



**UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
OFFICE OF ELECTRICITY
FR Doc 2026-13844
(91 FR 42429)**

**COMMENTS OF THE RAIL-GRID COLLABORATIVE
ON THE
NATIONAL TRANSMISSION NEEDS STUDY
September 8, 2026**

INTRODUCTION

The Rail-Grid Collaborative¹ (RGC) submits the following comments and observations in support of the National Transmission Needs Study (NTNS), issued July 2026.

This national study of the challenges and inadequacies of the US transmission system should be “action-forcing,” as a key instrument of federal infrastructure policy. However, the NTNS does not identify foreseeable grid weaknesses or the steps that must be taken in future time frames or what the best public policy requires. Instead, in recognizing the limited

¹ The Rail-Grid Collaborative is a non-profit organization headquartered in Washington DC. It is member-driven to promote the strength and reliability of the North American electrical grid, and the growth, safety, and commercial vitality of the North American freight and passenger railway system. RGC’s mission and activities revolve around convening, coordinating, and educating the components of both the rail and electric networks and their supply chains, for the mutual benefit of both systems. RGC advocates in related areas of state and federal law and policy, as well as for commercial transactions.

purposes of the study, DOE does not render opinions about what the federal government believes are the most urgent or important projects for specific regions or congestion or reliability challenges. It does not plot a trajectory or course toward ultimate goals such as a fully integrated national high-voltage system. It does not reflect either the unprecedented need for transmission in the coming two decades reported by most experts or the limited time available to meet those needs, given the current length of the development cycle for most large projects.

The NTNS surveys the landscape of available information, including review of more than 120 recently published reports, about the “present or expected electric transmission capacity constraints or congestions in a geographic area,” whether part of infrastructural or technological inadequacy. The study has certain limitations, however. It is expressly not a compendium of solutions to the inadequacies of the US transmission system. Nor is it a transmission plan or meant to displace the industry’s local or regional planning processes or reliability standards.

Of particular concern, DOE has not set forth a position on utilization of HVDC or HVAC facilities that could help overcome physical threats to reliability, transfer power efficiently across seams, and help lower rates that arise from extreme weather, accelerating electrification and demand, or demographic shifts in the country.

Having thus lowered readers’ expectations, DOE wants the study to be helpful to planners and policy makers by supporting “holistic, multi-value transmission planning” that can enable them to devise solutions that lead to a “more effectively planned, cost effective transmission system.” RGC is not persuaded that the study is a sufficient basis upon which to “determine high-priority national electric transmission needs... [for] geographic areas where the bulk power grid would benefit from new, uprated, or upgraded transmission facilities,” although as a substantial compilation of data and source material it can be useful for identifying trends to date and the state of industry scholarship.

I. COMMENTS IN BRIEF

RGC submits the following five proposals that would enhance the study, more fully explored later:

1. **INCORPORATE CURRENT PLANS.** The study is principally a digest of past events and developments and, while comprehensive in that sense, the study does not articulate the immediate “needs” or weaknesses of the grid, regionally or nationally, that must be addressed in the coming decades. A propitious start to such any analysis would involve an examination of long-range regional plans by regional transmission organizations (RTOs) and the technological and economic implications of those plans.
2. **HIGHLIGHT IMPORTANT SITING OPPORTUNITIES.** The study does not examine or summarize the land use and regulatory burdens that will affect the pace of transmission development and continue to create delays and undue costs for transmission developers. Encouraging the utilization of existing rights-of-way, especially railroad and highway corridors, for the planning and construction of transmission is a role that the study should play under the Federal Power Act.
3. **A MORE REALISTIC PICTURE.** High voltage and interregional transmission are getting less investment than the study suggests. If it cannot quantify the need for transmission, the study should ensure that its perspective is clear regarding the extent to which deficiencies are likely to persist in 5, 10, or 20 years, and why.
4. **COMPREHENSIVE LOOK AT ECONOMIC, RELIABILITY, AND PUBLIC POLICY NEEDS.** The study’s reliance on the North American Electric Reliability Council’s valuable Interregional Transfer Capacity Study (ITCS),² is useful, but the needs extend beyond needs for investment in reliability. An analysis of the optimal levels of interregional capability will be helpful in addressing the economic impacts of extreme weather and the inaccessibility of distant resources. ITCS’ focus on calculating ‘energy sufficiency’ based on available generation resources and economic impacts that could be a reasonable component of interregional capability.
5. **REPORTING ON CHANGING CONDITIONS.** RGC highlights certain regional initiatives and changes that will cast new light on future transmission needs. It provides short synopses of developments in ERCOT, SPP, and WestTEC that cast regional “needs” for transmission in new light. The study almost entirely missed these important

² [North American Electric Reliability Council, *Interregional Transfer Capacity Study: Strengthening Reliability through the Energy Transformation* \(November 2024\).](#)

developments, which will have changed greatly by the time DOE issues another in 2029.

