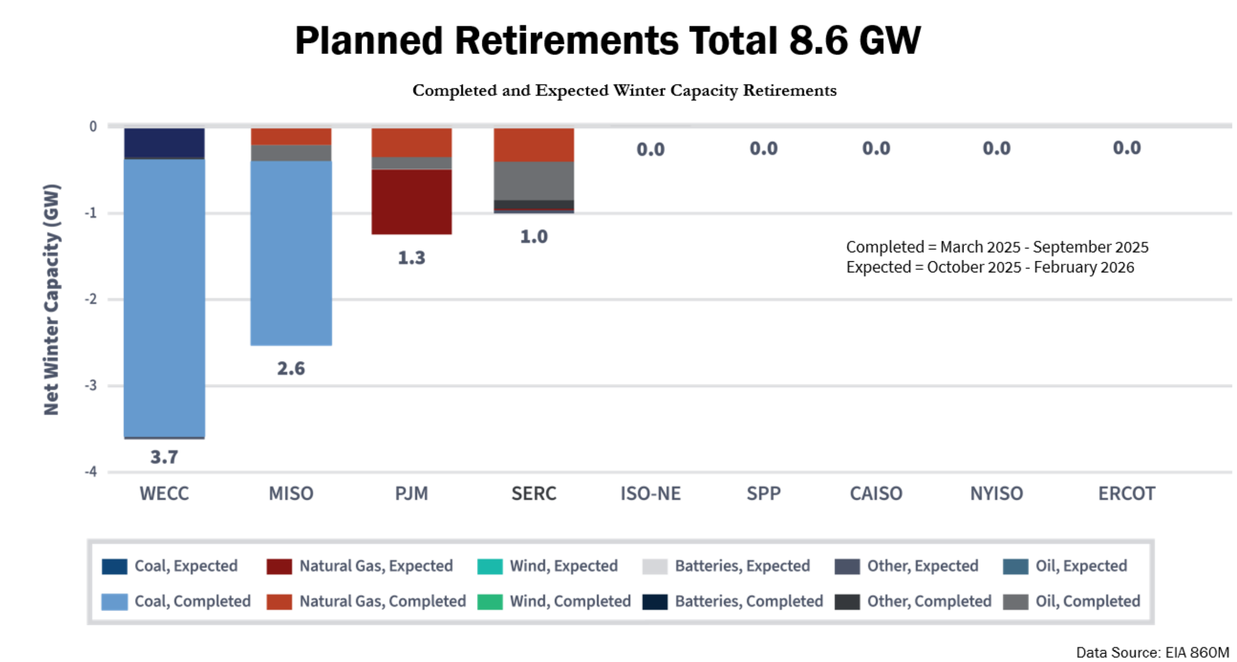
[40] Jodi Shafto, *Enbridge Ready to Bring on Fourth Cavern at Texas Natural Gas Storage Facility,* Natural Gas Intelligence (Nov. 22, 2024), https://naturalgasintel.com/news/enbridge-ready-to-bring-on-fourth-cavern-at-texas-natural-gas-storage-facility/.

Electricity Market Fundamentals and Electric Reliability

Slide 13



Slide 14



Electricity Generation Additions, Retirements, and Outages

Compared to last winter, the EIA projects the electricity sector will have 56.1 GW of additional net generation capacity this winter.[41] This net increase reflects 64.7 GW of new capacity additions offset by 8.6 GW of retirements. Of these capacity changes, 25.7 GW of additions and 2.4 GW of retirements were already completed between March and November 2025, while 39.0 GW of additions and 6.2 GW of retirements are expected to occur between December 2025 and February 2026. Given their operating characteristics, new capacity from solar, wind, or storage facilities does not replace the retired thermal capacity from coal, natural gas, or oil units on a one-for-one basis.

Capacity Additions

The chart on slide 13 breaks down the 64.7 GW of new winter capacity additions by region and resource type. Each vertical bar represents the total new capacity for a specific region, while the segments within each bar show the mix of different resources being added. In total, solar accounts for 50% (32 GW) of new capacity additions and batteries represent 30% (20 GW), with wind accounting for 11% (6.8 GW) and natural gas (6 GW) comprising the remainder. Solar represents the largest share of new capacity additions in PJM (68%) and MISO (67%). New battery capacity additions have continued to grow steadily from 695 MW in 2021 to a projected 11.5 GW in 2025. As the chart shows, western and central regions drive 80% of overall capacity additions: ERCOT (21.8 GW), WECC (14.1 GW), the Midcontinent Independent System Operator (MISO) (8.9 GW), and the California Independent System Operator (CAISO) (6.2 GW).

Capacity Retirements

Capacity retirements are projected to total 8.6 GW, with coal-fired steam units representing 5.8 GW (67%) and natural gas units 1.8 GW (21%). The chart on slide 14 breaks down these figures by region and shows the specific fuel types being retired in each area. The majority of planned coal retirements are in WECC (3.2 GW) and MISO (2.1 GW), while the largest volume of planned natural gas retirements is in PJM (0.8 GW). The largest individual coal plant retirements include the Intermountain Power Project (1.8 GW) in Utah, J.H. Campbell Generating Complex (1.3 GW) in Michigan, and TransAlta's Centralia Generation Station (0.7 GW) in Washington. Notably, the J.H. Campbell plant's retirement is subject to a U.S. Department of Energy (DOE) emergency order extending its operation until February 17,

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[41] Net capacity additions and retirements data from EIA Form 860M show new generating capacity that entered service and existing capacity that retired during March 2025 through February 2026. The net increase represents total additions minus total retirements across all fuel types and technologies. *See* EIA (September 9, 2025) Form EIA-860M, https://www.eia.gov /electricity /data/eia860/

2026, to ensure grid reliability.[42] Similarly, the 397 MW oil-fired Wagner Unit 4 has been extended beyond its environmental run-hour limitations by a DOE emergency order until December 31, 2025, to help meet anticipated electricity demand in PJM.[43] In addition, DOE has ordered Units 3 and 4 of the Eddystone Generating Station to remain available through November 26, 2025, to minimize the risk of generation shortfalls in PJM.[44] Another notable coal retirement is Merrimack Station in New Hampshire (460 MW). That plant ceased commercial operations in early October 2025, earlier than its previously planned 2028 retirement.[45]

Pace of Winter Capacity Changes

The pace of winter capacity additions has recovered after slowing in 2022. Capacity additions fell from 37.4 GW in 2022 to 32.7 GW in 2023, a 13% decline. Since then, the pace of capacity additions has rebounded strongly, reaching 42.6 GW in 2024 and 52.6 GW in 2025. Projected additions for 2026 are 64.7 GW, which would represent the largest annual capacity addition in over a decade. Conversely, the pace of generation retirements has slowed significantly following a surge in coal plant closures. Annual retirements peaked at 17.8 GW in 2023, then declined to 15.7 GW in 2024 and 8.7 GW in 2025—a 51% reduction from the 2023 peak. Retirements are projected to remain at similar levels in 2026 at 8.7 GW, consistent with this return to more moderate retirement rates.

