



Item 4.6: System Planning and Weatherization Update

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Board of Directors Meeting

ERCOT Public

June 23-24, 2025

Overview

- **Purpose**

Provide an update on recent activity related to planning, modeling, generation interconnection, resource adequacy and weatherization

- **Voting Items / Requests**

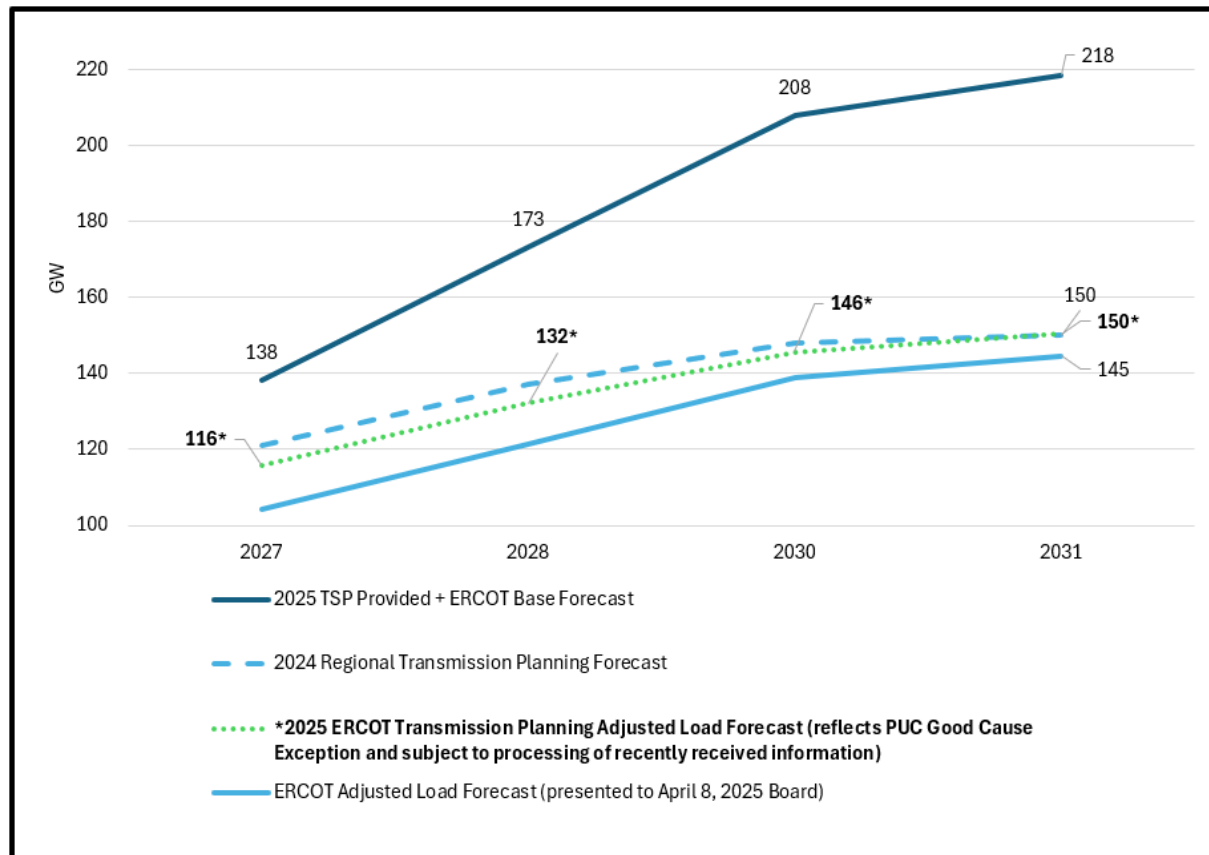
No action is requested of the Board; for discussion only

- **Key Takeaways**

- The 2031 ERCOT Transmission Planning adjusted load forecast utilized in the Regional Transmission Plan is between 150-156 GW.
- A Q1-2026 report will provide the costs and benefits to ERCOT consumers of various options for providing additional resource adequacy and resilience in the ERCOT Region.
- Solar and Energy Storage Resources continue to account for the vast percentage of generation requesting new interconnection.
- All Texas Energy Fund projects recommended for due diligence by the PUC are registered with ERCOT and in various phases of the generation interconnection process.
- The large load interconnection queue continues to increase at a record pace.
- Summer weatherization inspection work is underway.
- Probabilistic modeling results indicate a low risk of having to declare an Energy Emergency Alert under normal system conditions during the summer months.
- ERCOT is processing Inverter-Based Resource requests for extensions or exemptions from the NOGRR245 compliance requirements.

Good Cause Exception Granted for the 2025 Regional Transmission Plan (RTP)

- Since the April Board, ERCOT has analyzed TSP load forecast data to prepare for 2025 RTP development.
- Revisions to the ERCOT adjusted load forecast were required for transmission planning work.
- On 6/5/25, the PUC granted ERCOT an exception to rules for accounting for forecasted load.



Key Takeaway: The 2031 ERCOT Transmission Planning adjusted load forecast is between 150-156 GW.

