# AI Meets the Grid: Interconnection Queue Analysis in PJM and ERCOT

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# Contents

## Acronyms and abbreviations

**BESS:** battery energy storage system
**ERCOT:** Electric Reliability Council of Texas (regional grid)
**FERC:** Federal Energy Regulatory Commission (United States)
**GW:** gigawatts
**IA:** interconnection agreement
**IR:** interconnection request
**ISO:** Independent System Operator
**OBBB:** One Big Beautiful Bill Act
**PJM:** Pennsylvania, New Jersey, Maryland (regional grid)
**TW:** terawatt
**TWh:** terawatt-hour
**US:** United States

## Executive summary

Data center electricity demand is increasing rapidly in the United States (US). Since October 2025, over 10 gigawatts (GW) of data center projects have been announced across the Electric Reliability Council of Texas (ERCOT) and Pennsylvania, New Jersey, Maryland (PJM)[1] grids alone (about three times more than the capacity announced in both markets in 2023). This load requires new, clean generation capacity, but the generation interconnection queue presents a critical bottleneck for meeting data center power demand. There are approximately 1,500 new projects in the queue waiting for approval to connect to the ERCOT and PJM grids, with the potential to provide over 500 GW of generation and storage capacity. These include natural gas, renewables, energy storage, and hybrid projects. Renewables and storage projects make up the bulk (i.e., 87% for ERCOT and 77% for PJM and), followed by gas projects.

While the Federal Energy Regulatory Commission (FERC) targets a timeline of 8–11 months for new power generation to move through the interconnection queue, this is far from being realized. Expected timelines are closer to 20 months in ERCOT and 40 months in PJM.[2] FERC's regulation of the "first-ready, first-served process" (hereafter referred to as "FERC 2023")[3] could improve processing times in these markets. Of the ERCOT projects that started screening by 2020, 60% have not reached interconnection agreement (IA) status; of the PJM projects submitted in 2020, only 24% have reached IA status or become operational. In zones of data center load growth, currently active projects have an average interconnection wait time of three to four years in both markets.

Additionally, the types of projects in the queue changed significantly after the 2025 tax credit reforms implemented by the One Big Beautiful Bill Act (OBBB). In ERCOT, a noticeable number of new natural gas projects entered the queue and, in both ERCOT and PJM, renewable projects (i.e., solar and wind) made significant withdrawals from the queue.

Carbon Direct's work on power technology siting,dispatch optimization, and grid decarbonization is motivated by a recognition of the significant delays in the interconnection queue. These delays make it difficult for data centers to rely only on regional grids to meet their demand for clean power. Carbon Direct helps hyperscalers identify and analyze grid technologies that can meet this demand, as well as alternative solutions such as flexible load, battery storage, and reducing grid dependency while grids are catching up with surging power demand.

**Key takeaways**

- **Generation capacity:** The ERCOT and PJM interconnection queues hold significant generation capacity relative to projected data center load growth through 2030.
- **Policy influence:** The policy landscape is reshaping the technology mix in both markets, where we see increasing natural gas capacity in the queue and significant withdrawals for renewables.

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[1] Though it originally covered Pennsylvania, New Jersey and Maryland, PJM now manages the electric grid for all of the mid-Atlantic region and parts of the Midwest.

[2] Hamm G. 2025. 2024 United States Data Center Energy Usage Report. Lawrence Berkeley National Laboratory. [accessed 2026 Apr 29]. https://doi.org/10.71468/P1WC7Q

[3] Explainer on the Interconnection Final Rule | Federal Energy Regulatory Commission. [accessed 2026 Apr 29]. https://www.ferc.gov/explainer-interconnection-final-rule

- **Natural gas:** ERCOT's natural gas queue has surged post-OBBB, offering a potential near-term reliability bridge as wind and solar incentives expire. PJM faces growing capacity needs as renewable project volumes decline and the interconnection queue backlog slowly clears.

## Introduction

Electricity load growth in the US was relatively flat over the past two decades until the recent and rapid shift toward high-density AI compute data centers ("large loads"). This demand is creating a new type of electricity load on US grids: very large individual loads, directly connected to transmission grids. Total data center load[4] was approximately 4% of total US electricity load (about 180 terrawatt-hours [TWh]) in 2024, but data center load is expected to grow to 7–12% of total load (325–580 TWh) by 2028.[5]

This load growth is expected to be greatest in the ERCOT and PJM markets (**figure 1**). Since October 2025, more than 10 GW of data center projects have been announced: about 7 GW in ERCOT and about 3 GW in PJM.

