FEWER NEW MILES

Strategic industries held back by slow pace of transmission

Rev. 1

Nathan Shreve, Zach Zimmerman,
Gretchen Kershaw, Rob Gramlich
Grid Strategies LLC

With support from
Americans for a Clean Energy Grid

JULY 2025

Americans for a Clean Energy Grid

GridStrategies

CONTENTS

EXECUTIVE SUMMARY

The United States is entering a period of surging electricity demand growth, driven by the expansion of geopolitically and nationally strategic industries such as semiconductor chip manufacturing and artificial intelligence (AI). These sectors are critical to national competitiveness and economic development, but their success depends on reliable, affordable access to electricity. While new sources of generation are coming online, the high-voltage transmission system needed to deliver that power is not being built at the pace required to meet this rising demand.

In 2024, only 322 miles of new high-voltage transmission lines were completed, the third slowest year of new construction for 345 kV and above transmission over the past 15 years. For comparison, nearly 4,000 miles were built in 2013 alone. The pace of build out in 2024 falls far short of national needs: the U.S. Department of Energy's (DOE) 2024 National Transmission Planning Study calls for at least a doubling of the current regional transmission capacity and quadrupling of interregional transmission capacity by 2050. This implies that a build out of roughly 5,000 miles per year of high-capacity regional transmission is needed to support grid reliability, reduce congestion, and enable continued economic growth—and even more miles of interregional transmission.

Most of the mileage built in 2024 came from a small set of projects. These include Ten West Link, which shows the importance of federal support in facilitating the development of large scale transmission, and Cardinal–Hickory Creek, which demonstrates the importance of proactive regional planning. Earlier efforts from over a decade ago, such as the Texas Competitive Renewable Energy Zone (CREZ) projects, similarly show the important role of proactive planning in delivering major infrastructure at scale.

High-voltage transmission delivers significant consumer savings. For example, 765 kV lines can deliver power at up to 75% lower cost per MW than lower-voltage alternatives like 230 kV, meaning high-voltage transmission can cost up to four times more per MW, meaning high-voltage transmission offers a cost-effective way to ease ratepayer burdens at a time of rising electricity rates.

Interregional transmission enhances resource adequacy by enabling capacity sharing across regions, which improves reliability and lowers system costs. These benefits are especially valuable during periods of grid stress, when interregional assets are typically available nearly 100% of the time.

SECTION 1
INTRODUCTION

The United States has entered a new era of electricity demand and energy development. Load is rising across sectors, from industrial expansion and digital infrastructure to manufacturing reshoring and electrification. At the same time, new sources of power are coming online to meet this demand for electricity across the country. Without sufficient high-voltage transmission infrastructure to move energy from where it is generated to where it is needed, demand will be unserved.

High-voltage transmission is the backbone of the electric system. It enables power to flow freely across regions, balancing localized supply and demand for electricity while unlocking access to diverse, low-cost energy resources. This reduces congestion costs, strengthens reliability under stress, and ensures that the benefits of new energy development can reach homes, businesses, and industry. Despite the critical role of high-voltage transmission, the United States continues to build far too little.

As a nation, we have built large-scale high-voltage transmission before, and at meaningful scale. In 2013, the United States completed nearly 4,000 miles[1] of new high-voltage lines, but since then, development has slowed to a trickle. That level of progress was made possible through coordinated planning, streamlined permitting, and clear cost allocation. These are the same elements now being reinforced through the Federal Energy Regulatory Commission's (FERC) Order No. 1920 and recent congressional efforts at reforming transmission permitting, such as the bipartisan Barrasso-Manchin permitting reform bill of 2024. The expertise and capacity to build new high-voltage lines still exists, and the success of 2013 shows that it can be done again with the right policies and commitments in place.

This report reviews the new transmission projects completed in 2024 and examines what they reveal about the trajectory of transmission development in the United States. It analyzes where new lines are being built, identifies factors contributing to project progress, and evaluates whether construction activity is keeping pace with planning and investment commitments.

1 ACEG, Grid Strategies LLC, *Fewer New Miles: The US Transmission Grid in the 2020s (Jul. 2024)*, https://cleanenergygrid.org/wp-content/uploads/2024/07/GS_ACEG-Fewer-New-Miles-Report-July-2024.pdf.