ERCOT Interregional Study Comparison

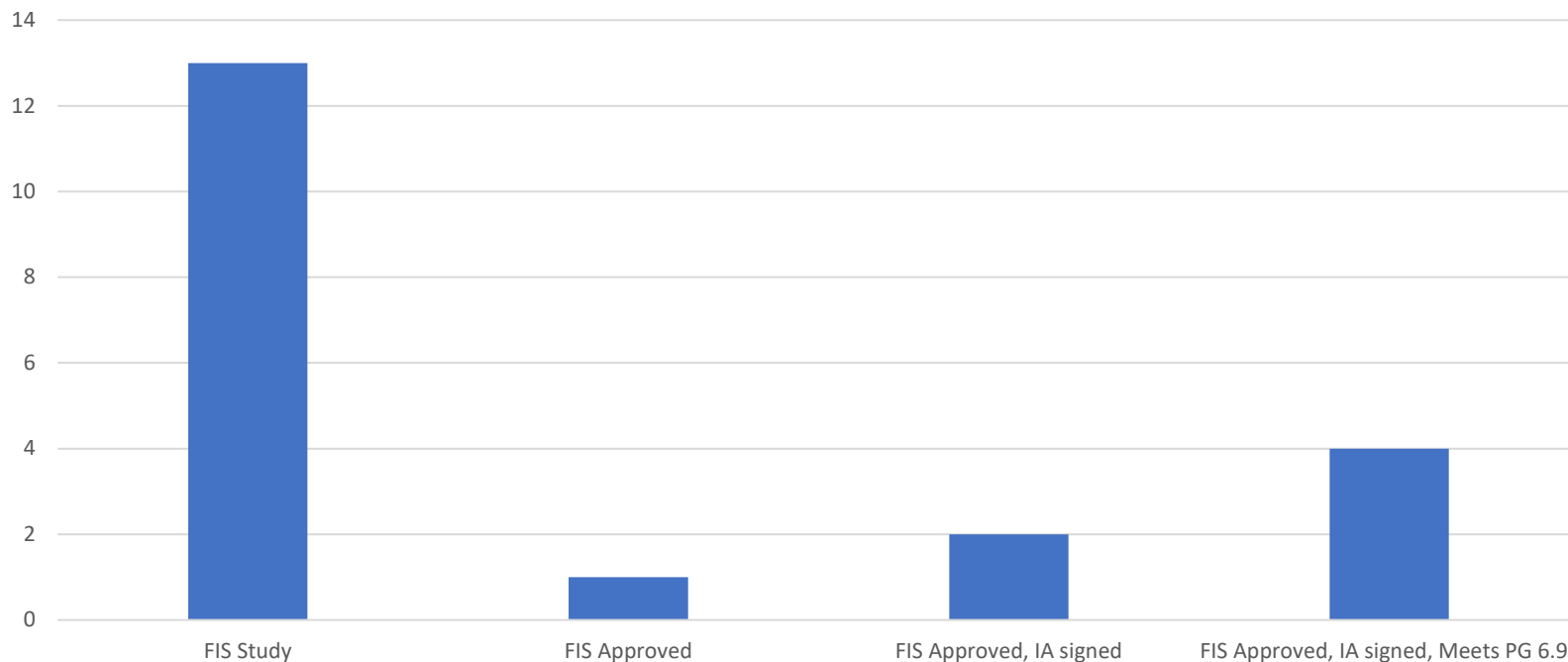
- In 2024, both NERC and the DOE published studies recommending significant increases in transfer capability between ERCOT and other regions to mitigate resource adequacy risks.
- ERCOT has engaged PowerGEM to compare the costs and benefits to ERCOT consumers for various options for providing additional assurance of resource adequacy and resilience in the ERCOT Region such as increasing:
 - native Generation Resource capacity
 - switchable Generation Resource capacity
 - asynchronous connections between ERCOT and other regions
 - synchronous connections between ERCOT and other regions
- ERCOT targets a Q1-2026 report to include:
 - examination of fundamental market drivers
 - assessment of any infrastructure additions in the ERCOT Region needed under each option
 - identification of any market changes required to support each option
 - discussion of the economic impacts to ERCOT consumers

Key Takeaway: A Q1-2026 report will provide the costs and benefits to ERCOT consumers of various options for providing additional resource adequacy and resilience in the ERCOT Region.

Texas Energy Fund Status (as of June 9, 2025)

All twenty projects recommended for Due Diligence by the PUC are in various phases of the generation interconnection process.