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[42] Additional DOE orders could potentially delay other planned retirements this winter. U.S. Dep't of Energy, Order No. 202-25-9 (Nov. 2025), https://www.energy.gov/sites/default /files/2025-11/Order%20No%20202-25-9.pdf. *See* also U.S. Department of Energy, Federal Power Act Section 202(c): Midcontinent Independent System Operator (Aug. 20, 2025), https://www.energy.gov/ceser/federal-power-act-section-202c-midcontinent-independent-system-operator-miso-0.

[43] *See* U.S. Department of Energy, Order No. 202-25-6A, Federal Power Act Section 202(c): PJM Interconnection (PJM) (Oct. 24, 2025), https://www.energy.gov/ceser/federal-power-act-section-202c-pjm-interconnection-0

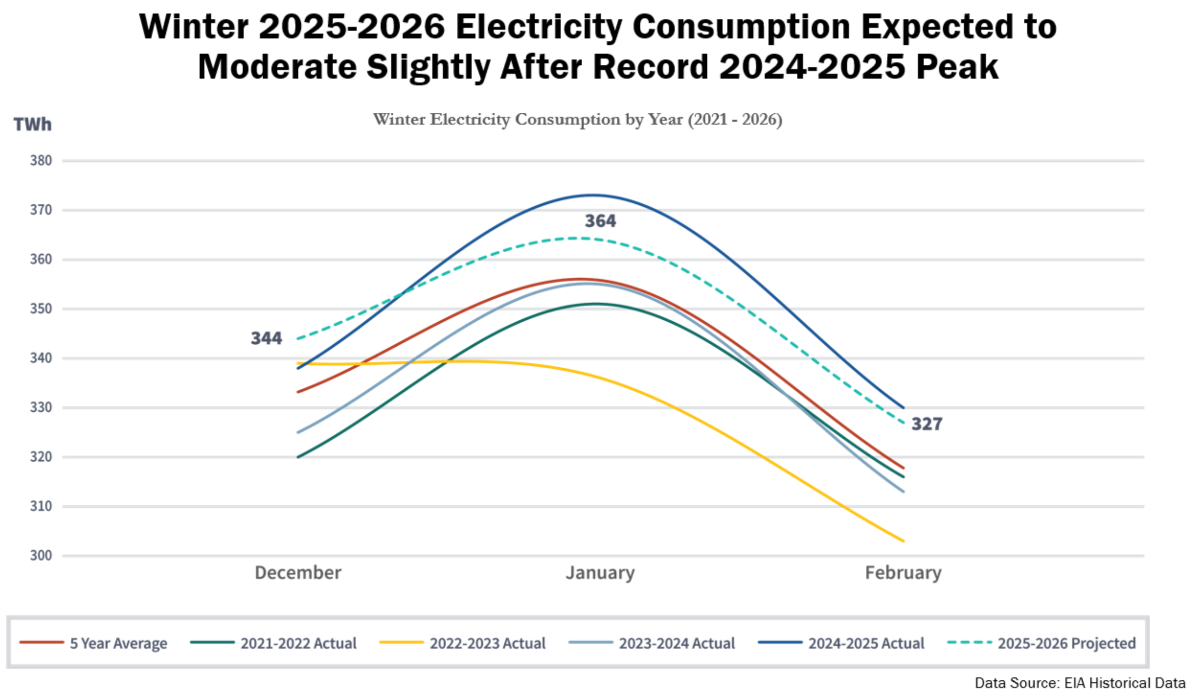
[44] *See* U.S. Department of Energy, Order No. 202-25-8 Federal Power Act Section 202(c): PJM Interconnection (PJM) (August 28, 2025), https://www.energy.gov/ceser/federal-power-act-section-202c-pjm-interconnection-pjm.

[45] Retirement data is based on EIA-860M reported retirement dates. Some units, such as J.H. Campbell, continue operating under DOE emergency orders (202(c)) beyond their reported retirement dates, while others, such as the Merrimack Station, retired earlier than planned. Actual operational status may differ from reported retirement timing.

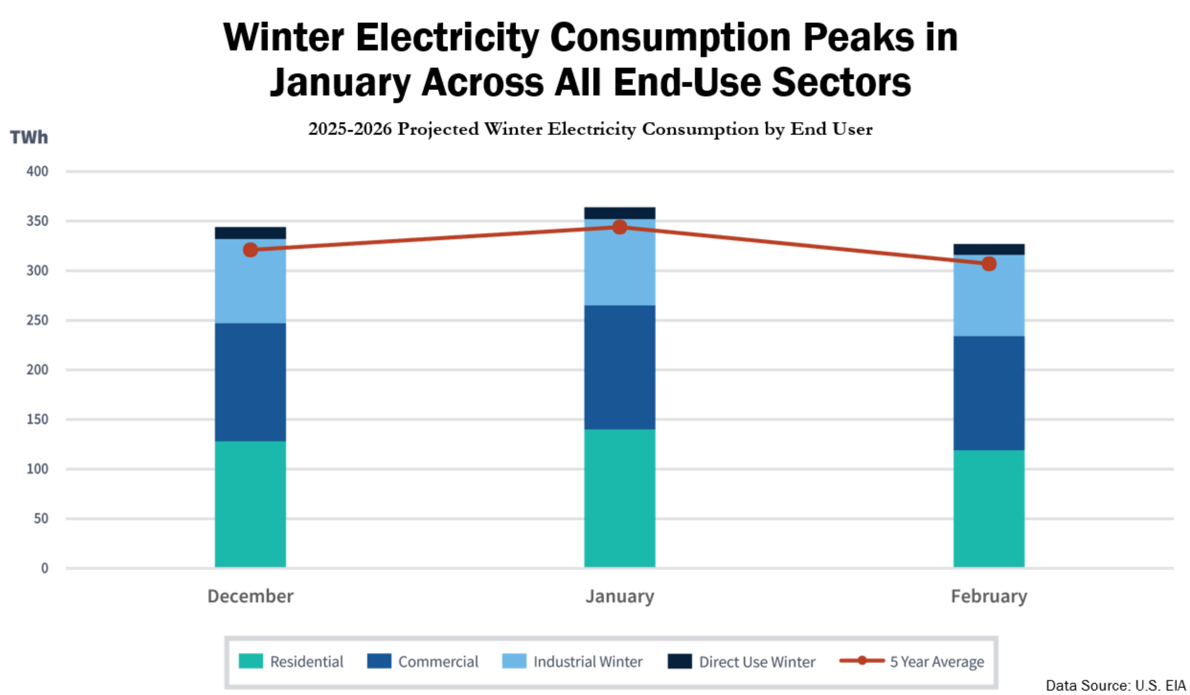
Planned Generation Outages

Oconee Nuclear Station Unit 3 (859 MW) in South Carolina is scheduled for a 28-day maintenance outage starting November 1, 2025. While the unit is scheduled to return to service before December 2025, any delays could reduce available capacity in the SERC region, emphasizing the importance of proactive grid management strategies for the winter season.