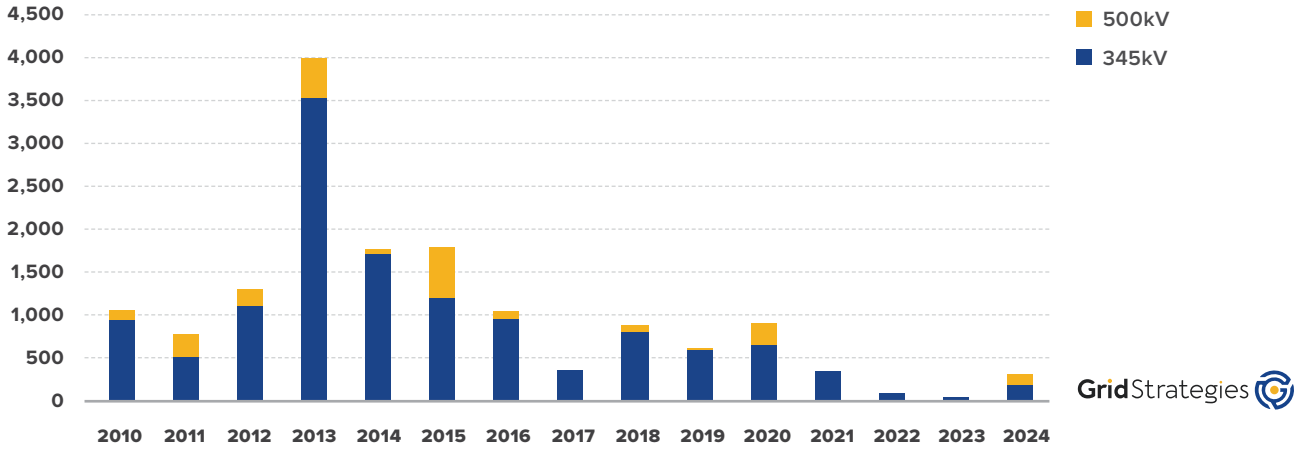
SECTION 2

PROJECTS COMPLETED IN 2024

After a historically slow year for transmission development in 2023, the pace of new high-voltage construction improved slightly in 2024, though it remains the third slowest year of new construction for high-voltage transmission over the past 15 years. According to project-level data compiled from FERC Infrastructure Reports and Electric Reliability Council of Texas (ERCOT) Transmission Project reports, only 322 miles of 345 kV+ transmission lines were completed in 2024. This number pales in comparison to the nearly 4,000 miles of high-voltage transmission built over a decade ago in 2013.

Even under the most conservative scenario of needed transmission expansion—2.1 times by 2050—DOE's findings imply the need to build roughly 5,000 miles per year of high-capacity transmission to support grid reliability, reduce congestion, and enable continued economic growth.

FIGURE 1 | Miles of new 345 kV+ transmission lines built over the last 15 years[2]



According to DOE's 2024 National Transmission Planning Study, the lowest-cost U.S. electricity system portfolios that meet future demand growth and reliability needs require expanding the total transmission system of the contiguous United States by 2.1 to 2.6 times its 2020 size by 2050. DOE found that under high demand growth (i.e., 2.7% growth per year), that range increases to 2.5 to 3.3 times the 2020 system.

Even under the most conservative scenario of needed transmission expansion—2.1 times by

2 FERC, *Energy Infrastructure Updates, December 2015 through March 2025* (accessed May 2025), https://www.ferc.gov/staff-reports-and-papers.

2050—DOE's findings imply the need to build roughly 5,000 miles per year of high-capacity transmission to support grid reliability, reduce congestion, and enable continued economic growth.[3] Achieving this growth will require proactive, multi-value planning of new large-scale, regional transmission, which is now required under FERC Order No. 1920.

Furthermore, no single region can meet its reliability and affordability goals in isolation. Interregional transmission is essential to share resources, manage shifting demand, and improve system resilience. For example, interregional transmission allows capacity resources to be shared between regions, improving reliability and reducing costs for consumers. These reliability and economic benefits are heightened during grid stress events, as interregional transmission assets tend to be available nearly 100% of the time.[4]

Yet, these long-distance lines that would boost flexibility and economic efficiency remain largely absent from the U.S. grid. The North American Electric Reliability Corporation (NERC) estimates that 35 GW of additional interregional transfer capacity may be needed by 2033 to maintain reliability.[5] While FERC Order No. 1000 technically requires interregional transmission coordination, and Order No. 1920 extends that coordination to long-term transmission planning, the minimal interregional frameworks that are required by FERC have produced no interregional transmission projects since FERC first required this coordination in 2011.[6]

Lessons for high-voltage transmission: Natural gas pipelines get built under strong FERC permitting authority

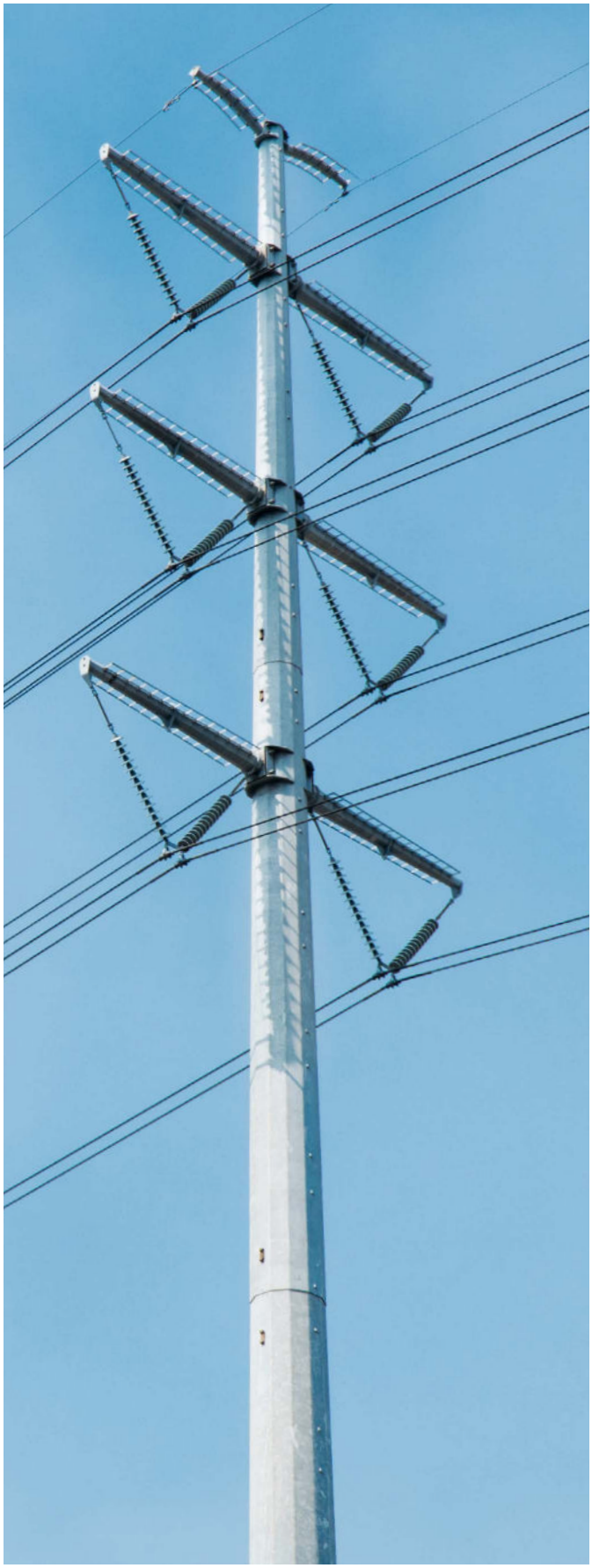
Natural gas pipeline construction continues to outpace high-voltage electric transmission development. In 2024, 530 miles of new high-capacity natural gas pipelines were placed in service, compared to just 322 miles of high-voltage electric transmission lines. Over the past five years, natural gas pipelines have averaged 534 miles per year, outpacing the 345-mile annual average for high-voltage transmission by more than 50%. This disparity highlights the impact of differing permitting frameworks: under the Natural Gas Act, FERC has the authority to site interstate pipelines, enabling more consistent and timely approvals. In contrast, the absence of comparable authority, and the fractured nature of siting and permitting transmission, continue to hinder the development of large-scale transmission infrastructure.