Status of TEF Project approve for Due Dilligence

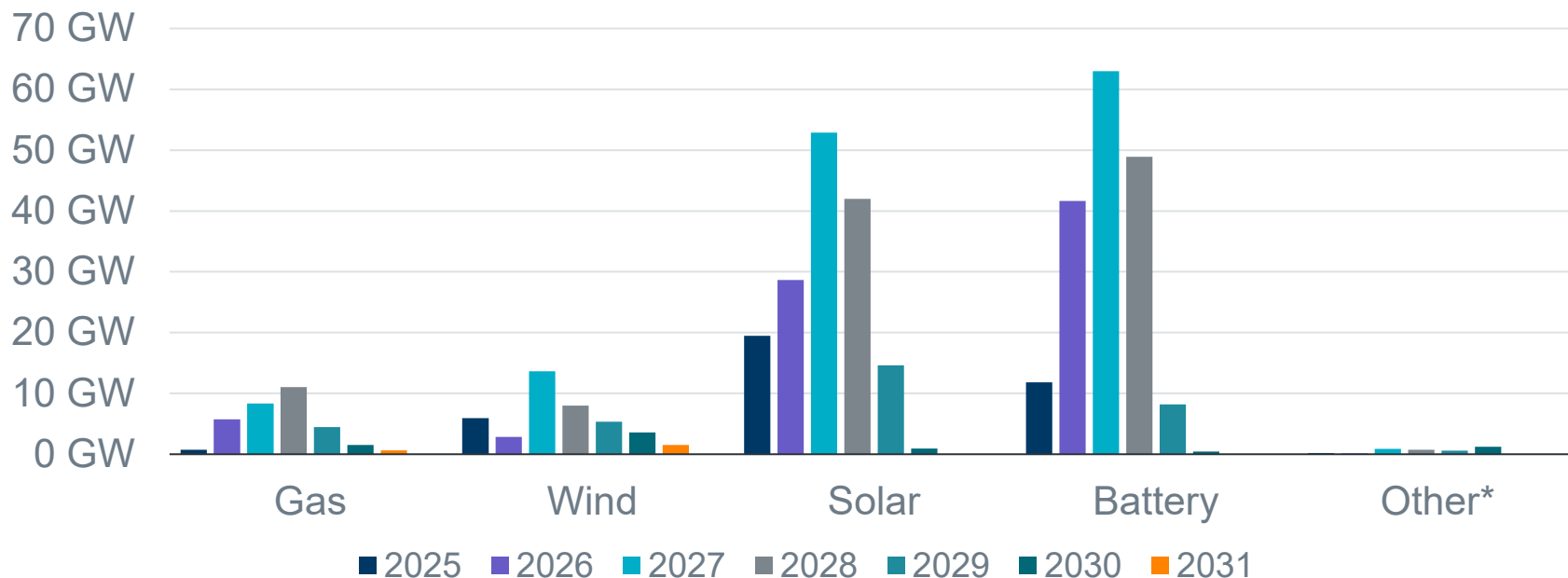


Key Takeaway: All twenty projects which represent just over 9k MW have submitted Full Interconnection Study (FIS) applications with ERCOT and are advancing through the interconnection process. Seven projects have completed all FIS studies.

Generation Interconnection Requests

2,031 active generation interconnection requests totaling 409 GW as of May 31, 2025
(Solar 158 GW, Wind 41 GW, Gas 32 GW, Battery 174 GW, and Other 4 GW)

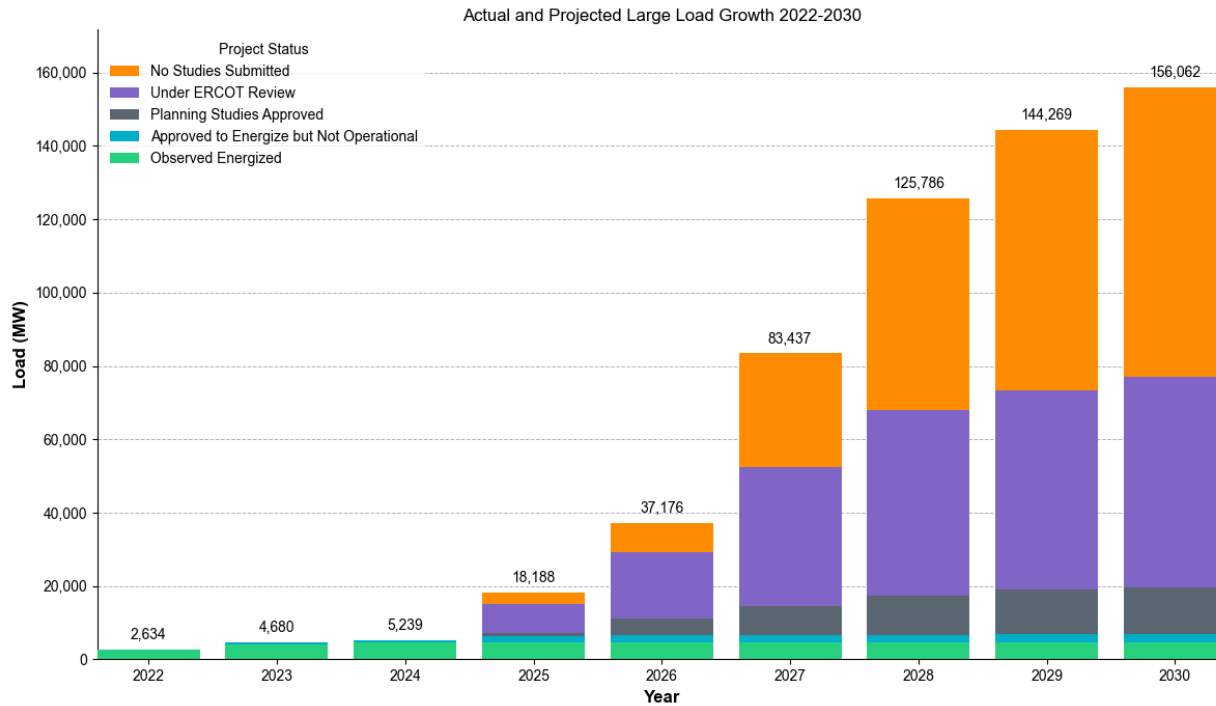
(Excludes capacity associated with projects designated as Inactive per Planning Guide Section 5.2.5)



* Other includes petroleum coke (pet coke), hydroelectric, fuel oil, nuclear, geothermal energy, other miscellaneous fuels reported by developers, and fuel cells that use fuels other than natural gas.

Key Takeaway: Solar and Battery Energy Storage continue to account for over 81% of the amount of generation seeking interconnection.