Slide 15



Slide 16



Electricity Consumption

EIA projects total winter electricity consumption to reach 1,035 TWh, or 2.7% above the five-year average of 1,007 TWh.[46] The chart on **Slide 15** provides historical context for this forecast, plotting projected consumption for winter 2025-2026 (the dashed green line) against the previous four winters. Among the last five winters, winter 2024-2025 represents the record peak at 1,041 TWh (3% above the five-year average), while winter 2025-2026 projections show more modest growth at 1,035 TWh, which would represent the second-highest consumption level of the five winters analyzed.

The breakdown of this electricity consumption by end-use sector for winter 2025-2026 is shown on **Slide 16**. The residential sector is projected to have the highest consumption at 387 TWh, followed by the commercial sector at 359 TWh and the industrial sector at 254 TWh. The stacked bars on the chart illustrate this monthly breakdown and show that consumption across all sectors is expected to peak in January, reaching a high of 352 TWh. The commercial sector is projected to see the strongest growth at 5% above its five-year average. Direct Use represents approximately 3% of total electricity consumption (or 35 TWh) and is expected to remain stable.[47]

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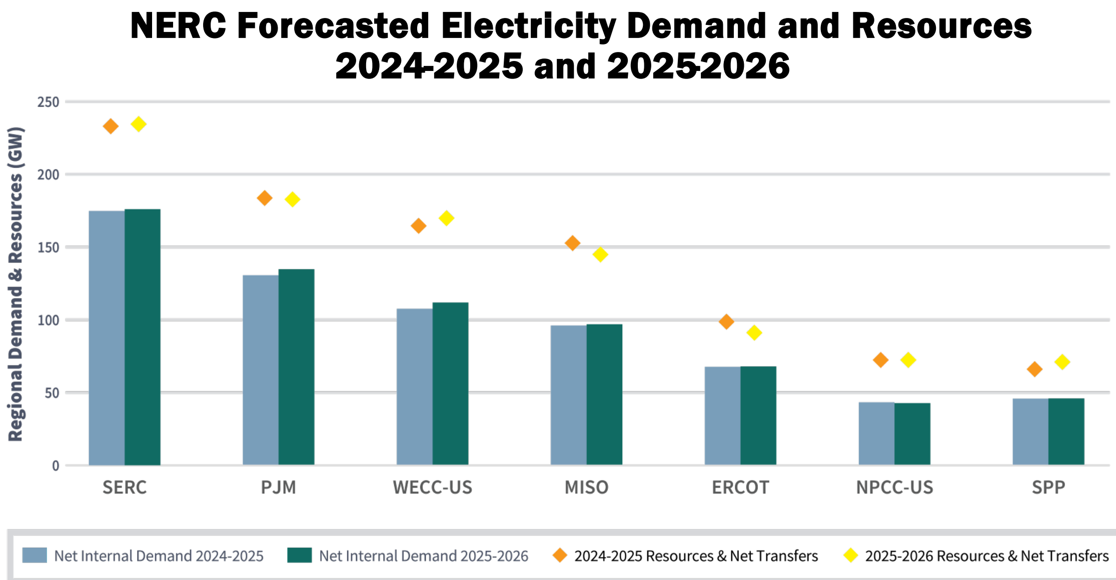
[46] EIA's *Short-Term Energy Outlook* (STEO) provides data and forecasts for U.S. electricity consumption retail sales to customers, broken down by residential, commercial, and industrial sectors. EIA, *STEO*, at Table 7A (Sept. 2025), https://www.eia.gov/outlooks/steo/archives/sep25.pdf.

[47] According to EIA, Direct Use represents "commercial and industrial facility use of onsite net electricity generation; and electrical sales or transfers to adjacent or colocated facilities for which revenue information is not available." See EIA, *STEO*, at Table 7A (Sept. 2025), https://www.eia.gov/outlooks/steo/archives/sep25.pdf.

Slide 17



NERC, 2025-2026 Winter Reliability Assessment
Net Internal Demand equals Total Internal Demand less Dispatchable, Controllable Capacity Demand Response used to reduce load.

NERC Forecasted Electricity Demand and Resources

According to NERC, electricity demand is expected to be higher this winter compared to last winter. NERC forecasts net internal demand[48] for electricity to increase by approximately 1.6%, or 11 GW, from 666 GW in winter 2024-2025 to 677 GW in winter 2025-2026. Actual electricity demand will depend on a number of factors, including the number, duration, and characteristics of extreme winter events.

Slide 17 shows the net internal demand as solid bars and the available resources and net transfer values (a combination of internal resources and additional external resources available to the region) as diamonds.[49] Despite the increased demand projected for Winter

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[48] Forecasted Net Internal Demand: Total of all end-use customer demand and electric system losses within specified metered boundaries, reduced by the projected impacts of Controllable and Dispatchable Demand Response programs.

[49] "Resources and Net Transfers" refers to the addition of "Existing-Certain Capacity" and "Net Firm Capacity Transfers." Existing-Certain Capacity includes capacity to serve load during period of peak demand from commercially operable generating units with firm transmission or other qualifying provisions specified in the market construct. Net firm capacity transfers refers to the imports minus exports of firm contracts. NERC*, 2024 Long Term Reliability Assessment* (December 2024, updated July 15, 2025), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_Long%2

2025-2026, all 15 U.S. NERC assessment areas are anticipated to have sufficient available generation resources and net transfers to meet their expected loads under normal winter conditions.[50] According to data from NERC,[51] planning reserve margins[52] exceed the reference reserve level margins[53] for the 15 NERC assessment areas. Even with expected ample planning reserve margins, regions can face tighter-than-expected supply if operating conditions deviate significantly from those expected for this winter. Planning reserve margins are a metric, but do not guarantee reliable operations at all times. For instance, they do not necessarily account for all extreme winter conditions that can lead to fuel unavailability for generators, derates of electric generators, unexpected generator outages,

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0Term%20Reliability%20Assessment_2024.pdf; *see also* Net Internal Demand equals Total Internal Demand less Dispatchable, Controllable Capacity Demand Response used to reduce load. NERC, *2025-2026 Winter Reliability Assessment,* (Nov. 18, 2025), http://www.nerc.com/globalassets/our-work/assessments/nerc_wra_2025.pdf.

[50] The 15 U.S. assessment areas, also shown in **Slide 20**, are the NPCC-New England and NPCC-New York subregions of NPCC-US; PJM Interconnection L.L.C. (PJM); the SERC-Central, SERC-East, SERC-Southeast, and SERC Florida Peninsula subregions of SERC-US; MISO; SPP; the Texas Reliability Entity-Electric Reliability Council of Texas (TRE/ERCOT); and the WECC-NW (Northwest), WECC-SW, WECC-Rocky Mountain, WECC-Basin and WECC-CAMX subregions of WECC-US. NERC, *2024 Long-Term Reliability Assessment* (Dec. 2024), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_Long%20Term%20Reliability%20Assessment_2024.pdf.

[51] Data in this section is calculated with preliminary data provided by the NERC regions in the NERC *2025-2026 Winter Reliability Assessment* (Nov. 18, 2025), http://www.nerc.com/globalassets/our-work/assessments/nerc_wra_2025.pdf.