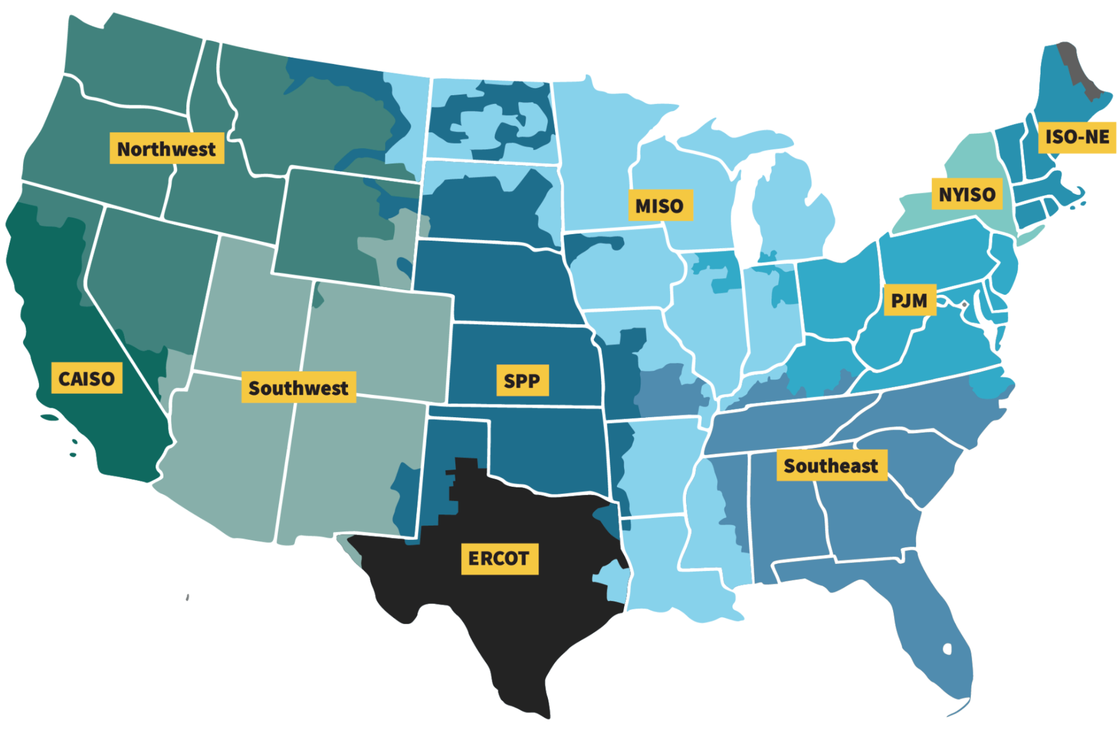
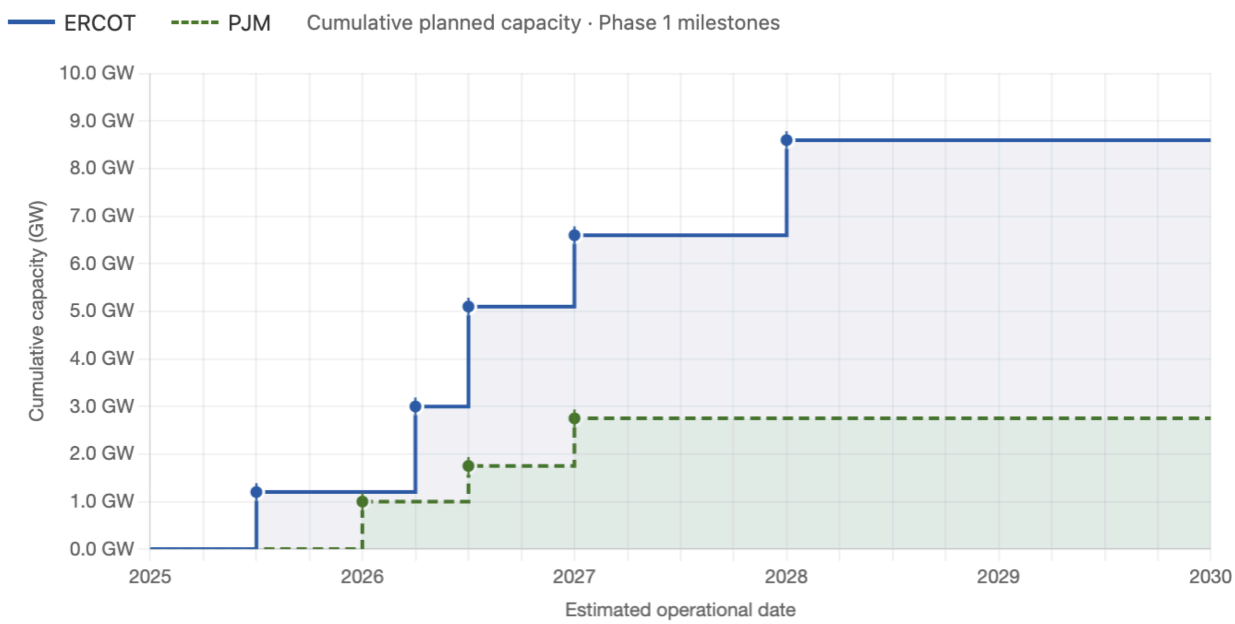



**Figure 1.** Map of power grids in the contiguous United States. Source: Midwest Energy Efficiency Alliance.

[4] International Energy Agency. 2025. Energy and AI. [accessed 2026 Apr 29]. https://iea.blob.core.windows.net/assets/de9dea13-b07d-42c5-a398-d1b3ae17d866/EnergyandAI.pdf
[5] Hamm G. 2025. 2024 United States Data Center Energy Usage Report. Lawrence Berkeley National Laboratory. [accessed 2026 Apr 29]. https://doi.org/10.71468/P1WC7Q

According to project timelines, approximately 30% of this capacity is planned to be online by 2027 (**figure 2**). These recent data center projects are concentrated in specific sub-regions of ERCOT (i.e., the Far West and North-Central sub-regions) and PJM (i.e., the Dominion and Northern Virginia subregions), primarily due to existing infrastructure that allows data center development.




| Grid | Project | Addition | Cumulative | Est. Operational |
|---|---|---|---|---|
| ● ERCOT | Stargate Abilene | +1.2 GW | 1.2 GW | Q3 2025 |
| ● ERCOT | Grand Prairie | +1.8 GW | 3.0 GW | Q2 2026 |
| ● ERCOT | Vantage + Milam Co. | +2.1 GW | 5.1 GW | Q3 2026 |
| ● PJM | Meta Prometheus | +1.0 GW | 1.0 GW | Q1 2026 |
| ● PJM | Stargate Lordstown | +0.75 GW | 1.75 GW | Q3 2026 |
| ● ERCOT | Google TX | +1.5 GW | 6.6 GW | Q1 2027 |
| ● PJM | STACK Stafford | +1.0 GW | 2.75 GW | Q1 2027 |
| ● ERCOT | Tract Caldwell | +2.0 GW | 8.6 GW | Q1 2028 |

**Figure 2.** Data center projects announced since October 2025 in the ERCOT and PJM grids. Source: Carbon Direct Analysis based on the sources listed in *Appendix A*.