3 Extrapolation based on estimate of current U.S. transmission capacity of ~150,000 GW-miles. *See U.S. Dep't of Energy, National Transmission Planning Study, at 20 (2024),* https://www.energy.gov/gdo/national-transmission-planning-study. Estimate of transmission line capacity from MISO, *Transmission Cost Estimate Guide, at 33 (Jan. 2024),* https://cdn.misoenergy.org/20240131%20PSC%20Item%2005%20Transmission%20Cost%20Estimation%20Guide%20for%20MTEP24%20-%20Redline631529.pdf.

4 ACEG, Grid United, & Grid Strategies LLC, *Resource Adequacy Value of Interregional Transmission (Jun. 2025),* https://cleanenergygrid.org/portfolio/report-resource-adequacy-value-of-interregional-transmission/.

5 NERC, *Interregional Transfer Capability Study* (Dec. 2024), https://www.nerc.com/pa/RAPA/Documents/ITCS_Final_Report.pdf ("ITCS").

6 U.S. Dep't of Energy, *National Transmission Needs Study, at iii (Oct. 2023),* https://www.energy.gov/gdo/national-transmission-needs-study.



SECTION 3
PROJECT CASE STUDIES

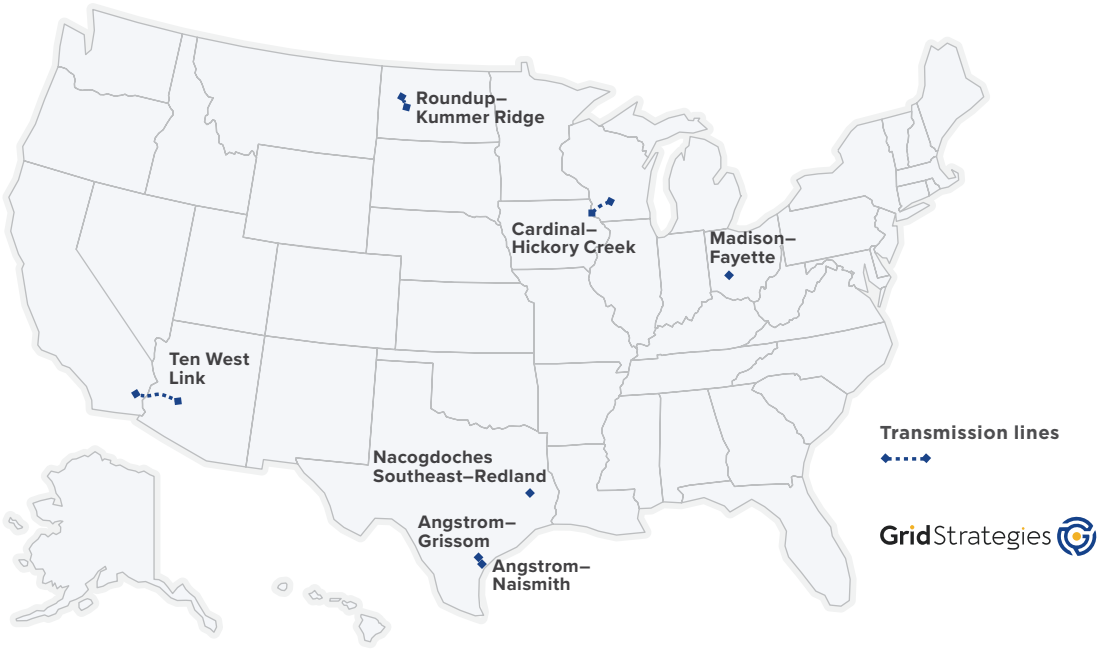
This incremental buildout of new transmission in 2024 was dominated by a small number of large-scale projects. Among the 322 new miles of high-voltage transmission lines completed in 2024, just seven projects accounted for nearly all newly built 345 kV+ infrastructure.