[52] The planning reserve margin is the primary metric used to measure resource adequacy defined as the difference in resources (anticipated or prospective) and net internal demand divided by net internal demand, shown as a percentile. NERC, *2024 Long Term Reliability Assessment, at 138* (Dec. 2024), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_Long%20Term%20Reliability%20Assessment_2024.pdf.

[53] Also known as a target reserve margin, the reference reserve level margin is provided by the region/subregion based on load, generation, and transmission characteristics as well as regulatory requirements. If not provided, NERC assigns a 15 percent reserve margin. NERC, Reliability Indicators, Metric 1-Reserve Margin (accessed Oct. 22, 2025), https://www.nerc.com/pa/RAPA/ri/Pages/PlanningReserveMargin.aspx.

transmission outages, reduced power transfers from adjacent areas, delays in energy resources coming online, and other factors that system operators must manage to maintain electric supply and reliability. In extreme scenarios, ERCOT, NPCC-NE, SERC-Central, SERC-East, WECC-Basin, and WECC-NW face a higher likelihood of challenges, which may require operational mitigations to avoid facing potential reliability issues. More comprehensive reliability assessments for these assessment areas are presented in the *Regional Highlights* section of this assessment.

To serve demand in winter 2025-2026, NERC forecasts a national decrease of 0.48%, or approximately 4.6 GW[54], in total electric generation capacity and net energy transfers from approximately 971.5 GW in winter 2024-2025 to approximately 966.8 GW in winter 2025-2026,[55] illustrated as diamonds in **Slide 17**.[56]

A forecast of the United States' electricity demand shows a significant upward trajectory.[57] This demand increase is driven by a combination of industrial sector recovery, electrification, and new demand from data centers and manufacturing. Currently, the size and speed with which data centers and crypto mining facilities can be constructed and connected to the grid presents unique challenges for demand forecasting and planning.[58] Data center demand alone

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[54] To determine these figures, using data provided in the "Demand and Resources Table of the NERC 2025-2026 Winter Reliability Assessment for each United States' assessment area, the Existing-certain capacity is summed across NERC assessment areas and the net firm capacity transfers projections are summed across all assessment areas, and compared to the same assessment area projections provided in the "2024-2025 WRA columns." The Existing-certain capacity and net firm transfers were described in FN 47 above Note that NERC's projected 4.6 GW decrease in generation capacity differs from EIA's anticipated 56.1 GW net increase in generation capacity because EIA estimates expected retirements and planned capacity through February 2025 based on data submitted to the annual EIA-860 and includes operating, out of service or on standby generators, as well as planned and not yet in operation generators. The EIA data is not directly comparable to the NERC data.

[55] NERC, *2025-2026 Winter Reliability Assessment* (Nov. 18, 2025), http://www.nerc.com/globalassets/our-work/assessments/nerc_wra_2025.pdf.

[56] *Id.*

[57] *Grid Strategies LLC, Strategic Industries Surging: Driving US Power Demand, (Dec. 2024), https://gridstrategiesllc.com/wp-content/uploads/National-Load-Growth-Report-2024.pdf.*

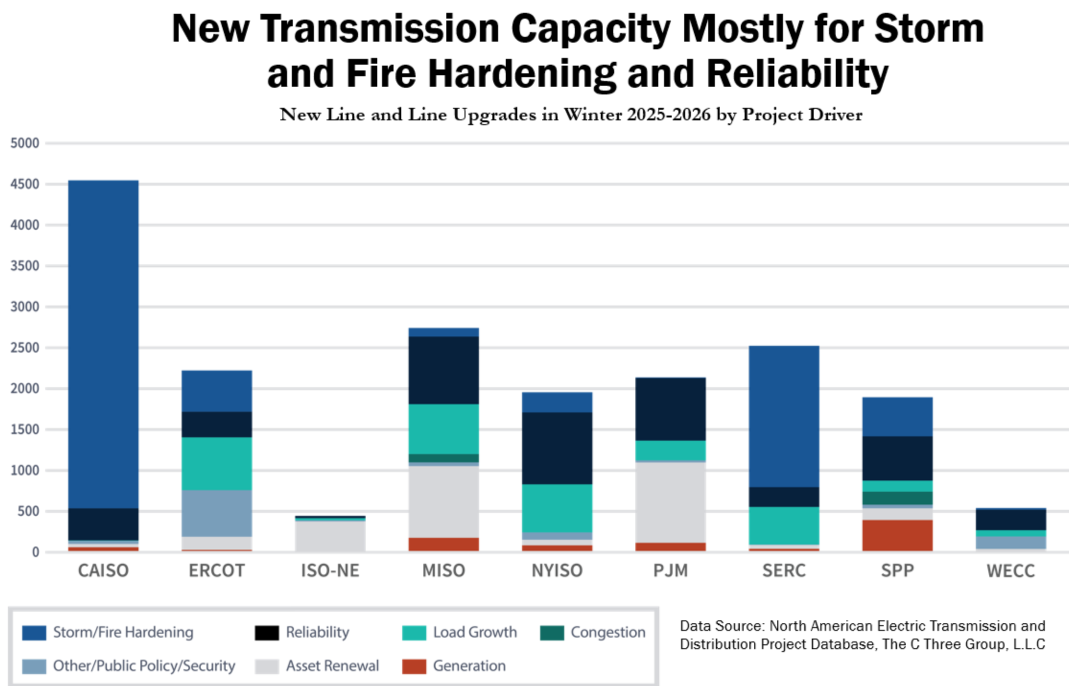
[58] NERC, *2024 Long-Term Reliability Assessment* at 8 (Dec. 2024), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_Long%20Term%20Reliability%20Assessment_2024.pdf.

is projected to consume over 5% of the total U.S. power demand for 2025, up from 4.4% in 2024.[59]

This increase in demand in combination with the decrease in supply is pressuring utilities to accelerate infrastructure upgrades and energy resource deployment, and to reconsider scheduled resource retirements to maintain grid reliability, such as those described further in the *Electricity Generation Additions, Retirements, and Outages* section above.

[59] Lawrence Berkeley National Laboratory, *2024 United States Data Center Energy Usage Report* at 52 (Dec. 2024), https://escholarship.org/uc/lbnl.

Slide 18



Electricity Transmission Projects

There are 3,132 transmission projects supporting winter grid reliability, including 1,551 substation-only projects, 1,070 transmission line projects, and 511 combined projects. These projects total 19,008 line-miles, with 14,736 miles already completed and placed in service between March and November 2025, and 4,272 miles expected to enter service between December 2025 and February 2026.[60] The chart on **Slide 18** breaks down these new line and line upgrades by region and project driver. Nationwide, the primary drivers for these projects are storm and fire hardening (7,101 line-miles) and system reliability (4,238 line-miles), which together account for nearly 60% of all projected mileage.