Large growth in power demand from data centers puts pressure on the power generation fleet to provide sufficient capacity. There is a significant amount of planned new generation in these regions that could meet this demand. However, planned new generation must go through the generation interconnection process to come online. This interconnection queue suffers from delays and uncertainty, making it challenging for US grid infrastructure development and generation capacity buildout to catch up with the speed of power demand growth driven by data centers. While the interconnection process is slightly different in different grid regions, FERC 2023 established standard interconnection timelines that should take no more than 8–11 months from interconnection request (IR) to achieving IA status.[6] This is far shorter than currently estimated timelines, which average 25 months nationally (e.g., 20 months in ERCOT and 40 months in PJM).[7]

With more than 2.2 terawatts (TW) of generation and storage projects waiting in the interconnection queue across the US—almost twice the capacity of all currently installed US generation—the backlog in the interconnection process is particularly problematic. It hinders new supply that could meet new data center demand in a climate-friendly and cost-effective manner.[8, 9] Additionally, PJM froze its interconnection queue in 2022, blocking new project applications in order to review backlogged projects. PJM has since managed to clear a large portion of its queue, and this freeze is now effectively over. PJM opened its first new application window (referred to as "Cycle 1"), which had a submission deadline of April 27, 2026.[10]

In this study, we analyze the interconnection queue data for the ERCOT and PJM grids to understand how much renewable capacity (i.e., solar and wind) and storage capacity are in the queue. Natural gas also remains a meaningful and growing part of the generation queue in these markets. We explore how much natural gas capacity would be needed to bridge the gap between increasing data center demand and renewables coming online, especially given the non-firm nature of renewable power. Finally, we study the impact of recent US policy developments on changes in the interconnection queue.

## Interconnection queue process

Utilities and regional grid operators require generation projects seeking to connect to regional grids to undergo a series of studies. These studies determine what system upgrades are needed for connection and assign the associated costs before a project can be built. Projects enter the interconnection queue to begin this process. A project's interconnection queue status typically progresses through five stages:

1. **Application submitted:** Developers initiate the process by submitting an IR for the project and claiming a queue position.
2. **Under study:** A series of feasibility and scoping studies are conducted to evaluate the grid impacts.
3. **System impact study:** A system impact study is conducted, which is a deeper analysis of what transmission upgrades the project triggers and who pays for them.
4. **Cost estimate/facilities study:** A cost estimate study and facilities study are completed for cost estimates and equipment specifications.
5. **Study approved:** Finally, if all the above are approved, an IA can be signed to begin construction.

[6] Explainer on the Interconnection Final Rule | Federal Energy Regulatory Commission. [accessed 2026 Apr 29]. https://www.ferc.gov/explainer-interconnection-final-rule
[7] Lawrence Berkeley National Laboratory. 2025. Queued Up: 2025 Edition. [accessed 2026 Apr 29]. https://eta-publications.lbl.gov/sites/default/files/2025-12/queued_up_2025_edition_12.15.2025.pdf
[8] Lawrence Berkeley National Laboratory, Queued Up: 2025 Edition.
[9] Petersen A, Siegner K, Coequyt J. 2026 Mar 17. The Interconnection Queue Continues to Be a Barrier to American Economic Competitiveness. RMI; [accessed 2026 Apr 29]. https://rmi.org/interconnection-reform-ai-data-centers-generator-queues/
[10] PJM Inside Lines. 2025 Sep 22. PJM Completes Interconnection Reform Transition Cycle 1 Studies. [accessed 2026 Apr 29]. https://insidelines.pjm.com/pjm-completes-interconnection-reform-transition-cycle-1-studies/

An IA is a legally binding contract between the developer and the utility or Independent System Operator (ISO). Notably, most projects entering the queue are withdrawn. Only a small fraction of projects (by capacity) eventually secure an IA and are built. For example, in the first quarter of 2026 alone, approximately 4.2 GW of projects in ERCOT and 12.3 GW of projects in PJM were withdrawn, which would have been more than enough to meet projected data center demand (**figure 2**). Developers can formally pull a project out of the queue (resulting in "Withdrawn" status) at any stage between IR and IA. There are also other factors (e.g., procurement, permitting, or transmission upgrades) that can delay construction or affect the commercial operation date of projects that have secured an IA. These factors are outside the scope of this study. Notably, even after developers have secured IA status, projects may still face multi-year waits for transmission upgrades to be completed, upgrades which their IA is dependent on.

Despite long waits, some project developers are willing to tolerate these delays because they have secured strong financing, and may be able to protect themselves against development risks such as rise in equipment costs.[11] As for the projects that are eventually withdrawn, these developers might have entered the queue speculatively (i.e., without secured financing, a developer that may be hedging across multiple locations) and discovered that the required studies demonstrated higher costs than anticipated.

Currently, the interconnection queue is backlogged primarily with wind, solar, battery storage, and natural gas projects. As of March 2026, ERCOT had about 400 GW, and PJM had about 143 GW of generation capacity projects in the queue across all project phases (not counting those that were withdrawn).[12] ERCOT's queue experienced a roughly 24% year-over-year increase in total GW capacity between the first quarter of 2025 and the first quarter of 2026. PJM's queue has been much less active in the last few years, given the 2022 freeze on new submissions. However, this freeze has now ended and PJM has implemented a new cluster-based queue process.[13]

Given interconnection queue backlogs, uncertainties around the queue process, and complications with project development, a detailed analysis of the current interconnection queue can provide valuable insights into whether the projects in the queue are likely to set grids up to meet the increasing demand for new capacity, particularly whether sufficient clean, firm capacity will be available.

## Trends in the queue toward clean, firm power

We analyzed trends in the interconnection queue data by project status, technology type, the location of interconnection, and the electricity load by zones for both ERCOT and PJM through March 31, 2026. ERCOT and PJM have different terminology for describing project status. As such,

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[11] Petersen A, Siegner K, Coequyt J. 2026 Mar 17. The Interconnection Queue Continues to Be a Barrier to American Economic Competitiveness. RMI; [accessed 2026 Apr 29]. https://rmi.org/interconnection-reform-ai-data-centers-generator-queues/

[12] This includes projects with or without an IA, those that are still under study, and those that are already under construction.