Large Load Interconnection Queue (as of June 2, 2025)



| Project Status | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|--|--------------|--------------|--------------|---------------|---------------|---------------|----------------|----------------|----------------|
| No Studies Submitted | 0 | 0 | 0 | 3,193 | 7,856 | 31,046 | 57,670 | 70,846 | 78,987 |
| Under ERCOT Review | 0 | 0 | 0 | 7,762 | 18,262 | 37,908 | 50,727 | 54,284 | 57,417 |
| Planning Studies Approved | 0 | 0 | 0 | 769 | 4,484 | 7,909 | 10,815 | 12,265 | 12,784 |
| Approved to Energize but Not Operational | 0 | 569 | 623 | 1,848 | 1,958 | 1,958 | 1,958 | 2,258 | 2,258 |
| Observed Energized | 2,634 | 4,111 | 4,616 | 4,616 | 4,616 | 4,616 | 4,616 | 4,616 | 4,616 |
| Total (MW) | 2,634 | 4,680 | 5,239 | 18,188 | 37,176 | 83,437 | 125,786 | 144,269 | 156,062 |

Key Takeaway: ERCOT is tracking approximately 156k MW of Large Loads seeking interconnection compared to 63k MW in December.

Weatherization and Inspection – Summer Update

- ERCOT hosted a Summer Weatherization Workshop in April.
- Declarations of Summer Weather Preparedness were due June 2nd. Initial submission results are as follows:

| | Submitted On-Time | Outstanding |
|--------------------------------|-------------------|-------------|
| Resource Entities | 460 | 15 |
| Transmission Service Providers | 59 | 0 |

- Summer inspections have begun. ERCOT anticipates performing more than 600 weatherization inspections this summer.
- NERC submitted a petition for approval for EOP-012-3 – Extreme Cold Weather Preparedness and Operations to FERC on April 10, 2025.

Key Takeaway: Summer weatherization inspection activities are underway.

Monthly Outlook on Resource Adequacy – June & July

Probabilistic modeling results indicate a low risk of having to declare an Energy Emergency Alert (EEA) for June and July.

June Peak Load Day

| Hour Ending (CDT) | Chance of Normal System Conditions | EMERGENCY LEVEL | |
|----------------------|--|---|---|
| | Probability of CAFOR being above 3,000 MW | Chance of an Energy Emergency Alert | Chance of Ordering Controlled Outages |
| | | Probability of CAFOR being less than 2,500 MW | Probability of CAFOR being less than 1,500 MW |
| 1 a.m. | 100.00% | 0.00% | 0.00% |
| 2 a.m. | 100.00% | 0.00% | 0.00% |
| 3 a.m. | 100.00% | 0.00% | 0.00% |
| 4 a.m. | 100.00% | 0.00% | 0.00% |
| 5 a.m. | 100.00% | 0.00% | 0.00% |
| 6 a.m. | 100.00% | 0.00% | 0.00% |
| 7 a.m. | 100.00% | 0.00% | 0.00% |
| 8 a.m. | 100.00% | 0.00% | 0.00% |
| 9 a.m. | 100.00% | 0.00% | 0.00% |
| 10 a.m. | 100.00% | 0.00% | 0.00% |
| 11 a.m. | 100.00% | 0.00% | 0.00% |
| 12 p.m. | 100.00% | 0.00% | 0.00% |
| 1 p.m. | 100.00% | 0.00% | 0.00% |
| 2 p.m. | 100.00% | 0.00% | 0.00% |
| 3 p.m. | 100.00% | 0.00% | 0.00% |
| 4 p.m. | 100.00% | 0.00% | 0.00% |
| 5 p.m. | 100.00% | 0.00% | 0.00% |
| 6 p.m. | 100.00% | 0.00% | 0.00% |
| 7 p.m. | 100.00% | 0.00% | 0.00% |
| 8 p.m. | 99.78% | 0.04% | 0.03% |
| 9 p.m. | 99.06% | 0.35% | 0.25% |
| 10 p.m. | 99.68% | 0.12% | 0.07% |
| 11 p.m. | 99.95% | 0.00% | 0.00% |
| 12 a.m. | 100.00% | 0.00% | 0.00% |

Note: Probabilities are not additive.

July Peak Load Day

| Hour Ending (CDT) | Chance of Normal System Conditions | EMERGENCY LEVEL | |
|----------------------|--|---|---|
| | Probability of CAFOR being above 3,000 MW | Chance of an Energy Emergency Alert | Chance of Ordering Controlled Outages |
| | | Probability of CAFOR being less than 2,500 MW | Probability of CAFOR being less than 1,500 MW |
| 1 a.m. | 100.00% | 0.00% | 0.00% |
| 2 a.m. | 100.00% | 0.00% | 0.00% |
| 3 a.m. | 100.00% | 0.00% | 0.00% |
| 4 a.m. | 100.00% | 0.00% | 0.00% |
| 5 a.m. | 100.00% | 0.00% | 0.00% |
| 6 a.m. | 100.00% | 0.00% | 0.00% |
| 7 a.m. | 100.00% | 0.00% | 0.00% |
| 8 a.m. | 100.00% | 0.00% | 0.00% |
| 9 a.m. | 100.00% | 0.00% | 0.00% |
| 10 a.m. | 100.00% | 0.00% | 0.00% |
| 11 a.m. | 100.00% | 0.00% | 0.00% |
| 12 p.m. | 100.00% | 0.00% | 0.00% |
| 1 p.m. | 100.00% | 0.00% | 0.00% |
| 2 p.m. | 100.00% | 0.00% | 0.00% |
| 3 p.m. | 100.00% | 0.00% | 0.00% |
| 4 p.m. | 100.00% | 0.00% | 0.00% |
| 5 p.m. | 100.00% | 0.00% | 0.00% |
| 6 p.m. | 100.00% | 0.00% | 0.00% |
| 7 p.m. | 100.00% | 0.00% | 0.00% |
| 8 p.m. | 99.98% | 0.00% | 0.00% |
| 9 p.m. | 99.33% | 0.31% | 0.14% |
| 10 p.m. | 99.64% | 0.10% | 0.05% |
| 11 p.m. | 99.94% | 0.02% | 0.01% |
| 12 a.m. | 100.00% | 0.00% | 0.00% |

Note: Probabilities are not additive.