By project count, ERCOT (771), MISO (655), and PJM (610) are the most active regions for transmission development. As the chart illustrates, the focus in these regions varies significantly: ERCOT is primarily focused on storm and fire hardening (23% of its line-miles) and load growth (29%), MISO is driven by a combination of asset renewal/aging infrastructure (32%) and system reliability (30%), PJM's development is concentrated on asset renewal/aging

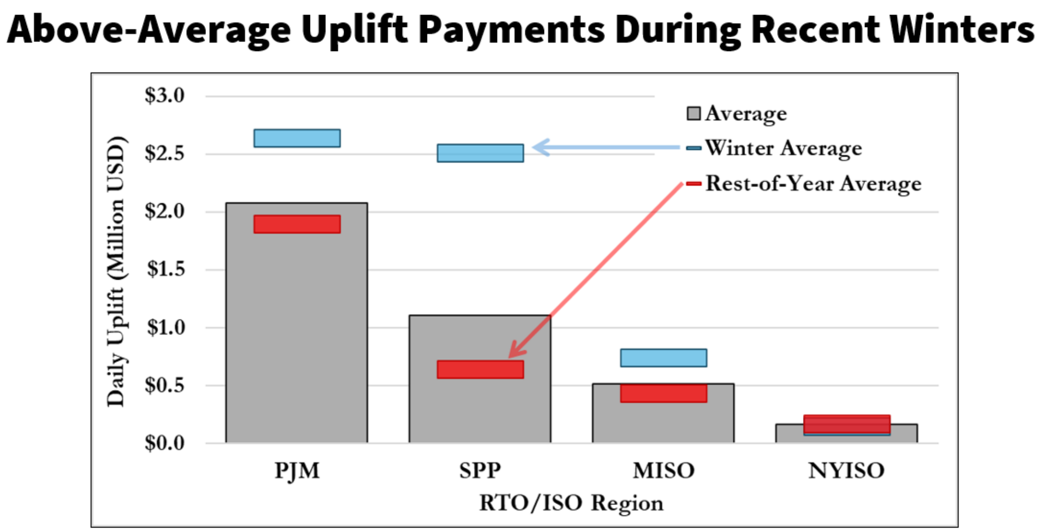
[60] Data on transmission line-miles is from The C Three Group's (Yes Energy) Electric Transmission and Distribution database. The projects listed in this report are limited to those placed into service between March 2025 and February 2026 that have one of the following statuses: conceptual, early development, advanced development, under construction, partial operations, or operating. Project terminology and the level of detail can vary significantly by region, which may result in incomplete data.

infrastructure (46%) and system reliability (36%), and over 97% of CAISO's new mileage is for storm and fire hardening. Notably, all projects specifically developed for congestion relief are located in SPP and MISO, totaling 260 line-miles.

Most projects involve lines below 230 kV, accounting for 9,762 line-miles or 51% of total line-miles. For lines of 230 kV or higher, there are 3,607 line-miles or 19% of total mileage. The highest voltage lines of 500 kV or more account for 358 line-miles, primarily in CAISO (256 line-miles), WECC (91 line-miles), and MISO (7 line-miles).

Substation-only projects represent nearly half of all transmission infrastructure work this winter, with ERCOT (404 substations), MISO (320), and PJM (294) leading in substation development.

Slide 19



Data Source: Staff analysis of zonal uplift charges from January 2019 to September 2025

Electric Market Uplift Payments

Uplift payments in organized markets reflect the portion of the cost of reliably serving load that is not included in market prices. They compensate generators that are dispatched to operate but whose market revenues fail to cover their production costs. The costs of uplift payments are typically allocated among grid customers. For this coming winter, forecasted natural gas prices and electricity demand suggest that the cost of producing electricity will not be appreciably higher than that of recent winters.[61] But, unpredictable periods of extreme winter weather could still drive up both wholesale electricity prices and uplift payments for some days.

The chart on **Slide 19** illustrates this historical trend, visualizing how average daily uplift payments during the winter are typically higher than the average for the rest of the year across several grid regions.[62] Historical data shows that daily uplift payments have been higher on

[61] EIA, *Short-Term Energy Outlook* (Oct. 7, 2025), showing that the wholesale electricity outlook for the coming winter has average wholesale electricity prices that are close to historical winter averages, except January where prices are expected to increase slightly. https://www.eia.gov/outlooks/steo/archives/oct25.pdf.

[62] Assessment in this report of zonal uplift payments are based on publicly available data obtained from datasets and market reports published by the ISO/RTOs from Jan. 1, 2019, to Aug. 31, 2025, for NYISO, MISO, and SPP and July 1, 2019, to Aug. 31, 2025, for PJM.

average during recent winters in several regions, driven by two key factors: extreme weather events and specific operator actions.[63]

- **Extreme Weather:** During an eight-day period of Winter Storm Uri in February 2021, total uplift payments exceeded $1.13 Billion in SPP and $160 million in MISO. The daily payments in SPP during the storm averaged over $140 million—more than 100 times the region's typical daily average since 2019.
- **Operator Actions:** Proactive operator decisions can also drive uplift. In January 2025, PJM's commitment of specific resources in advance of cold weather resulted in nearly $340 million in uplift payments across five days.[64] Such actions ensured system reliability,[65] but at the expected cost of atypically high uplift payments.[66]

This coming winter, system operators may similarly pre-position resources in advance of expected cold weather. This could reduce reliability risks but also increase uplift payments in RTOs/ISOs.

For example, for PJM see PJM, Data Miner 2: Daily Uplift Charges by Zone (last accessed Oct. 6, 2025), https://dataminer2.pjm.com/feed/uplift_charges_by_zone; for NYISO see Open Access Same-Time Information System: Pricing Data (last accessed Oct. 6, 2025), https://mis.nyiso.com/public/; for MISO see MISO, Market Reports (last accessed Oct. 6, 2025) https://www.misoenergy.org/markets-and-operations/real-time--market-data/market-reports/; and for SPP, see SPP, Make Whole Payment Report (last accessed Oct. 6, 2025), https://portal.spp.org/pages/make-whole-payment-report.

[63] Like daily uplift payments, daily wholesale electricity costs based on RTO/ISO LMPs are also higher in the winter on average, compared to the rest-of-the-year.

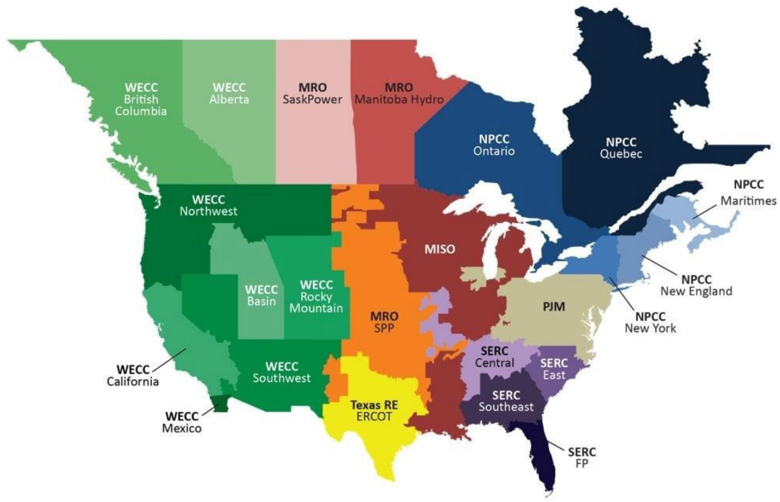
[64] Monitoring Analytics (PJM Independent Market Monitor), *2025 Quarterly State of the Market Report for PJM: January through June* at 284, 302-304 (Aug. 14, 2025), http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2025/2025q2-som-pjm-sec4.pdf.