[13] PJM Inside Lines. 2025 Sep 22. PJM Completes Interconnection Reform Transition Cycle 1 Studies. [accessed 2026 Apr 29]. https://insidelines.pjm.com/pjm-completes-interconnection-reform-transition-cycle-1-studies/

our definition of an active project is relatively conservative in its scope and is specific to each ISO.[14] For ERCOT, we consider active projects to be those with a signed IA and no withdrawal record.  For PJM, we consider active projects to be those with a status that is one of the following: "active," "under construction," or "partially-in-service under construction," and we consider no projects with withdrawal records as active. Unfortunately, PJM does not make IA execution date data readily available.

Since March 2021, there are a combined 1,216 active projects in ERCOT and PJM.[15] This represents 111.6 GW of generation capacity and 64.3 GW of storage capacity. Renewable and storage capacity make up the bulk of these active projects (86% in ERCOT and 76% in PJM), followed by gas (approximately 14% in ERCOT and 8% in PJM). Although there is a significant amount of generation capacity in the queue, it is highly uncertain whether the vast majority of these projects will become operational.

Looking at *all* projects in the queue (not just the active projects), we calculated the success rate of projects through different stages of the interconnection queue, including those with the statuses of "in service," "past IA," "under study," and "withdrawn" (**figure 3**). In ERCOT, the majority of capacity in every technology bucket is still under study (66% for renewables, 78% for storage, and 71% for natural gas, with about 19-31% having reached IA execution). About 31% of ERCOT renewable capacity and 26% of ERCOT gas capacity in this period have reached IA status, while 2.7% are in service. More than half of the renewable and storage projects in PJM's queue are withdrawn, while about 65% of the gas projects are under study. After excluding projects that were a part of AH1[16] to Transition Cycle 2 migrations and transmission-only projects, none of the projects in the PJM queue have reached commercial operation or executed an IA.

[14] Interconnection queue data varies in quality and content across ISOs. Data categories are often inconsistent or absent from one region to another. As such, we have to make a few assumptions about what we count as active and which fields to include. Our definition of "active" is somewhat narrower than other analyses, which leads to slightly different summary statistics. For multi-fuel projects, the capacity associated with each fuel is not readily available in public data, so we classify these as "hybrid," despite the variety of combinations present in the data.

[15] The 1,216 projects are only the active projects in the queue. Across all outcomes between March 2021 and March 2026, ERCOT has 1,942 projects and PJM has 1,765 projects in the queue. Among the 1,592 projects that entered the ERCOT queue between March 2021 and March 2026 (representing 369.7 GW), only 2.8% (representing 10.4 GW) have reached commercial operation, and another 25% (representing 92.4 GW) have reached an executed IA status.

[16] PJM's interconnection reform moves the queue from a "first-come, first-served model" to a "first-ready, first-served" model. Under PJM's transition rules, projects from entry groups AG2 and AH1 are assigned to Transition Cycle 2 (TC2) and must resubmit under the new requirements. PJM's serial queue page marks AG2/AH1 projects as "moved to TC2", while the cycle-service page carries forward the TC2 project details.

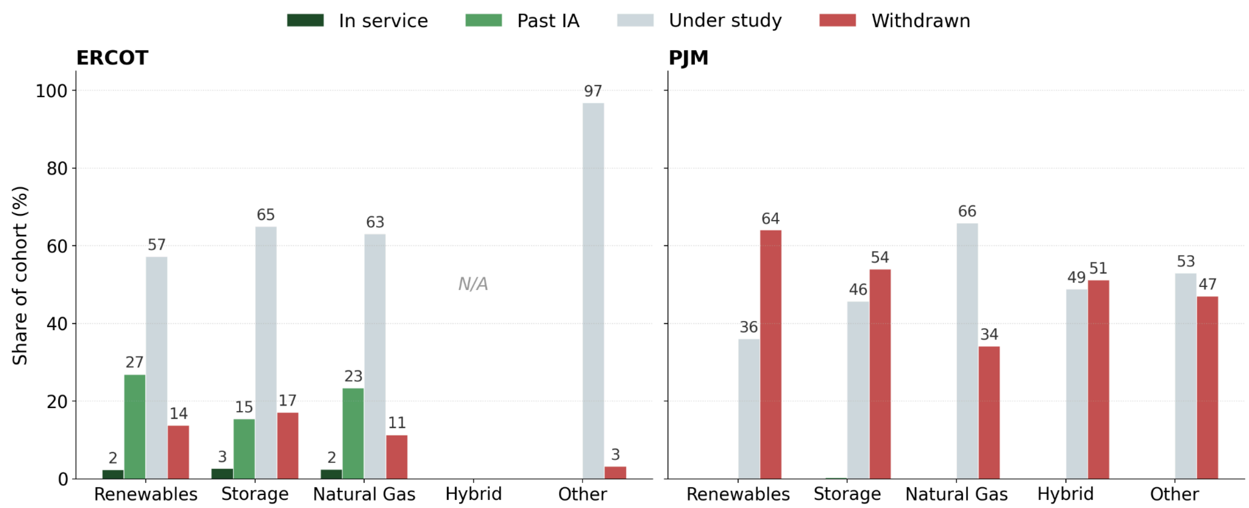


**Figure 3:** Success rate by technology (March 2021–March 2026). Note: Cohort window uses earliest available entry data from each ISO (i.e., PJM's interconnection request submitted date, and ERCOT's screening study start date). This table includes PJM's TC2-migrated projects. Renewable projects include wind and solar; storage projects include battery energy storage systems (BESS); natural gas projects include any gas technology such as combined cycle or simple cycle; hybrid projects include any fuels with compound labeling (e.g., solar + BESS, wind + BESS), and other projects include any technology listed outside of renewable, natural gas, storage and hybrid. Source: Carbon Direct analysis of ISO generation interconnection queue. See table 1 in *Appendix A* for exact values used.