Monthly Outlook on Resource Adequacy - August

The August MORA uses load forecast data based on the ERCOT Adjusted Large Load Forecast, resulting in lower EEA risk as compared to that reported in early April for NERC's Summer Reliability Assessment. Both assessments are of an August peak load day.

August MORA

| Hour Ending (CDT) | Chance of Normal System Conditions | EMERGENCY LEVEL | |
|----------------------|--|---|---|
| | Probability of CAFOR being above 3,000 MW | Chance of an Energy Emergency Alert | Chance of Ordering Controlled Outages |
| | Probability of CAFOR being above 3,000 MW | Probability of CAFOR being less than 2,500 MW | Probability of CAFOR being less than 1,500 MW |
| 1 a.m. | 100.00% | 0.00% | 0.00% |
| 2 a.m. | 100.00% | 0.00% | 0.00% |
| 3 a.m. | 100.00% | 0.00% | 0.00% |
| 4 a.m. | 100.00% | 0.00% | 0.00% |
| 5 a.m. | 100.00% | 0.00% | 0.00% |
| 6 a.m. | 100.00% | 0.00% | 0.00% |
| 7 a.m. | 100.00% | 0.00% | 0.00% |
| 8 a.m. | 100.00% | 0.00% | 0.00% |
| 9 a.m. | 100.00% | 0.00% | 0.00% |
| 10 a.m. | 100.00% | 0.00% | 0.00% |
| 11 a.m. | 100.00% | 0.00% | 0.00% |
| 12 p.m. | 100.00% | 0.00% | 0.00% |
| 1 p.m. | 100.00% | 0.00% | 0.00% |
| 2 p.m. | 100.00% | 0.00% | 0.00% |
| 3 p.m. | 100.00% | 0.00% | 0.00% |
| 4 p.m. | 100.00% | 0.00% | 0.00% |
| 5 p.m. | 100.00% | 0.00% | 0.00% |
| 6 p.m. | 100.00% | 0.00% | 0.00% |
| 7 p.m. | 100.00% | 0.00% | 0.00% |
| 8 p.m. | 99.73% | 0.03% | 0.02% |
| 9 p.m. | 98.85% | 0.48% | 0.30% |
| 10 p.m. | 99.33% | 0.17% | 0.11% |
| 11 p.m. | 99.89% | 0.04% | 0.03% |
| 12 a.m. | 99.98% | 0.00% | 0.00% |

Note: Probabilities are not additive.

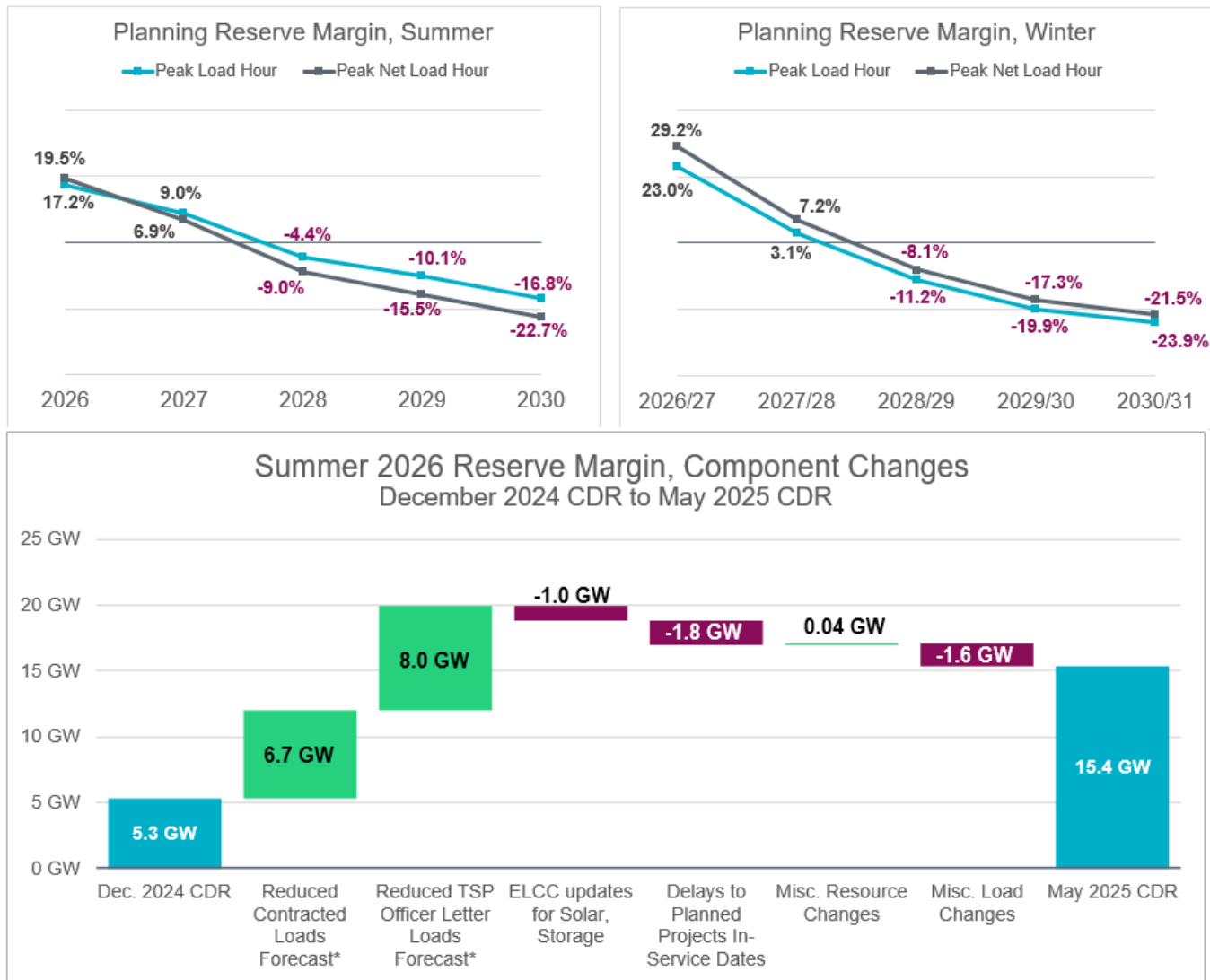
NERC Summer Reliability Assessment Results