[65] PJM Operating Committee, *Cold Weather Operations: January 18–23, 2025* at 3 (Feb. 6, 2025), http://www.pjm.com/-/media/DotCom/committees-groups/committees/oc/2025/20250206/20250206-item-06---january-2025-cold-weather-update.pdf.

[66] PJM Members Committee, *Markets Report* at 27 (Feb. 18, 2025) (showing uplift as a percent of energy costs equal to almost 8% in January 2025 and below 2% for all preceding months), http://www.pjm.com/-/media/DotCom/committees-groups/committees/mc/2025/20250218-web/item-05a---1---market-operations-report.pdf.

Slide 20

Regional Highlights and Probabilistic Assessment



Source: NERC

NERC Regional Probabilistic Assessments

In this section, staff relies on NERC's probabilistic risk analyses[67] to assess resource adequacy. Regions can face energy shortfalls despite having planned reserve margins that exceed the reference margin levels.[68]

NERC's analysis shows that all assessment areas, as shown in **Slide 20**, anticipate adequate supplies and reserve margins under normal conditions, but ERCOT, NPCC-NE, SERC-East, SERC-Central, WECC-Basin, and WECC-NW may face a higher likelihood of tight supply and reliability issues during extreme conditions.[69] For all assessment areas, above-normal

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[67] A probabilistic risk analysis assesses the potential variations in resources and load that can occur under changing conditions or during certain scenarios and incorporates operator actions that could help to mitigate any shortfalls in operating reserves.

[68] NERC, *2025-2026 Winter Reliability Assessment* (Nov. 18, 2025), http://www.nerc.com/globalassets/our-work/assessments/nerc_wra_2025.pdf.

[69] All Regional Entities and assessment areas provide a probability-based resource adequacy risk assessment for the winter season. NPCC-US consists of the states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, and New York; PJM consists of all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the

winter peak load and resource outages could result in the need to employ operational mitigations. In the event of challenging operating conditions, system operators take actions known as operational mitigations to address potential supply shortages, such as calling on demand response, canceling or postponing non-critical generation or transmission maintenance, and calling on voluntary conservation measures. If system conditions deteriorate sufficiently, Reliability Coordinators may declare an Energy Emergency Alert, allowing system operators to call on a variety of additional resources that are only available during scarcity conditions such as activating emergency demand response measures and increasing generation imports from neighboring regions.

Additionally, NERC assessment areas coordinate extensively ahead of anticipated extreme weather to try to prevent supply shortages. For example, ERCOT performs day-ahead and near-term studies to evaluate generation capacity at high risk due to extreme weather conditions to assess potential load shed scenarios. As part of ERCOT's protocols with SPP and MISO, ERCOT coordinates with the two RTO neighbors if look-ahead study results indicate that emergency conditions may arise.[70] NPCC-NE continues to closely monitor regional energy adequacy, particularly during extended cold snaps where constrained natural gas pipelines contribute to rapid depletion of stored fuel supplies.[71] Both SERC-Central and

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District of Columbia; SERC encompasses all or parts of North Carolina, South Carolina, Tennessee, Georgia, Alabama, Mississippi, Missouri, Kentucky, Florida, Arkansas, Illinois, Iowa, Louisiana, Oklahoma, Virginia, and Texas; MISO encompasses all or parts of 15 U.S. states including Arkansas, Illinois, Indiana, Iowa, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Montana, North Dakota, South Dakota, Texas, and Wisconsin, and the Canadian province of Manitoba; SPP encompasses all or parts of Arkansas, Iowa, Kansas, Louisiana, Minnesota, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, and Wyoming; ERCOT is located entirely in the state of Texas; and WECC's footprint extends from Canada to Mexico and includes the provinces of Alberta and British Columbia; the northern portion of Baja California, Mexico; Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming; and portions of Montana, Nebraska, South Dakota and Texas. *See* NERC, *Long Term Reliability Assessment* (December 2024), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_Long%20Term%20Reliability%20Assessment_2024.pdf.

[70] ERCOT, ERCOT-SPP Coordination Plan (Accessed Oct. 7, 2025), https://www.ercot.com/files/docs/2020/05/29/ERCOT-SPP-Coordination-Plan.pdf; ERCOT, ERCOT-MISO Coordination Plan (Accessed Oct. 7, 2025), https://www.ercot.com/files/docs/2019/03/27/ERCOT-MISO_Coordination_Plan.pdf.

[71] *NERC, 2025-2026 Winter Reliability Assessment* (Nov. 18, 2025), http://www.nerc.com/globalassets/our-work/assessments/nerc_wra_2025.pdf.

SERC-East, report fuel supplies and transportation remain stable, supported by firm natural gas contracts, storage resources, and reliable pipeline capacity. Coal and oil inventories are projected to remain adequate to meet winter demand.[72] WECC operators monitor grid market conditions in real time, with forecasts extending from the next day to seven days ahead for prescheduled trading.[73]

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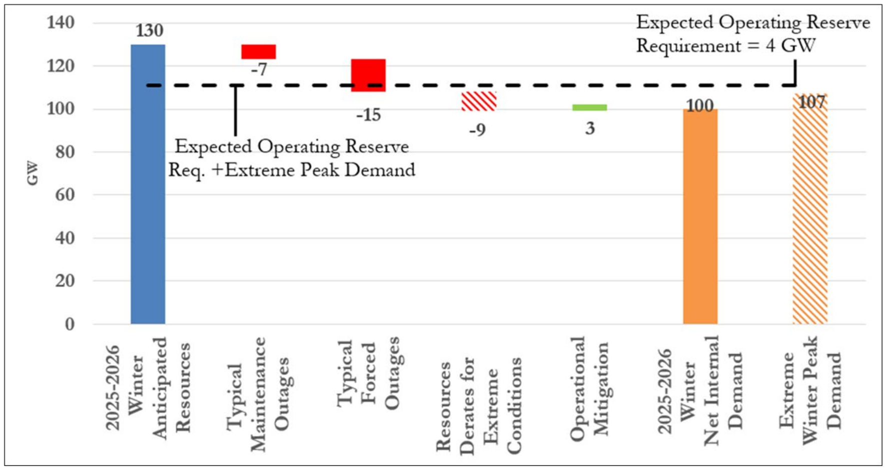
[72] *Id.*

[73] *Id.*

Slide 21

Example Seasonal Risk Assessment of a Region

Probabilistic Assessments



Source: NERC

Regional Highlights

NERC conducts probabilistic assessments of each assessment area that evaluates the risk of resource adequacy shortfalls for the winter. This winter risk period scenario compares chosen extreme scenarios determined by the NERC assessment areas. In this section, FERC staff highlights the following assessment areas: ERCOT, NPCC-NE, WECC-Basin, and WECC-NW. However, NERC's *2025-2026 Winter Reliability Assessment* also highlighted SERC-East and SERC Central.