## Time spent in the queue

Time spent in the queue between different milestones varies among markets. In ERCOT, active projects have been in the queue for an average of three years since screening study initiation. The two largest load zones, North-Central and Coast, both show wait times above this average. Recent interconnection waits for projects that have received interconnection agreements since March 2021 was over three years (median wait from screening to IA execution), which is well past the standard timeline outlined in FERC 2023 of less than one year.[17]

Of PJM projects submitted from 2018–2020, 95–99% have resolved within about five years of submission, but 65–80% of that capacity withdrew rather than reaching an executed IA. Today's active PJM projects in data center load-growth zones have a median wait time of roughly four years; the historical base rate suggests that most of this capacity will not actually connect.

Within ERCOT, natural gas projects move through the queue faster than renewables and storage. Gas projects with IAs signed since March 2021 took an average of 17 months from screening start to IA execution, compared to 23 months for storage projects and 27 months for renewables projects.[18] This can be explained by ERCOT's "connect and manage" approach, which benefits gas projects more as these projects are often sited near load delivery points (unlike many solar and

[17] Explainer on the Interconnection Final Rule | Federal Energy Regulatory Commission. [accessed 2026 Apr 29]. https://www.ferc.gov/explainer-interconnection-final-rule
[18] Averages are weighted by capacity in MW.

wind projects), lowering local upgrade costs.[19] However, these timelines are getting longer. For example, storage projects that received IAs in 2025 waited about nine months longer than those that received IAs in 2022 (a total of 26 months), and renewable projects waited about six months longer than those that received IAs in 2021 (a total of 25 months).[20]

**Figure 4** shows the median time between IA execution and commercial operation date (COD), bucketed by in-service year, for ERCOT projects in the March 2021 to March 2026 window. The shaded band is the 25-75th percentile range.

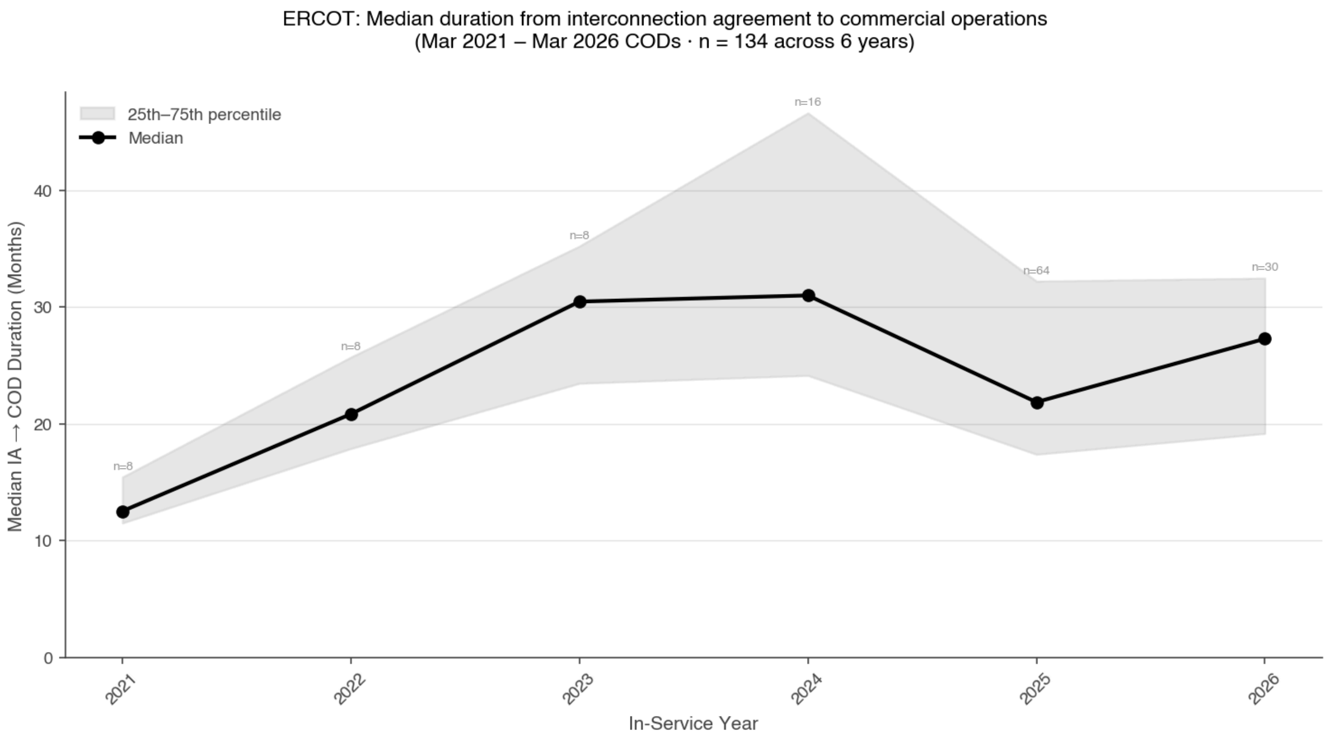


**Figure 4:** ERCOT median time from interconnection agreement (IA) execution to commercial operation date (COD), by in-service year. The shaded band shows 25-75th percentile range. Source: Carbon Direct analysis based on ERCOT GIS report.

PJM is omitted from **figure 4,** because a comparable trend is harder to establish in PJM. In PJM, IA execution dates are not published in the queue datasheet. While project-level agreement documents are available on the PJM website, they are typically just the most recent FERC-filed amendment, rather than the original signed IA, making them an unreliable source for IA execution dates.

[19] Howland E. 2023 Nov 27. Can ERCOT show the way to faster and cheaper grid interconnection? | Utility Dive. [accessed 2026 Apr 29]. https://www.utilitydive.com/news/connect-and-manage-grid-interconnection-ferc-ercot-transmission-planning/698949/
[20] 2022 is used as the baseline year for storage in this calculation to avoid skewing results, as 2021 had less than 60 MW of storage compared with 2.2 GW in 2022.