Two of these completed projects were large-scale regional or interregional lines: Ten West Link and Cardinal–Hickory Creek. Their progress highlights the role of proactive long-term, regional transmission planning as well as federal support in catalyzing major transmission projects. Ten West Link was the largest project completed in 2024, and advanced with streamlined permitting pursuant to Title 41 of the bipartisan Fixing America's Surface Transportation (FAST) Act of 2015 (i.e., FAST-41). Cardinal–Hickory Creek was originally approved in 2011 as part of the Midcontinent Independent System Operator's (MISO) Multi-Value Projects (MVP) portfolio, developed via a planning process that embodied many of the same regional planning best practices now guiding MISO's Long Range Transmission Planning (LRTP) initiative and also those FERC adopted in Order No. 1920.

The other five projects completed in 2024 were smaller, reliability-focused transmission lines. These projects advanced largely because they were

needed for reliability and located entirely within a single state and utility service territory, which streamlined the planning, paying, and permitting of the lines. Several lines, particularly in Texas, also benefited from accelerated permitting after being designated as "critical" to system reliability by the grid operator. This designation allowed for expedited review by the state's utility regulator, enabling these projects to meet near-term industrial growth and grid reliability needs.[7]

FIGURE 2 | New 345 kV+ transmission lines completed in 2024



7 For further discussion on "what is working," see ACEG & Grid Strategies LLC, *Ready-to-Go Transmission Projects 2023 (Sept. 2023)*, https://cleanenergygrid.org/wp-content/uploads/2023/09/ACEG_Transmission-Projects-Ready-To-Go_September-2023.pdf.

TABLE 1 | Details on new 345 kV+ transmission lines completed in 2024

Line completed in 2024	Location	Length (mi)	Voltage (kV)	Transmission planning approval timeline
Ten West Link	CA to AZ	125	500	CAISO approved in 2013-2014 TPP as an economic project[8]
Cardinal–Hickory Creek	IA to WI	102	345	MISO approved in 2011 as part of MVP[9]
Roundup–Kummer Ridge	ND	33	345	SPP Board approved in 2022[10]
Madison–Fayette	OH	13	345	PJM TEAC approved in 2022[11]
Nacogdoches Southeast–Redland	TX	13	345	ERCOT RPG approved in 2022[12]
Angstrom–Naismith	TX	19	345	ERCOT RPG approved in 2022[13]
Angstrom–Grissom	TX	17	345	ERCOT RPG approved in 2022[14]
TOTAL		**322**		

GridStrategies

Ten West Link

This 125-mile, 500 kV line developed by DCR Transmission connects the Delaney substation near Tonopah, Arizona, to the Colorado River substation near Blythe, California. This project enables greater energy exchange between the California Independent System Operator (CAISO) and the broader Western Interconnection, a rare example of recent interregional transmission development. It supports anticipated growth in new generation in the Desert Southwest region of the United States and helps relieve congestion in the region as well.

CAISO first approved the line for inclusion in its 2013-2014 Transmission Planning Process (TPP). The project advanced with support from FAST-41, a permitting reform statute that enables coordinated environmental reviews across multiple federal agencies. Under FAST-41, the U.S. Bureau of Land Management coordinated with other bodies—including the National Park Service, U.S. Fish and Wildlife Service, Advisory Council on Historic Preservation, Council on Environmental Quality, U.S. Department of Defense, as well as Tribal leadership and local

8 California Independent System Operator, *2013-2014 Transmission Plan* (Jul. 2014), https://www.caiso.com/Documents/Board-Approved2013-2014TransmissionPlan_July162014.pdf.

9 ITC Midwest, Dairyland Power Cooperative, & ATC, *Joint News Release: Cardinal–Hickory Creek Transmission Line Energized* (Sept. 2024), https://www.cardinal-hickorycreek.com/joint-news-release-cardinal-hickory-creek-transmission-line-energized/.

10 Southwest Power Pool, *Letter to Basin Electric Power Cooperative: Notification to Construct, SPP-NTC-220720* (Mar. 2023), https://www.spp.org/documents/69005/ntc%20220720%20bepc%20-%20m.pdf.

11 PJM Interconnection, *RTEP 2023: Regional Transmission Expansion Plan* (Mar. 2024), https://www.pjm.com/-/media/DotCom/library/reports-notices/2023-rtep/2023-rtep-report.pdf ("PJM RTEP 2023").

12 Electric Reliability Council of Texas, *February TPIT No Cost 020125* (Mar. 2022), https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.ercot.com/files/docs/2022/03/02/ERCOT%2520February%2520TPIT%2520No%2520Cost%2520020125.xlsx&ved=2ahUKEwjbqeeKnY2OAxWaEVkFHWKvEgUQFnoECBQQAQ&usg=AOvVaw3KRxRO7a0RGPkfdQWHNvwl ("ERCOT TPI*T F*ebruary 2025").

13 *Id.*

14 *Id.*

communities—to secure required federal approvals and authorizations. Together, these efforts demonstrate how interregional transmission planning (in this case CAISO looking beyond its footprint) combined with federal leadership to streamline siting and permitting can catalyze significant large-scale transmission development.