| Hour Ending (CDT) | Chance of Normal System Conditions | EMERGENCY LEVEL | |
|----------------------|--|---|---|
| | Probability of CAFOR being above 3,000 MW | Chance of an Energy Emergency Alert | Chance of Ordering Controlled Outages |
| | Probability of CAFOR being above 3,000 MW | Probability of CAFOR being less than 2,500 MW | Probability of CAFOR being less than 1,500 MW |
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| 5 a.m. | 100.00% | 0.00% | 0.00% |
| 6 a.m. | 100.00% | 0.00% | 0.00% |
| 7 a.m. | 100.00% | 0.00% | 0.00% |
| 8 a.m. | 100.00% | 0.00% | 0.00% |
| 9 a.m. | 100.00% | 0.00% | 0.00% |
| 10 a.m. | 100.00% | 0.00% | 0.00% |
| 11 a.m. | 100.00% | 0.00% | 0.00% |
| 12 p.m. | 100.00% | 0.00% | 0.00% |
| 1 p.m. | 100.00% | 0.00% | 0.00% |
| 2 p.m. | 100.00% | 0.00% | 0.00% |
| 3 p.m. | 100.00% | 0.00% | 0.00% |
| 4 p.m. | 100.00% | 0.00% | 0.00% |
| 5 p.m. | 100.00% | 0.00% | 0.00% |
| 6 p.m. | 100.00% | 0.00% | 0.00% |
| 7 p.m. | 100.00% | 0.00% | 0.00% |
| 8 p.m. | 99.26% | 0.21% | 0.10% |
| 9 p.m. | 94.27% | 3.10% | 2.29% |
| 10 p.m. | 97.03% | 1.50% | 1.01% |
| 11 p.m. | 99.71% | 0.06% | 0.03% |
| 12 a.m. | 100.00% | 0.00% | 0.00% |

Note: Probabilities are not additive.



May Capacity, Demand and Reserves (CDR) Report

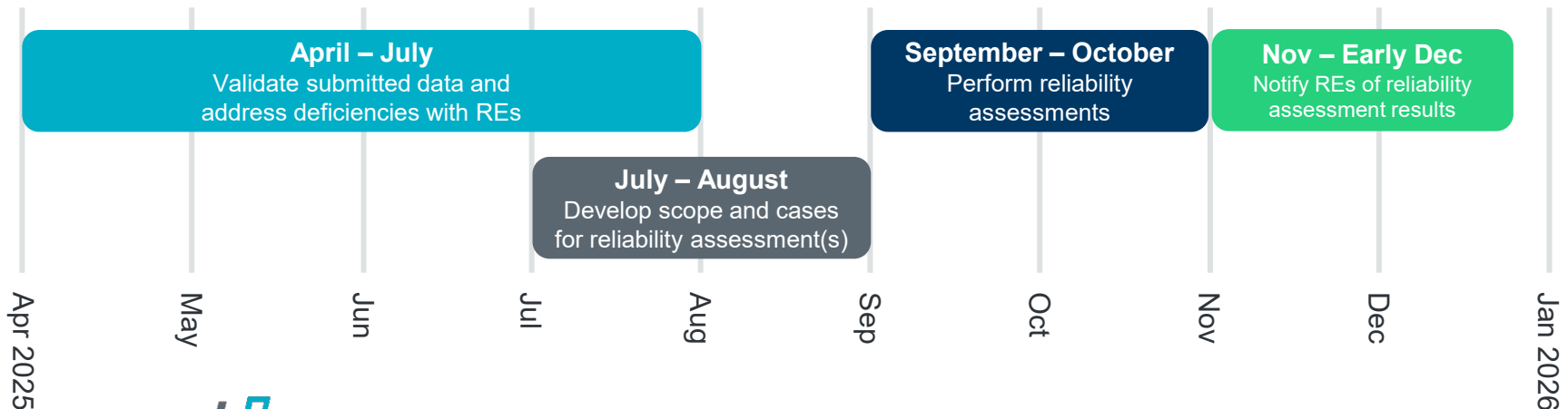


* Based on the ERCOT Adjusted Load Forecast

Key Takeaway: While utilization of the ERCOT Adjusted Load Forecast improved planning reserve margins, the overarching trend continues to show declining margins.