## Zonal load versus capacity in the queue

In ERCOT, load is concentrated in the North-Central (27%),[21] Coastal (26%), South-Central (16%), and Far West (13%) regions, which make up 83% of the total load in ERCOT. The Far West, containing the Permian Basin, holds the largest share of queue capacity at roughly 20% (78 GW), higher than its 13% of load. By contrast, the two largest load zones, North-Central and Coastal, together represent 53% of load but only 26% of queue capacity. Within the Far West, the queue is a mix of solar (38% of zonal queue capacity), storage (about 26%), wind (20%), and gas (16%); within North-Central the queue is dominated by battery storage (51%) and solar (37%). Gas in the queue is concentrated in the Far West (24% of all gas capacity), South-Central (19%), and East (17%). Projected load and capacity in the interconnection queue are therefore not always aligned, as shown in **figure 5.** Growing demand in load-heavy zones is likely to be met with gas generation, if the projects in the queue are actually built.

Load growth is mostly driven by data center demand across the load zones of PJM, particularly in the northern Virginia area.[22] Load is mostly concentrated in the American Electric Power (11%), Commonwealth Edison Company (16%), Dominion (22%), and Mid-Atlantic (29%) load zones, which make up about 78% of regional load.[23] New renewable capacity projects in the queue are concentrated in the American Electric Power (26%) and Dominion (20%) load zones, while new gas capacity is concentrated in the Allegheny Power Systems (33%) and American Transmission Systems, Inc. (30%) load zones. **Figure 5** shows that projected large loads are concentrated in zones where there is also substantial capacity in the queue, meaning that queue capacity and zonal load are generally aligned in PJM. While this geographic alignment may reduce transmission build-out pressure, the overall conversion rate is still worth noting.

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[21] In terms of major load areas: ERCOT North-Central contains Dallas/Fort Worth, Waco, Brazos and Plano. Far West contains Lubbock and Amarillo. South-Central contains San Antonio, Austin, and Laredo. Coastal contains Houston and Galveston. East contains Nacogdoches. West contains Midland and El Paso.

[22] Enerdatics. 2025 Aug 4. US Data Center Power Demand Surpasses 150 GW, With PJM and ERCOT Accounting for 60% of the facilities. [accessed 2026 Apr 29]. https://www.enerdatics.com/insights/us-data-center-power-demand-surpasses-150-gw-with-pjm-and-ercot-accounting-for-60-of-the-facilities

[23] In terms of major load areas: American Electric Power contains Columbus (Ohio), Charleston (West Virginia), and Fort Wayne (Indiana). Commonwealth Edison Company includes Chicago (Illinois). Dominion includes Arlington, Richmond, and Norfolk (Virginia). The Mid-Atlantic aggregate spans Baltimore Gas and Electric (Baltimore), Jersey Central Power and Light (central New Jersey), Met-Edison (Reading and Lancaster), PECO (Philadelphia), Potomac Electric Power Company (Washington, DC), Public Service Enterprise Group (Newark), Atlantic Electric (Atlantic City), Delmarva (Wilmington, Delaware), Penelec (Erie), and Rockland Electric (northern New Jersey).