NERC's *2025-2026 Winter Reliability Assessment* uses "waterfall" charts to provide a helpful visual of its probabilistic assessments for each region. The chart in Slide 21 is an example seasonal risk assessment for a hypothetical region. The left blue column on the chart shows anticipated resources and the two orange columns on the right show the normal peak (50/50) and the extreme winter peak (90/10) demand scenarios.[74] The middle red bars show the factors that can reduce resource availability, including maintenance outages and forced outages, not already accounted for in anticipated resources. The middle green bar depicts potential additions in resource availability from operational mitigation actions, if any, that are available during scarcity conditions but have not been accounted for in the reserve margins.

[74] A 50/50 peak load forecast is based on a 50% chance that the actual system peak load will exceed the forecasted value. A 90/10 peak load forecast is based on a 10% chance that the actual system peak load will exceed the forecasted value.

The dotted, horizontal line represents the expected operating reserve requirement plus the extreme peak demand, or the amount of power that a region would need to produce to avoid a shortfall.

The seasonal risk assessment scenarios are determined by the assessment areas to provide insight into unanticipated events during normal and/or extreme winter conditions. However, they do not account for all the unique energy adequacy risks associated with a specific area. The scenarios generally assess the greatest risk hour(s) for Expected Unserved Energy, along with the varying demand and available resource profiles. The methods, scenarios considered, and assumptions differ by assessment area and may not be comparable.

ERCOT. Winter peak demand in ERCOT's Texas footprint typically occurs before sunrise and after sunset when solar generation is unavailable.[75] ERCOT anticipates having sufficient operating reserves during the winter peak load hour (the hour ending at 8:00 a.m.) under expected normal system conditions. However, under extreme scenarios, the region faces increased risk of reserve shortages during both the peak-load hour and high net load hours. During these hours, the system relies heavily on wind generation and dispatchable resources.

Generally, risk in ERCOT continues to rise primarily due to factors such as robust load growth, slower evening load declines—which are largely attributed to continuous data center operations—and limited additions of new dispatchable capacity to meet elevated morning and evening net loads.[76] This risk is heightened by potential forced outages of thermal resources and reduced output from intermittent resources. The load growth in west Texas combined with scenarios for "no solar" and low wind conditions can cause transmission lines into this area to become heavily loaded. As one way to address this risk, ERCOT improved dynamic line ratings that allow for greater transfers at colder temperatures and periods of low solar irradiance.[77] The rapid increase in installed battery storage in ERCOT will also help address this risk. However, maintaining an adequate state of charge during prolonged high-load events, such as a widespread, multi-day event like Winter Storm Uri, remains a significant challenge.[78]

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[75] ERCOT, *ERCOT Expects Tight Grid Conditions, Requests Conservation Tuesday, January 16, from 6 a.m. to 9 a.m. CT* (Jan. 15, 2024), press release, https://www.ercot.com/news/release/2024-01-15-ercot-expects-tight.

[76] NERC, *2025-2026 Winter Reliability Assessment* (Nov. 18, 2025), http://www.nerc.com/globalassets/our-work/assessments/nerc_wra_2025.pdf.

[77] *Id.*

[78] *Id.*

NPCC-NE. Under normal winter conditions, NPCC-NE has adequate resources to meet the demand. However, a persistent concern in the region is whether sufficient energy will be available during an extended cold spell given the current resource mix, fuel delivery infrastructure, and expected fuel arrangements. Without significant efforts to replenish stored fuels such as fuel oil and LNG, energy adequacy could be challenged.[79]

In NPCC-NE, winter energy concerns are highest in scenarios when stored fuels are rapidly depleted; during these periods timely replenishment is critical to minimizing the potential for energy shortfalls. ISO-NE's 21-day energy forecast is intended to identify these types of scenarios. To support situational awareness and fuel procurement decisions, ISO-NE publishes a rolling 21-day energy assessment at least weekly with more frequent updates as needed.[80] This assessment provides early indications of potential fuel scarcity conditions for market participants.[81] ISO-NE has also expanded an existing winter readiness survey of generators to include more detailed questions, capturing additional data on potential temperature-related limitations.[82] ISO-NE will also continue to use its Probabilistic Energy Adequacy Tool to assess energy shortfall risks ahead of the 2025–2026 winter season.[83]

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[79] *Id.*

[80] ISO-NE, 21-Day Energy Assessment Forecast and Report (accessed Sept. 23, 2025), https://www.iso-ne.com/isoexpress/web/reports/operations/-/tree/21-Day-Energy-Assessment-Forecast-and-Report-Results.

[81] ISO-NE, 21-Day Energy Assessment Forecast and Report (accessed Sept. 23, 2025), https://www.iso-ne.com/isoexpress/web/reports/operations/-/tree/21-Day-Energy-Assessment-Forecast-and-Report-Results.

[82] ISO-NE, OP-21, Operational Surveys, Energy Forecasting & Reporting, and Actions During an Energy Emergency (Accessed Oct. 7, 2025), https://www.iso-ne.com/static-assets/documents/rules_proceds/operating/isone/op21/op21_rto_final.pdf

[83] Probabilistic Energy Adequacy Tool is a tool that ISO-NE use for risk analysis under extreme weather events. It is essential for evaluating the region's risk of energy shortfall — the electricity supply falling below consumer demand — giving the region's stakeholders advance warning and the opportunity to take steps to avert it; ISO New England, Update on Energy Adequacy Tool, Energy Shortfall Threshold, and Perspectives on Retail Demand Response, (May 21, 2024), https://www.iso-ne.com/static-assets/documents/100011/necpuc_sgeorge_may_2024_final.pdf; ISO New England, ISO Newswire: ISO-NE's study of energy shortfall risks produces innovative tool for assessing energy adequacy (Dec. 11, 2023), https://isonewswire.com/2023/12/11/iso-nes-study-of-energy-shortfall-risks-produces-innovative-tool-for-assessing-energy-adequacy/.

NPCC-NE shows little change to the anticipated reserve margin for this winter from the previous year, and a lower peak demand forecast and additional resources from demand response and firm imports should offset recent generator retirements.[84] NPCC-NE imports power from Canada and neighboring RTOs/ISOs and periodically assesses its reliance on power transfers from neighboring Reliability Coordinator areas through market mechanisms and reliability studies. External resources may participate in the Forward Capacity Market, securing Capacity Supply Obligations to supply energy to New England when needed, integrating them into the region's capacity mix. An annual tie benefits study[85] conducted by ISO-NE estimates reliable import capacity during stressed system conditions.[86]

WECC. WECC warns of potential reserve margin shortfalls in the WECC-Basin and WECC-NW assessment areas during the 2025–2026 winter season during the extreme condition scenario.