Cardinal–Hickory Creek

MISO included this 102-mile, 345 kV line developed by ITC Midwest, American Transmission Company, and Dairyland Power Cooperative as part of its MVP portfolio, which MISO planned and approved in the early 2010s. This portfolio was comprised of a set of regionally planned lines with clear, MISO-backed cost allocation, and included a group of regional projects intended to: improve reliability; facilitate generator interconnection; and enable access to lower-cost energy across MISO's footprint. Cardinal–Hickory Creek alone accounted for more than 30% of all high-voltage transmission miles built in the United States in 2024.

Cardinal–Hickory Creek is an early example of the type of project envisioned in MISO's current LRTP initiative. It supports interconnection of low-cost generation and reduces congestion between MISO's North and Central sub-regions, strengthening the ability to move energy across the MISO footprint in response to electricity needs driven by increasingly frequent extreme weather events and market signals.

The project faced lengthy delays, including protracted legal and permitting battles, particularly over its path through the Upper Mississippi River National Wildlife and Fish Refuge. Approved in 2011, it ultimately moved forward to completion after more than a decade of litigation and regulatory review, highlighting the barriers to building even clearly beneficial projects that are supported by regional planners.

Roundup–Kummer Ridge

This 33-mile, 345 kV line was developed by Basin Electric Power Cooperative to address rapid load growth in western North Dakota. The Southwest Power Pool Board approved the project in 2022 as a reliability-driven project.[15] The project advanced quickly due to its location within a single utility service area and state, and its relatively simple cost allocation.

Madison–Fayette

This 13-mile, 345 kV line was developed by AES Ohio as a reliability project to serve a $4 billion battery manufacturing facility and other new industrial load near Jeffersonville, Ohio. The PJM Interconnection Transmission Expansion Advisory Committee (TEAC) reviewed the project[16] in late 2022, after which AES Ohio filed a notification letter to kick off the accelerated application process for project approval[17] in early 2023. As a local reliability project within a single utility and state, cost allocation was straightforward, and the project benefited from an expedited

15 Basin Electric Power Cooperative, *Roudup-to-Kummer Ridge 345 kV Transmission Line (Dec. 2024),* https://www.basinelectric.com/about-us/transmission/Roundup-Kummer-Ridge-transmission-line.

16 PJM RTEP 2023.

17 AES Ohio, *Pre-application notification letter for Ohio Power Siting Board, Case No. 23-0066-EL-BLN (Feb. 2023),* https://dis.puc.state.oh.us/ViewImage.aspx?CMID=A1001001A23B07B23942D01400.

development process due to its reliability drivers.

Nacogdoches Southeast–Redland

This 13-mile, 345 kV line was developed by Oncor to address thermal violations and support load growth in eastern Texas. The Electric Reliability Council of Texas (ERCOT) Regional Planning Group (RPG) approved the project in 2022,[18] and the Public Utility Commission of Texas (PUCT) granted the project a Certificate of Convenience and Necessity (CCN)[19] in April 2023. The project is located entirely within Oncor's service territory, which limited siting and permitting complications and enabled clear cost allocation based on reliability drivers.

Angstrom–Grissom

This 17-mile, 345 kV project was developed by AEP Texas to support over 1,000 MW of new industrial growth in the Sinton Region along the Texas Gulf Coast.[20] After review by the ERCOT RPG confirmed a reliability need in June 2020, the ERCOT Board designated the project as "critical" to the reliability of the system, pursuant to PUCT Substantive Rule 25.101(b)(3)(D).[21] This expedited the CCN approval process to 180 days, allowing the project to proceed on an accelerated schedule with clear cost allocation.

Angstrom-Naismith

This 17-mile, 345 kV line was developed by AEP Texas to meet increasing industrial demand in the Sinton Region along the Texas Gulf Coast. Like Angstrom–Grissom, ERCOT designated the project as "critical" to system reliability in June 2020, which streamlined PUCT review. The project's in-state, single-utility location enabled efficient permitting, and its reliability driver allowed for clear cost allocation.

While these smaller, local projects provide important reliability benefits, the data makes clear that large-scale regional transmission lines—which deliver long term savings for customers—are still not being built at the scale required. Relying solely on local projects is not sufficient to meet long-term system needs. Policy and regulatory frameworks must evolve to make it as straightforward to plan, permit, and finance large regional lines as it currently is for smaller, local ones.

18 ERCOT TPIT February 2025.

19 PUCT, *Application of Oncor Electric Delivery Company LLC to Amend its Certificate of Convenience and Necessity for the Nacogdoches Southeast Switch - Redland Switch 345-kV Transmission Line in Nacogdoches and Angelina Counties, Docket No. 54524, Notice of Approval (Apr. 2023),* https://interchange.puc.texas.gov/Documents/54524_27_1285717.PDF.

20 ERCOT, *Item 3: Corpus Christi North Shore Transmission Improvement Regional Planning Group Project; Urgent Board of Directors Meeting (Jun. 2020),* https://www.ercot.com/files/docs/2020/06/02/3_Corpus_Christi_North_Shore_Transmission_Improvement_Regional_Planning_Group_Project.pdf.