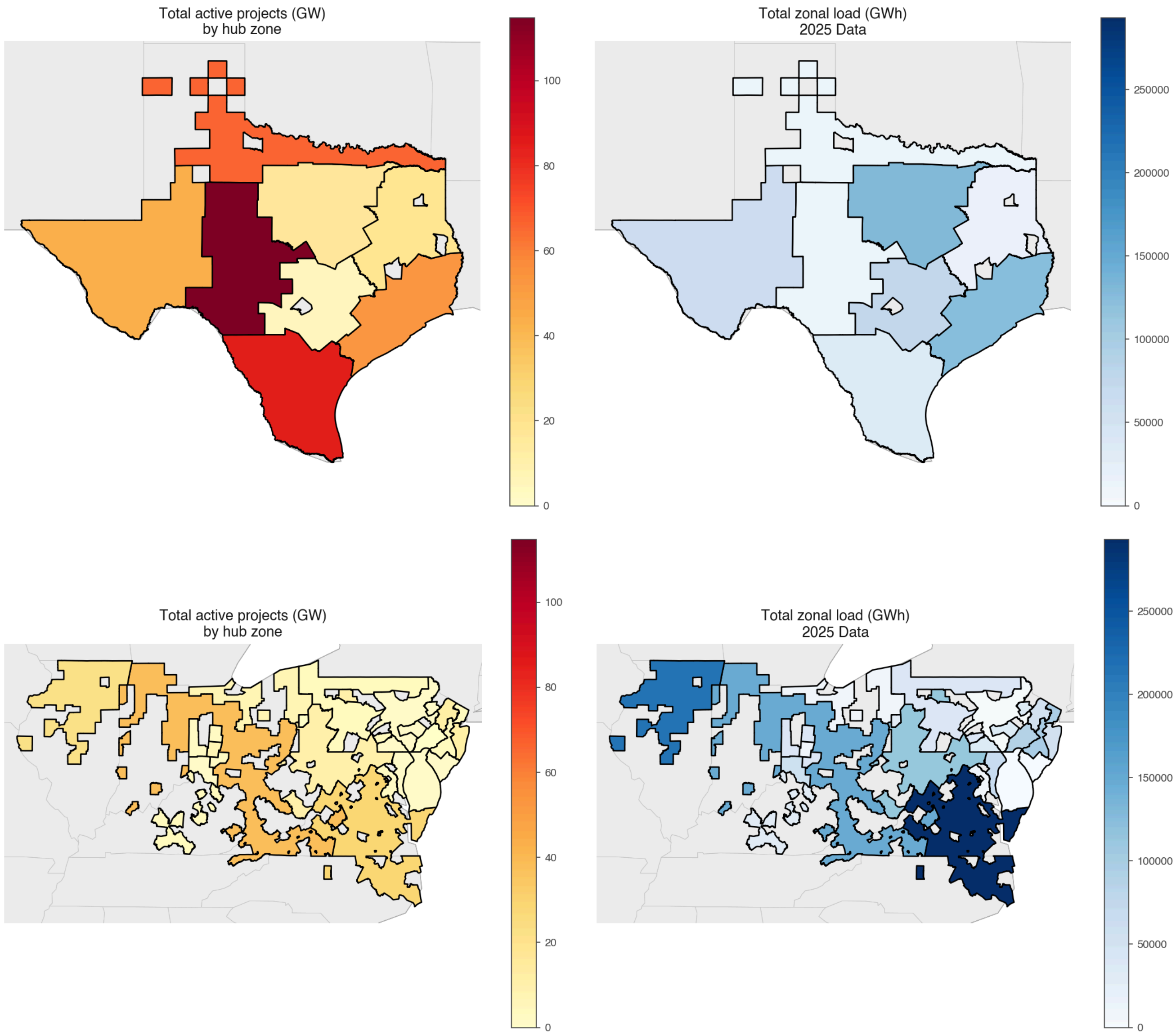


**Figure 5:** Active project capacity (ie., projects with IA signed, under construction) versus total zonal load for ERCOT (top) and PJM (bottom). Note: We treat ERCOT weather zones and PJM transmission operator zones as roughly equivalent for this analysis. This requires making a few assumptions. For ERCOT, projects are assigned to weather zones based on a two-tier lookup: project county is mapped to ERCOT's county-to-zone profile, and projects without county data fall back to ERCOT's capacity, demand, reserve reporting zone field as mapped to weather zones. For PJM, each project is assigned to a zone using a three-tier lookup: project transmission owner is mapped to load zone, with county-level overrides for ambiguous cases, and projects with no transmission owner fall back to the state level. Source: Carbon Direct analysis using ISO/RTO, EIA, and US Census datasets.

## Trends since FERC 2023 and One Big Beautiful Bill Act

There are several important trends in the queue data that take place after the announcement of FERC 2023 and the OBBB. FERC 2023, (issued on July 28, 2023) aims to improve the interconnection process by moving from a "first-come, first-served" serial study approach to a "first-ready, first-served" cluster study approach. OBBB (signed into law on July 4, 2025) accelerates the end of tax credits for wind and solar while preserving policy support for nuclear, geothermal, and battery storage.

For our analysis, we compared a pre-OBBB impact period between Jan 1, 2025 and July 3, 2025, with a post-OBBB impact period between July 4, 2025 and March 31, 2026 (a window that is 48% longer). **Figure 6** summarizes the monthly entries and withdrawals to the ERCOT queue, from March 2021 to March 2026. Pre-OBBB, ERCOT received IRs for 6.6 GW of gas projects, 23.7 GW of storage projects, and 25.1 GW of renewable projects. Post-OBBB, ERCOT received IRs for 24.1 GW of gas projects, 20.1 GW of storage projects, and 29.3 GW of renewables projects. Normalizing for the different window lengths, gas entries accelerated by about 150% on a monthly basis (growing from 1.1 GW/month to 2.7 GW/month), while storage entries fell by 42% and renewable entries fell by 21% despite the larger absolute total. In other words, post-OBBB, more gas and less of everything else was added to the ERCOT queue.

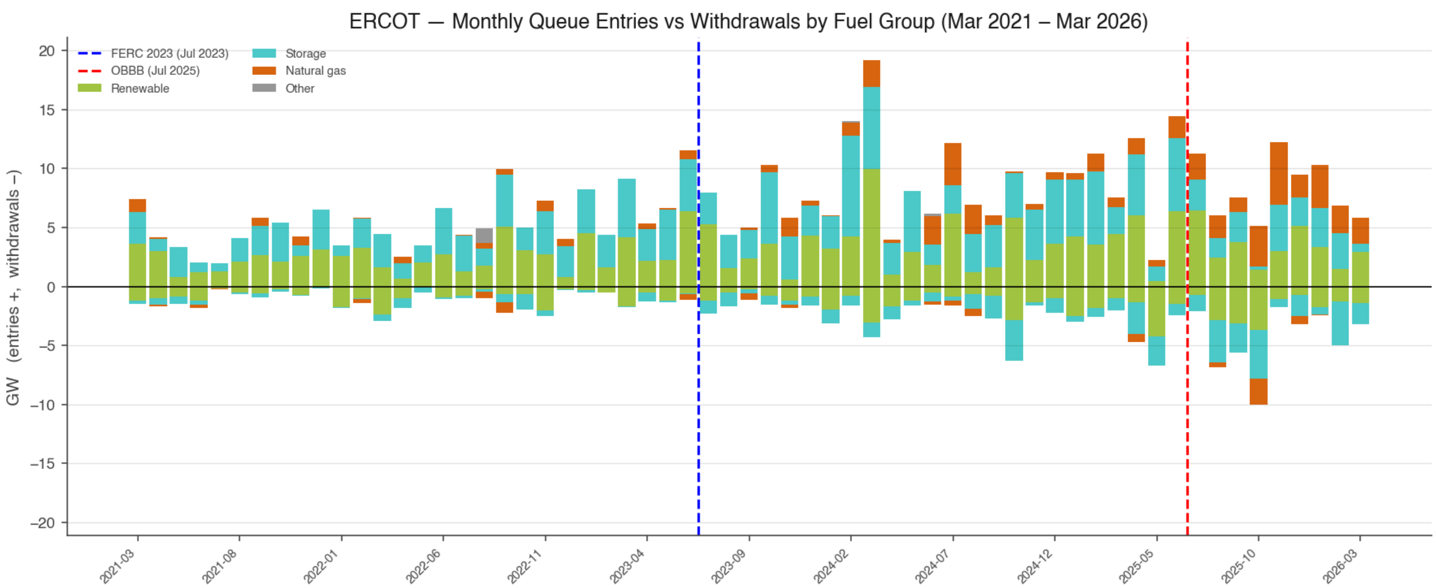


**Figure 6:** Monthly capacity changes in the ERCOT interconnection queue between March 2021 and March 2026, FERC 2023 is indicated by the blue dotted line and OBBB is indicated by the orange dotted line. Source: Carbon Direct analysis of PJM and ERCOT interconnection queue.