WECC-Basin. WECC-Basin encompasses all of Utah, the western part of Wyoming, and the southern and eastern part of Idaho. Under an extreme combination of derates and outages, WECC-Basin could be short one GW of internal supply and imports needed to serve load, and it expects an increased reliance on transfers. Net internal demand is expected to increase 1% since last winter, with total internal demand up 1.8%. This is offset by a doubling of controllable and dispatchable demand response. However, Tier 1 resources, which are capacity that is under construction or that has received approved planning requirements, have declined and do not appear to be offset by increases in existing-certain generation resource capacity.[87] Meanwhile, nameplate wind has increased by almost 18% and solar by almost 30%, and hydro is also up over 7% in total installed capacity since last winter, but derates need to

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[84] NERC, *2025-2026 Winter Reliability Assessment* (Nov. 18, 2025), http://www.nerc.com/globalassets/our-work/assessments/nerc_wra_2025.pdf.

[85] The study analysis accounts for expected emergency assistance, system reliability practices and the Total Transfer Capability of external interfaces. *See* ISO-NE*, Benefits Values for Reconfiguration Auctions to be Conducted in 2025,* https://www.iso-ne.com/static-assets/documents/100015/a03_review_of_2025_2026_ara_3_tie_benefits_study_results.pdf

[86] NERC, *2025-2026 Winter Reliability Assessment* (Nov. 18, 2025), http://www.nerc.com/globalassets/our-work/assessments/nerc_wra_2025.pdf.

[87] Existing-certain includes commercially operable generating units or portions of generating units that meet at least one of the following requirements when examining the period of peak demand for the winter season: (1) unit must have a firm capability and have a power purchase agreement with firm transmission that must be in effect for the unit; (2) unit must be classified as a designated network resource; and/or, (3) where energy-only markets exist, unit must be a designated market resource eligible to bid into the market.

be factored into the performance calculations. Overall, WECC-Basin expects to be reliant on imports to maintain resource adequacy.[88]

WECC-NW. WECC-NW encompasses all of Montana, Washington, and Oregon, and the northern parts of both Idaho and California. WECC-NW has historically been a mixed-season peaking region and shows operating reserve margins expected to be met before needing imports for all winter scenarios. This winter projected total and net internal demand are up 9.3%, with the primary drivers being data centers, residential electrification, transportation electrification, and semiconductor manufacturing. Large coal unit retirements and conventional hydro unit retirements contribute to the reduction in existing certain capacity by 10.5%; however, planned Tier 1 resources (capacity that is under construction or has received approved planning requirements) have soared over 580%, from 463 MW to over 3 GW. An increase in nameplate capacity for both wind and solar in WECC-NW has also led to a moderate increase in solar availability during the peak hour.

To assess long-term vulnerabilities for all of WECC, WECC conducted two studies evaluating the impact of extreme cold weather events on electric system reliability 10 and 20 years into the future.[89] Both studies highlight the risks[90] associated with heavy reliance on natural gas during severe winter conditions.[91] According to WECC, currently there are no reported or planned pipeline disruptions or outages that would directly threaten natural gas delivery in winter 2025-2026. But lessons from Winter Storm Elliott underscore how freeze-offs,

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[88] NERC, *2025-2026 Winter Reliability Assessment* at 33 (Nov. 18, 2025), http://www.nerc.com/globalassets/our-work/assessments/nerc_wra_2025.pdf.

[89] WECC, *Year 10 Extreme Cold Weather Event* (Nov. 2023), https://www.wecc.org/sites/default/files/documents/meeting/2024/Year-10%20Extreme%20Cold%20Weather%20Event%20Report%202023.pdf; WECC, *Year 20 Extreme Cold Weather Event*, (April 2024), https://www.wecc.org/sites/default/files/documents/meeting/2024/Year%2020%20Cold%20Weather%20Event%20Study.pdf.

[90] The studies shows that the western grid depends heavily on natural gas-fired generation to meet demand during extreme cold events. According to the study, during cold snaps natural gas supply and pressure can drop due to heating demand and infrastructure freezing. Also, the report notes that if gas supply is constrained or derated (by 15–35%), large amounts of unserved energy could occur.

WECC, *Year 20 Extreme Cold Weather Event* (April 2024), https://www.wecc.org/sites/default/files/documents/meeting/2024/Year%2020%20Cold%20Weather%20Event%20Study.pdf.

scheduling mismatches, and pipeline constraints have previously contributed to generation shortfalls and power outages. Since then, improvements such as revised gas pipeline logic[92] and expedited emergency protocols have strengthened system resilience.[93]

The Western Interconnection remains a focal point for proposed pipeline expansions aimed at easing regional supply constraints.[94] While these projects could eventually stabilize fuel prices and support growing demand, most remain in early development stages and will not be in place for winter 2025-2026.[95]

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[92] Gas pipeline logic refers to the system of rules, controls and decision-making processes that govern the operation, monitoring, and optimization of natural gas transmission through pipelines.

[93] WECC Assurance Program provides WECC and its stakeholders with tools to help manage specific risks related to extreme weather and recommendations for improvements to policies, processes and procedures for reviewing system performance during extreme weather events; WECC, WECC Assurance Program explainer (May 15, 2025); https://www.wecc.org/sites/default/files/documents/initiative/2025/Assurance%20Program%205.15.2025.pdf.

[94] S&P Capital IQ Pro, Natural Gas Development Projects (Accessed Oct. 2, 2025), https://www.capitaliq.spglobal.com/web/client?auth=inherit#industry/GasProjects.

[95] These projects include the Desert Southwest Pipeline Expansion (Transwestern Pipeline Company, owned by Energy Transfer): This project involves constructing 516 miles of 42-inch pipeline and nine compressor stations to transport up to 1.5 Bcfd of natural gas from the Permian Basin (Texas/New Mexico) to markets in Arizona and the Southwest. It was announced in August 2025, with a binding open season launched in September 2025. The construction is pending regulatory approvals and final investment decisions. Energy Transfer LP, *Energy Transfer Announces Natural Gas Pipeline Project to Serve Growing Southwestern U.S. Markets*, press release, (August 6, 2025), https://ir.energytransfer.com/news-releases/news-release-details/energy-transfer-announces-natural-gas-pipeline-project-serve; Also included is the Helena-to-Three Forks Pipeline Project (NorthWestern Energy), a proposed natural gas pipeline in Montana, spanning from Helena south to the Three Forks area. It aims to enhance service reliability, add system redundancy by linking existing infrastructure, and support regional energy needs. Construction is expected to begin in 2027. NorthWestern Energy Group, Inc., Helena to Three Forks Natural Gas Transmission Pipeline Project 2024, (Accessed Oct. 7, 2025), https://northwesternenergy.com/about-us/our-projects/helena-to-three-forks-pipeline-project#.

Slide 22

2025-2026 Winter Energy Market and Electric Reliability Assessment

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This concludes the 2025-2026 Winter Energy Market and Electric Reliability Assessment. For questions regarding this report please contact market.assessments@ferc.gov.