21 *Id.*

SECTION 4

PLANNING VS. CONSTRUCTION

According to the NERC 2024 Electricity Supply & Demand (ES&D) data, there are now 7,098 miles of 345 kV+ transmission lines planned or under construction through 2032.[22] This planning activity is mirrored by a wave of large-scale investment decisions across the country in 2024:

- MISO approved Tranche 2.1 of its LRTP portfolio, totaling $21.8 billion in investment.[23]
- The PUCT approved $13 billion in new transmission infrastructure through ERCOT to accommodate growing load and new resources.[24]
- SPP finalized a $7 billion regional transmission plan, the largest in its history.[25]
- CAISO approved $6 billion in projects as part of its 2023–2024 TPP.[26]

Additionally, regions such as MISO, SPP, PJM, and ERCOT are beginning to plan new 765 kV lines as higher-capacity corridors that can move energy efficiently over long distances. These lines offer major economies of scale for transmission, delivering the same amount of power at up to 75% lower cost per MW than 230 kV lines.[27] Investing in well-planned, high-voltage transmission helps lower delivered power costs and reduces the financial burden on ratepayers at a time of rising electricity prices and growing affordability concerns.

The data also emphasize a critical gap: the present speed of construction has fallen short relative to anticipated construction volume from earlier projections. NERC's recent 2022 LTRA projected that 911 miles of transmission above 100 kV would be built in 2024,[28] but 2024 FERC infrastructure reports show that only 416 miles of transmission above 115 kV were built—less than half of NERC's projected amount.[29]

22 NERC, *2024 Electricity Supply & Demand (ES&D) – Released December 2024 (Dec. 2024),* https://www.nerc.com/pa/RAPA/ESD/pages/default.aspx.

23 MISO, *LRTP Tranche 2.1 (Sept. 2024),* https://cdn.misoenergy.org/20240925%20LRTP%20Workshop%20Item%2001%20Tranche%202.1%20Business%20Case%20Overview649810.pdf.

24 ERCOT, *Permian Basin Reliability Plan Study (Jul. 2024),* https://interchange.puc.texas.gov/Documents/55718_17_1414013.PDF.

25 SPP, *2024 Integration Transmission Planning Assessment Report (Jan. 2025),* https://www.spp.org/media/2229/2024-itp-assessment-report-v10.pdf.

26 CAISO, 2023-2024 Transmission Plan (May 2024), https://www.caiso.com/documents/iso-board-approved-2023-2024-transmission-plan.pdf.

27 ACEG & Grid Strategies LLC, *Large-Scale Transmission Deployment Saves Consumers Money (Jun. 2025),* https://gridstrategiesllc.com/wp-content/uploads/GS_Transmission-Deployment-Saves-Consumers-Money.pdf.

28 NERC, *Supplemental Charts Graphs 2022 LTRA, Table K (Dec. 2022),* https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.nerc.com/pa/RAPA/ra/Reliability%2520Assessments%2520DL/Supplemental_Charts_Graphs_2022_LTRA.xlsm&ved=2ahUKEwjU-aK7rueNAxXVRTABHSyFHY0QFnoECBUQAQ&usg=AOvVaw3J3yu1tymm4Y2pFSdc8lmc.

29 The NERC 2022 LTRA reports project status for transmission lines above 100 kV but does not provide a separate breakdown for lines above 345 kV. The 100 kV figure is used here as a proxy, based on the assumption that stagnation in overall construction activity for lines above 100 kV likely extends to higher-voltage subsets, including 345 kV and above.

SECTION 5
HOW TO BUILD MORE

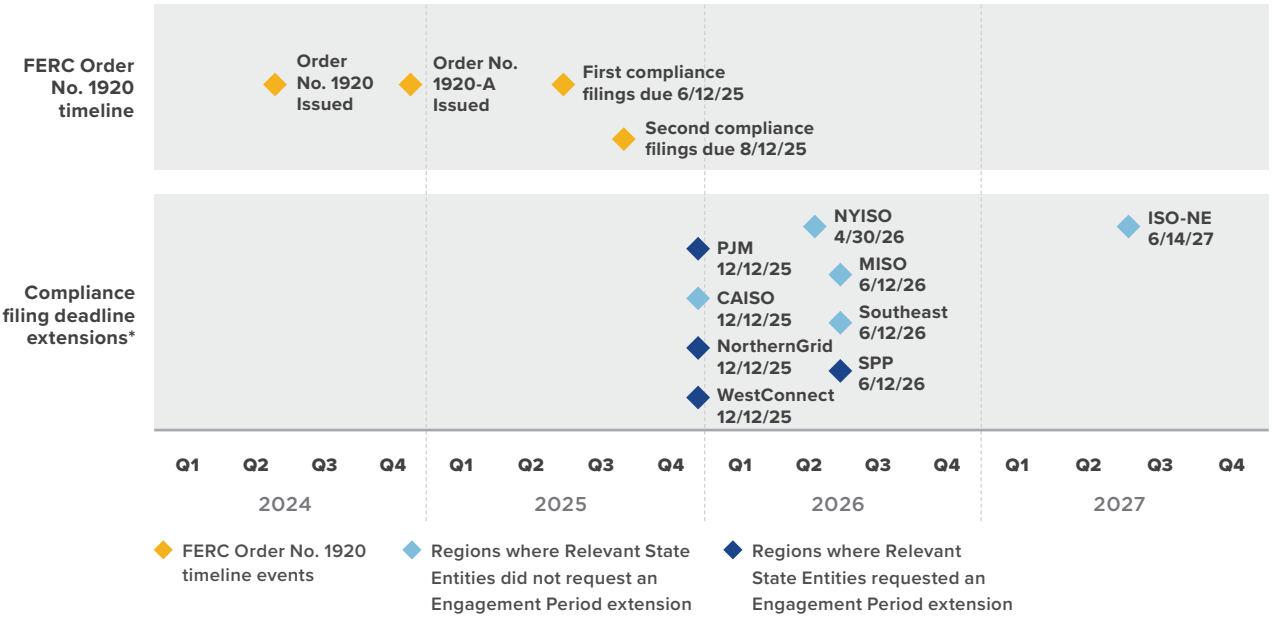
A handful of significant high-voltage transmission projects were completed in 2024, but the overall picture remains the same: the United States is not yet building transmission at the scale or pace required to meet surging electricity demand.