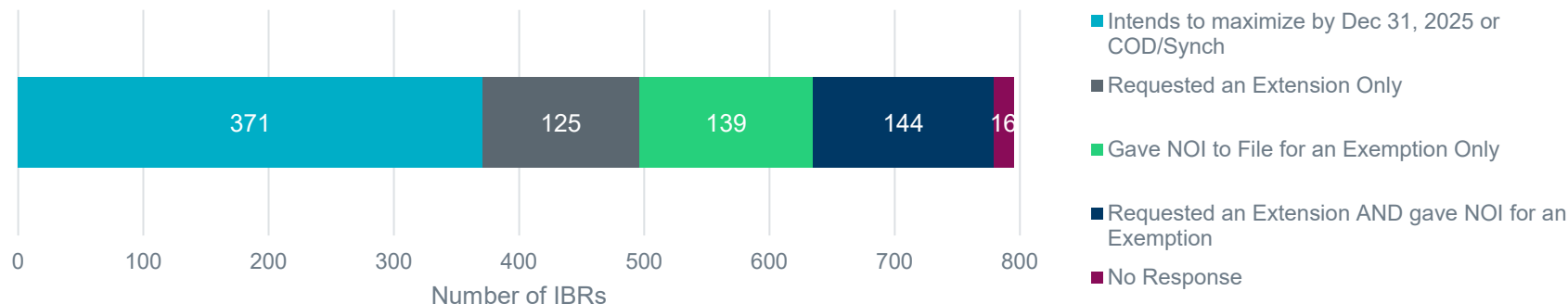
NOGRR245, Inverter-Based Resource Ride-Through Requirements, Update

- ERCOT must assess reliability impacts of updated IBR model information to determine where there is any risk to the system.
 - Will perform one or more assessments to evaluate reliability impact of related IBRs simultaneously.
- Currently reviewing the technical data submitted from over 900 Resources and addressing deficiencies with Resource Entities.
- The exemption study is still expected to commence in September. However, identified data quality issues may impact the review timeline.

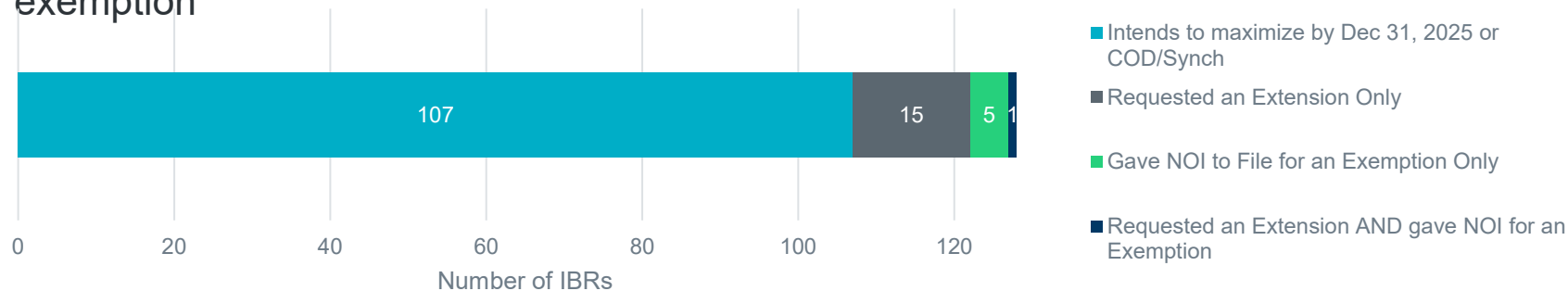


Updated Metrics from NOGRR245 IBR Ride-Through Data Request*

Current Resources: ERCOT sent RFIs to REs for 795 Resources in Network Operations Model and near commissioning or already commissioned



New Resources: IEs and REs in early stages of the interconnection process had to respond to RFIs only if requesting extension or submitting Notice of Intent to request an exemption

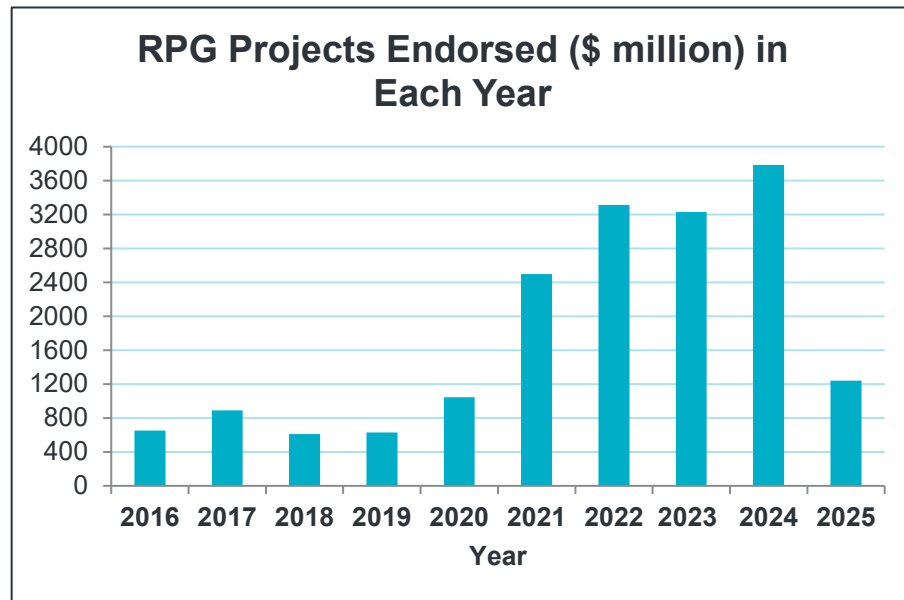


* Data subject to change as data deficiencies are identified and addressed by submitting RE