II. IMPORTANT BACKGROUND

The idea that federal agencies need to have a hand in addressing the inadequacies and delays in grid development originated with the 2005 Energy Policy Act (EPACT), specifically Section 216(a) of the Federal Power Act.³ Congress was responding to the advent of open, non-discriminatory access to the transmission system, the emergence of gas turbine and renewable energy technologies, recognition that our stock of transmission lines was well past its prime, often unreliable, and inadequate to the task of integrating and supporting distributed generating facilities and regional power markets. The solutions Congress devised focused on a federal “backstop” to the siting authority of the states, designating corridors in which transmission could be built optimally, the formation of interstate transmission compacts, and other reporting mechanisms. It bears repeating that these pleasant theories of interstate and intra-governmental cooperation have been largely unsuccessful and in fact, by offering institutional mechanisms not based in the industry’s realities, probably delayed investment in the grid.

Section 216 nevertheless established two important principles. The first is the regular analysis of the planning and evolution of the grid, which is the main point of this proceeding and our Comments today. The (triennial) identification of high-priority grid problems (e.g., congestion, operating constraints, or planning approaches) that require updating or fixing is critically important. Previous Section 216 studies led to identification of National Interest Electric Transmission Corridors (NIETCs) designed to identify the preconditions for regional grid expansions as new resources and technologies emerge.⁴

³ 16 U.S.C. 824p.

⁴ In 2024 the DOE Grid Deployment Office [identified potential National Interest Electric Transmission Corridors](#) subsequent to publication of the 2023 [National Transmission Needs Study \(FR Doc. 2023-24898\)](#). The Rail Electrification Council (REC), a predecessor to the RGC, joined other parties in commenting on the scope and operation of the proposed NIETCs ([FR Doc. 2024-29419](#)).

The second most important principle enunciated in Section 216 is that corridor designations should “maximize existing rights-of-way” and thereby minimize land and other environmental and cultural disturbances and (RGC would add) litigation over project development. The Rail Electrification Council (REC) recommended then, and RGC still contends, that better siting and permitting of new facilities in light of the legal, physical, and socio-economic facts on the ground should be an integral part of transmission planning and corridor designation. REC petitioned DOE and the Federal Energy Regulatory Commission (FERC) in NIETC-related proceedings to advance their roles as the principal federal transmission planning authorities, alongside the regional transmission organizations. Unfortunately, neither agency ever seriously considered either treating siting and permitting as integral to the grid planning process or the potential that existing rights-of-way might hold for accelerating transmission development. For that reason, RGC is strongly supportive of a more aggressive study process at DOE, as explained below.⁵

III. COMMENT AND ANALYSIS

RGC agrees that top-down prescriptions for grid expansion entail risk. Grid planning must comprehend a vast array of local conditions. But, three decades into the modern market- and technology-driven evolution of the domestic grid, DOE should begin to chart a more definitive North Star for those in the grid expansion business---regional and interregional planners, utilities and non-utility transmission developers, generators, and investors and customers---to follow. The industry needs to calculate the investment risks and rewards, which is not easy in this age of inter- connection queues, AI and data centers, extreme weather, the scrum over decarbonization and renewable energy, the persistent cost allocation patchwork, and widespread industrial electrification.

⁵ The Department of Transportation’s Build America Bureau has recently taken up the issue of transmission expansion in existing rights-of-way, notably railroads and highways. We regard this as a positive step toward utilizing the resources and expertise of all network industries to advance the Nation’s bulk power system. (FR Doc. 2024-29419).