This country has built significant high-voltage transmission in the past and can do so again by addressing the problems with the current paradigms for planning, paying, and permitting.

This moment comes amid an evolving federal policy landscape. In 2024, FERC finalized Order No. 1920, directing transmission providers to develop long-term regional transmission plans over at least a 20-year planning horizon. The rule also requires planners to assess seven transmission benefits, including savings from reduced congestion and mitigation of extreme weather, and to consider a broader set of future planning scenarios. The rule is yet young, however, as transmission providers received extensions on their deadlines to comply with the rule. Nevertheless, transmission providers do not have to wait for formal compliance to begin implementing the best practices set forth in the rule, and many have begun doing so, including MISO in its tranches of LRTP.

This country has built significant high-voltage transmission in the past and can do so again by addressing the problems with the current paradigms for planning, paying, and permitting. Federal leadership in adopting the requirements for planning in Order No. 1920 must now be matched by strong implementation at the regional level. Planners should treat Order No. 1920 as a floor, not a ceiling, building on its foundation for ambitious, proactive, and multi-value regional transmission planning and cost allocation. In parallel, permitting reforms, targeted funding, and state-federal collaboration can help ensure that projects move from planning phases to steel in the ground. Building the grid that America needs will require translating policy momentum into built infrastructure to deliver a more resilient, reliable, and affordable grid.

FIGURE 3 | FERC Order No. 1920 compliance filing schedule



** FERC Order No. 1920 requires transmission providers to submit two compliance filings. The lower portion of this chart shows deadline extensions granted for the first compliance filing, which encompasses all of Order No. 1920's requirements except for those related to interregional transmission coordination.*

Source: FERC, *Order No. 1920 Compliance Filings Schedule* (Jun. 2025), https://www.ferc.gov/news-events/news/order-no-1920-compliance-filings-schedule.

Grid Strategies

APPENDIX

TABLE A1 | FERC 2024 Infrastructure Report data on new transmission lines[30]

Line	Developer	Length (mi)	Voltage (kV)	State	Month
Lancium – Abilene Northwest	Texas North Company	0.2	138	TX	January
Crayfish – Hayward	Florida Power & Light	3	230	FL	February
Delaney – Colorado River (Ten West Link)	DCR Transmission	125	500	CA, AZ	April
Bourne – West Barnstable	NSTAR	12.4	115	MA	May
Osprey – Haines City East	Duke Energy Florida	21.4	230	FL	July
Williston North – Bronson	Duke Energy Florida	16.9	230	FL	August
Reems Creek Reliability Project	Duke Progress Carolinas	0.3	115	NC	August
Cardinal – Hickory Creek	ITC Midwest, ATC and Dairyland Power Cooperative	102	345	IA, WI	September
Palisade – Portage Lake	Great River Energy	9.5	115	MN	November
Roundup – Kummer Ridge	Basin Electric Power Cooperative	33	345	ND	November
Madison – Fayette	AES Corp	13	345	OH	November
Castle – Ponderosa/ Grimes Tap	Entergy Texas	6.7	138	TX	December
Vanguard – Seagoville/ Mesquite East	Oncor Electric Delivery	0.9	138	TX	December
Ollin – McElroy	Texas North Company	0.5	138	TX	December
Sudbury – Hudson	NSTAR Electric	16.6	115	MA	December
Battle Axe – Zia Hills	Southwestern Public Service	6	115	NM	December

GridStrategies

30 This analysis relies primarily on project-level data from FERC's monthly Infrastructure Reports. However, these reports are subject to revisions and reporting lags, which may result in data gaps or missing projects. We supplemented FERC's data with ERCOT's Transmission Project Information Tracking (TPIT) reports, which include additional projects.

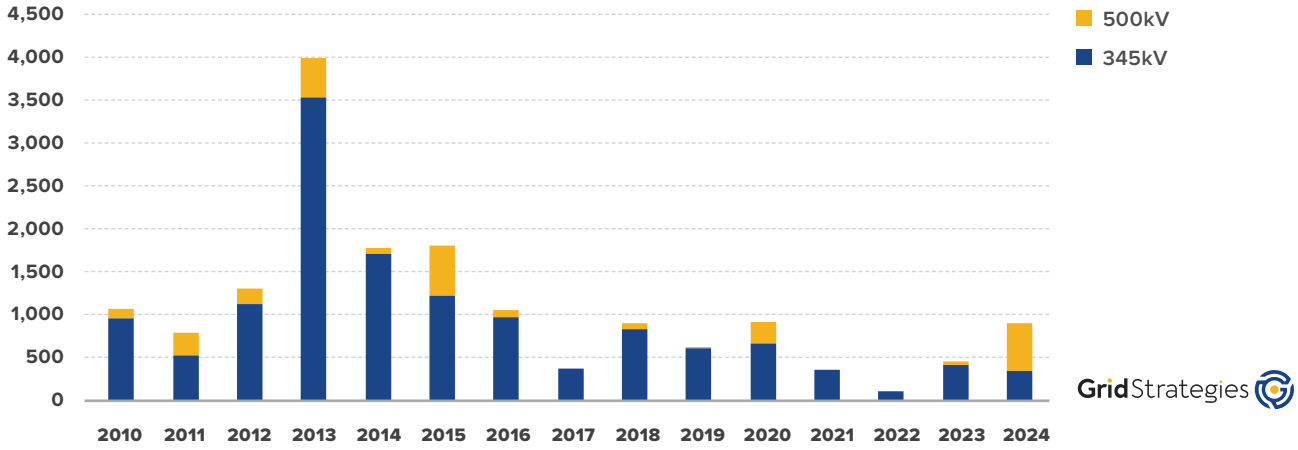
TABLE A2 | ERCOT February 2025 TPIT Completed Transmission Project data