Due to the 2022 interconnection queue freeze in PJM, there were no new projects between FERC 2023 and post-OBBB. In both markets, withdrawal of renewable projects is significant post-OBBB. Additionally, nine gas projects totalling 3.5 GW were withdrawn from the PJM queue post-OBBB.

## Implications for PJM and ERCOT markets

Data centers are rapidly increasing demand for clean, firm capacity. In markets like ERCOT and PJM, the generation capacity waiting in the interconnection queue is significant. Currently, the ERCOT interconnection queue holds approximately 2.8 times more active capacity than the projected data center load growth by 2030, while the PJM queue holds roughly an equivalent amount of active capacity to its projected data center demand growth over the same period.[24, 25]

ERCOT has shorter queue durations and higher percentages of projects reaching executed IA status. For ERCOT projects submitting IRs between March 2021 and March 2026, approximately 24-36% of capacity has reached an executed IA or commercial operation status (the specific value varies by fuel type). While battery storage is accelerating, hybrid projects (storage + generation) tend to move faster, meaning that future capacity installations in ERCOT will increasingly be paired resources. This will improve dispatchability in a market that relies on real-time prices to incentivize capacity. Additionally, the national natural gas queue surge has direct relevance to ERCOT. ERCOT's gas capacity entries are about 24 GW, up from 6.6 GW pre-OBBB. Even a fraction of this dispatchable gas capacity in the interconnection queue could help close any near-term reliability gaps caused by the growing demand from the data centers.

PJM's story is more complicated. FERC 2023 and the queue freeze were intended to clear speculative projects and produce a cleaner interconnection queue. Given PJM's reliability concerns and the OBBB's removal of wind and solar incentives by 2027, lower numbers of wind and solar projects are expected to go through the queue, which means more natural gas projects will likely be needed to meet capacity needs. PJM's share of active projects that are under study (i.e., without executed IAs or not yet under construction) represents the only, near-term supply for the region. If these projects do not pass to the IA stage or don't become operational, the PJM market is likely to face significant capacity constraints.

Understanding where and when sufficient, firm, clean capacity will actually materialize requires more than tracking what is in the queue. It requires rigorous analysis of project viability, technology siting, and dispatch optimization to determine where natural gas, renewable energy, storage, and hybrid projects can deliver the highest grid and customer value, and whether the current pipeline is realistically positioned to meet the scale and pace of incoming data center demand.

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[24] Vegas P, Rickerson W, Scheel RL. 2025. Item 8.1: Long-Term Load Forecast Update (2025-2031) and Methodology Changes. [accessed 2026 Apr 29]. https://www.ercot.com/files/docs/2025/04/07/8.1-Long-Term-Load-Forecast-Update-2025-2031-and-Methodology-Changes.pdf

[25] PJM Resource Adequacy Planning Department. 2025. 2025 PJM Long-Term Load Forecast Report. [accessed 2026 Apr 29]. https://www.pjm.com/-/media/DotCom/library/reports-notices/load-forecast/2025-load-report.pdf

# Appendix A

**Table 1:** Success rate by technology (March 2021 - March 2026)

| Market | Status | Renewables | Storage | Natural Gas | Hybrid | Other |
|---|---|---|---|---|---|---|
| PJM | % In service | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | % Past IA | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 |
| | % Under study | 36 | 45.7 | 65.9 | 48.8 | 53 |
| | % Withdrawn | 64 | 54 | 34.1 | 51.2 | 47 |
| ERCOT | % In service | 2.3 | 2.6 | 2.4 | N/A[26] | 0.0 |
| | % Past IA | 26.9 | 15.4 | 23.4 | N/A | 0.0 |
| | % Under study | 57.2 | 65 | 63 | N/A | 96.8 |
| | % Withdrawn | 13.7 | 17.1 | 11.3 | N/A | 3.2 |

**Table 2:** Data sources/references for figure 2

| Project Name | Grid | Estimated capacity | Location | Estimated live date |
|---|---|---|---|---|
| Stargate Abilene (Project Ludicrous) | ERCOT | 1.2 GW | ERCOT West | Live September 2025; full 1.2 GW: mid-2026 |
| Vantage Frontier Campus | ERCOT | 1.4 GW | 125 miles west of Fort Worth | Construction underway; first building: second half of 2026, full campus: estimated 2029 |
| Grand Prairie Hyperscale Campus | ERCOT | 1.8 GW | Dallas–Fort Worth, Oncor territory | Construction second quarter of 2025; first building: May 2026, full campus: multi-phase to be determined |
| Stargate Milam County (SB Energy) | ERCOT | 750 MW | Milam County, TX; Central Texas SB Energy Orion Solar Belt | Target operational: 2026–27 |

[26] ERCOT's interconnection data contains a single fuel type per project, meaning hybrid categorizations do not apply. Multi-fuel or colocated projects are separated out in the data.

| Project Name | Grid | Estimated capacity | Location | Estimated live date |
|---|---|---|---|---|
| Google Texas Expansion | ERCOT | 1.5 GW | ERCOT West | Investment through 2027; per-campus timelines to be determined |
| Tract Caldwell County Park | ERCOT | 2 GW | Austin–San Antonio corridor | Phase 1 energization: 2028; full buildout: 2030 or later |
| Meta Prometheus Campus | PJM | 1 GW | American Electric Power Ohio/PJM | Phased online 2026; Phase 2 expansion: to be determined |
| STACK Stafford Technology Campus (STC) | PJM | 1 GW | PJM Dominion zone | Construction 2025; Phase 1 live 2027 |
| Stargate Lordstown (SoftBank) | PJM | 750 MW | First Energy/PJM | Groundbreaking underway; target operational: 2026 |

# Acknowledgements

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