For the benefit of a more extensive look at potential transmission grid futures, RGC therefore offers these comments and observations:

1. **PLANNING.** Development of the grid will be affected to varying degrees by the long-range regional plans of the RTOs struggling to implement FERC's Order 1920. The plans of MISO, SPP, ERCOT, and the PJM Interconnection will profoundly impact the grid in the next 20 years. The proposed construction of major 765kV networks under those plans could powerfully influence the grid's evolution. DOE should therefore ensure that those plans are integrated and constructive.
2. **SITING OPPORTUNITIES.** RGC looked in vain once more for an indication from DOE that utilizing existing rights-of-way for transmission expansions is, or should be, a matter of national policy. Pre-planned use of major railroad rights-of-way could potentially cut years and multiple regulatory proceedings out of the transmission development process. Because reinforcing local and regional systems in the states, and ensuring reliable service, is the responsibility of incumbent, integrated utilities, DOE should recognize that non-utility, or merchant, transmission developers have a role and responsibility to advance the future of projects that tie regional systems together and traverse the seams in the grid overall. These developers shoulder the risks of interregional facilities and will need the support of policy makers working to ensure that they too can use existing rights-of-way and can compete on a level playing field in the established planning processes.
3. **REALISTIC REPORTING.** To support the interregional or unconventional projects, the study's analysis should be updated by distinguishing between lower voltage transmission and higher voltage facilities to avoid painting an overly rosy picture of what has actually been built in recent years. Without actually quantifying the need for transmission, the study will be deficient and ineffective as an action-forcing mechanism. Notably, however, the study includes analysis of the US Southeast, which has not been scrutinized in previous studies. Substantial transmission needs persist in that region.
4. **INCLUDE ALL DRIVERS.** While the study addresses reliability issues raised by the North American Electric Reliability Corporation (NERC) in its highly valuable ITCS, the study could adopt a more comprehensive and useful analysis by considering economic and

public policy needs in addition to the reliability needs described in the ITCS. This would help identify the optimal levels of transmission capability and would be a more effective tool for addressing issues created by extreme weather, by enabling power to flow from distant resources to areas with energy deficiencies. The ITCS emphasized that interregional capability should be evaluated alongside generation resources and economic impacts, to ascertain energy sufficiency. RGC hesitates to advocate that DOE use a more granular hour-by-hour analysis of energy sufficiency but clearly more information would be helpful to understand the levels of capacity needed under certain conditions. This kind of additional analysis would help prioritize expansions on high-value interfaces.⁶

5. **REPORT KEY CHANGES.** Finally, the study (or DOE's other analyses) should explain how certain regions are now confronting new conditions, including some that might be genuine emergencies. The large regional developments will impact grid expansion and generation planning in broad areas and should be set forth as a kind of status report on regional and interregional connectivity for this triennial period. The ITCS provides the kind of regional analysis that could be included in the study to guide development. We highlight three regions that have made "prudent additions" to regional capacity the reason for selecting specific technologies (e.g., HVDC) in certain situations, and possible siting options. RGC believes there are opportunities to utilize existing rights-of-way such as railroads that could have been easily identified and employed as part of prudent investments.

RGC therefore describes in brief transmission expansion approaches in ERCOT, SPP, and WestTEC which could help improve the study as a real time "go to" source of information about the direction of grid expansions regionally and interregionally.

- The magnitude of additional tie capacity into ERCOT is driven by the historical experience of Storm Uri. That planned 14GW of additional tie capacity into ERCOT may turn out to be insufficient because it does not reflect the significant load growth being experienced and in the queues within ERCOT. HVDC ties are the only practical

⁶ See appended ITCS map and chart of "Recommendations of Prudent Additions."

way to increase tie capability into ERCOT. Co-located HVDC lines in railroad rights-of-way (ROWs) should be considered by ERCOT as an effective way to increase connectivity with neighboring regions.