Line	Developer	Length (mi)	Voltage (kV)	State	Month
Nacogdoches Southeast — Redland 345kV Line	Oncor Electric Delivery	13	345	TX	December
Angstrom — Naismith	AEP TCC	19	345	TX	December
Angstrom — Grissom	AEP TCC	17	345	TX	November

Grid Strategies

ADDENDUM
UPDATE FROM FERC ON TRANSMISSION BUILD NUMBERS

***UPDATED* FIGURE 1** | Miles of new 345 kV+ transmission lines built over the last 15 years (updated using July 2025 data)[31]



On July 1, 2025, FERC released its *Energy Infrastructure Update for April 2025*,[32] which included revisions to previously reported data on completed miles of new transmission. FERC's updated report shows that there were slightly more new miles of high-voltage transmission constructed in 2023 and 2024 than indicated by earlier reports. For 2023, FERC now reports approximately 400 miles of new 345 kV transmission lines were constructed and 50 miles of new 500 kV lines, up from our previously reported total of just 55 miles of new 345 kV+ transmission constructed in 2023. For 2024, FERC now reports 334 miles of new 345 kV transmission lines were constructed and 554 miles of new 500 kV lines, for a total of 888 miles of new 345 kV+ transmission constructed in 2024. We provide this addendum to likewise adjust the numbers included in our report.

While this increase in newly constructed miles of high-voltage transmission is encouraging, it does not alter the critical challenge discussed in our report: even with the updated new build numbers, the United States still needs to increase the pace of new high-voltage transmission construction more than fivefold to meet growing electricity demand reliably and affordably, while connecting enough power to maintain global leadership in critical industries like AI data centers and advanced manufacturing. According to the data, the United States built an average of 536 new miles of high-voltage transmission from 2020-2024, down from an average of 942 new miles from 2015-2019, and even further down from an average of 1781 new miles from 2010-2014.

31 FERC, *Energy Infrastructure Updates, December 2015 through April 2025 (accessed Jul. 2025)*, https://www.ferc.gov/staff-reports-and-papers.
32 FERC, *Energy Infrastructure Update for April 2025 (Jul. 2025)*, https://cms.ferc.gov/media/energy-infrastructure-update-april-2025.

This is not the first time that FERC and Yes Energy (formerly C Three) have updated historic transmission build numbers. FERC's Energy Infrastructure reports often contain modest adjustments to the miles of newly constructed transmission as more complete data become available, but the latest revision in the April 2025 report is larger than some of those previous updates. For example, the 2023 data had only increased by four miles across an entire year of updates since we published our last report in 2024, and it does not appear that the 2022 data have changed significantly either.[33]

FERC's data are based on information and reporting from the NERC Electricity Supply & Demand (ES&D) and U.S. Electric Transmission Projects© of Yes Energy and The C Three Group, LLC. The data reported are often incomplete, as delays in reporting or identification of newly energized lines can lead to undercounts. As more accurate data become available, FERC revises its data and figures accordingly.

Unfortunately, FERC does not disclose which specific lines are added when it revises historical build numbers, making it difficult to identify which lines are included in the change. While FERC requires each transmission provider to report new transmission mileage by voltage class in Form 1 filings, there is limited oversight or standardization of this data. FERC does require each transmission provider to report miles of new transmission added across voltages in its Form 1 report and could rely on that data to easily track this information. However, a limited focus on the quality or standardization of the information submitted in the report makes it very difficult to obtain useful data, leading to continued reliance on outside sources.

Despite no details on the updated miles, we suspect that some of the newly added miles can be attributed to PacifiCorp's Energy Gateway South 500 kV line,[34] which was energized in November 2024 and had not been included in previous Energy Infrastructure Updates. The line was originally announced by PacifiCorp and Idaho Power in 2007 as part of the broader Energy Gateway Projects. Construction proceeded in segments based on need, permitting, and regulatory factors; one segment was completed in 2015, and the final 416-mile segment was placed in service at the end of 2024.

33 FERC, *Energy Infrastructure Update for December 2024 (Apr. 2025),* https://cms.ferc.gov/media/energy-infrastructure-update-december-2024-revised-data-april-22-2025; FERC, *Energy Infrastructure Update for December 2023 (May 2024),* https://cms.ferc.gov/media/energy-infrastructure-update-december-2023-0; FERC, *Energy Infrastructure Update for December 2022 (Feb. 2023),* https://cms.ferc.gov/media/energy-infrastructure-update-december-2022.

34 PacifiCorp, *PacifiCorp 2025 Annual Progress Report (Feb. 2025),* https://www.wecc.org/sites/default/files/documents/progress_report/2025/PacifiCorp%202025%20APR.pdf.