Appendix

Transmission Planning Summary

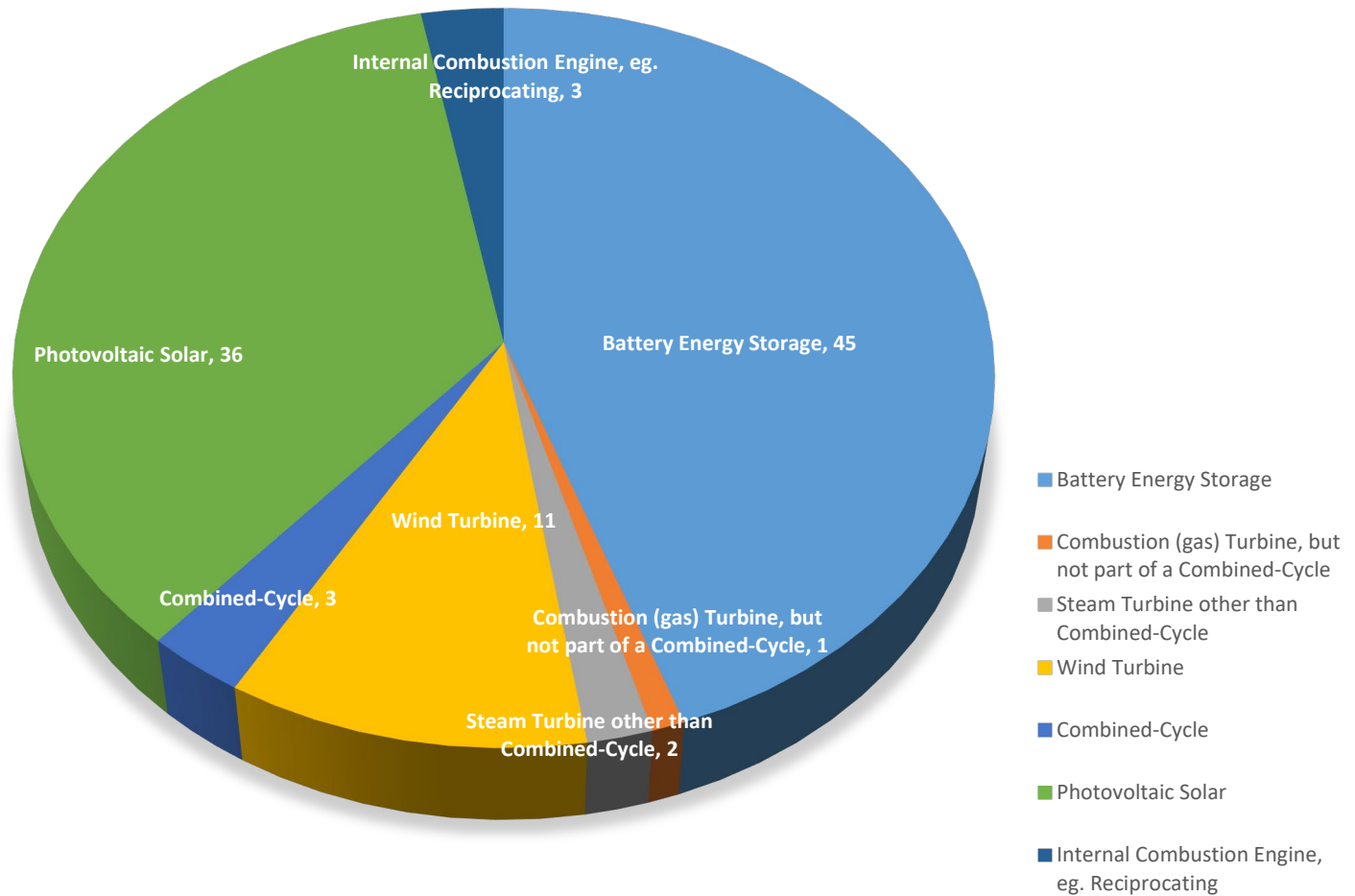
- As of February 1, 2025, projects energized in 2025 total about \$386.8 million.
 - \$1.553 billion energized in 2023
 - \$2.435 billion energized in 2024
- As of May 31, 2025, ERCOT has endorsed transmission projects totaling \$1.243 billion in 2025.
 - Total endorsed transmission projects in:
 - 2023 equaled \$3.231 billion
 - 2024 equaled \$3.785 billion
- As of February 1, 2025, projects in engineering, routing, licensing, and construction total about \$16.866 billion.



Key Takeaway: Transmission buildout and project endorsement continues at a record pace with \$3.785 billion endorsed in all of 2024.

Generation Interconnection Activity (as of May 30, 2025)

Applications Received in the last 60 days by Fuel



Generation Resource Project MWs by Fuel Type and Interconnection Stage (as of May 30, 2025)

Key Takeaway: Solar and Battery Energy Storage represent the majority of current MWs within the interconnection queue, and most current projects are within the Full Interconnection Study (FIS) phase, which is where critical reliability analysis is completed.