- SPP recently approved its high priority WE-EXPAND study. WE-EXPAND is the acronym for Western–Eastern Expansion of eXchange Pathways and Network Development. This study is long overdue and will help identify potential paths forward regarding the existing small and aging stations in Nebraska, South Dakota, and Montana. The WE-EXPAND study could be coordinated with other affected systems to capture the broader needs for all of the ties between the eastern and western interconnection including those in New Mexico, Colorado and Canada. The impact of merchant HVDC projects like the Grid United North Plains Connector, as well as more conceptual Power from the Prairies projects, should be evaluated in terms of sensitivities and scenarios to help frame futures.
- The Western Power Pool’s Western Transmission Expansion Coalition (WestTEC) is in the process of creating actionable long range transmission expansion plans for the western interconnection. Based on information from the states belonging to the Pacific Northwest Region (PNWER), a forecast published in 2024 by the Pacific Northwest Utilities Conference Committee (PNUCC), the Pacific Northwest is facing an energy crisis. Without new power sources, transmission lines, or battery storage, the region’s long-standing and reliable energy system could falter when additional electricity demand is placed on the system. Per the PNUCC report, “permitting new transmission lines is the biggest hurdle to expanding the electric transmission system, especially in the West. Existing permitting, siting rules, and related regulations foster perpetual legal challenges that have created decadal delays in the construction of new transmission projects.”⁷ Washington State is expected to observe unprecedented load growth. According to WestTEC’s Washington State Power Outlook, the forecast predicts Western peak electric demand increasing by 30% in the next decade.⁸ An additional ~10 GW of power (about 8 times Seattle’s

Commented [1]: Depending on the audience, it would be helpful to have a contextual example - how many Seattle's is ~10 GW?

⁷ Northwest Regional Forecast of Power Loads and Resources, p. 13 (PNUCC, May 2024)

⁸ West-Wide Transmission Study: A 10-year Horizon Report (WestTEC, February 2026)

average base load usage) across key interregional interfaces will be necessary to alleviate the risk of power shortages during times of system need.

Just as the Cascade Mountains make connecting resource rich areas to the load pockets on the Pacific Coast a challenge, the solution may lie in undergrounding transmission. This technology may be feasible, or even preferred, in several regions. Through the sponsorship of the U.S Department of Energy / US Department of Transportation Joint Office of Energy and Transportation, Pacific Northwest National Laboratory (PNNL) is partnering with the USDOT Volpe Center to explore ways to increase electric transmission infrastructure in transportation ROWs. As an alternative to overhead towers, the research highlights two novel projects that show a path forward for siting high-voltage transmission lines underground, especially where the use of HVDC is required for the transfer of gigawatts of power across seams. There are two principal examples of using underground or submarine HVDC cables as regional backbones. First, the 1,250-megawatt HVDC Champlain Hudson Power Express is delivering Canadian back-to-back HVDC hydropower 339 miles from Montreal, Quebec to the Astoria Energy Complex in Queens, New York, the longest buried high-voltage line in North America. Second, the proposed SOO Green HVDC Link project utilizes railroad ROWs exclusively for buried HVDC cable, carrying midwestern renewable energy from MISO to the eastern markets in the PJM Interconnection.

In combination with grid-enhancing technologies, such innovative transmission lines could accelerate reliability and resilience solutions across entire regional systems, recognizing the obvious cost allocation challenges that interregional transmission entails. New technological options such as new, advanced HVDC lines would move grid development ahead more quickly. The study leaves not only the electrical and geophysical goals of such grid expansions unclear; it also fails to address the potential role of government in the financing of major grid expansions.

Without a more expansive explanation in the study of both transmission needs and the potential solutions, planners, operators, developers, and investors will have views that diverge from DOE's about which goals and projects represent priority "needs." To date with a few exceptions in the US, HVDC has not been used to improve grid operations and market efficiencies. VSC HVDC can provide blackstart capabilities. Its value to grid operations

and markets cannot be captured absent the acknowledgment that the value of its services are both real and needed, and then reforms must be approved and implemented. Capturing the value of HVDC technologies, especially with regards to controllability functions of VSC devices, is difficult because most regional planners may not be comfortable with the technology and its capabilities. Tools are currently inadequate to model and monetize HVDC benefits in simulations, let alone during extreme weather events or resiliency challenges to the bulk power system. In addition, markets do not adequately recognize and value ancillary services which can be provided by VSC HVDC facilities. Finally, VSC HVDC facilities provide operational controllability, system flexibilities, and ancillary services that would greatly enhance the value of existing and approved grid expansions.

Furthermore, RGC suggests that NERC's analysis of reliability needs and prudent additions would be appropriate components of the study. DOE's interpretation of the ITCS data and conclusion and its analysis of the most vital transmission investments in future time frames would be a significant addition to the study. Without such projections, however qualified, readers will have few insights into the trends and potential outcomes that DOE foresees.

ON BEHALF OF THE RAIL-GRID COLLABORATIVE

Respectfully submitted,

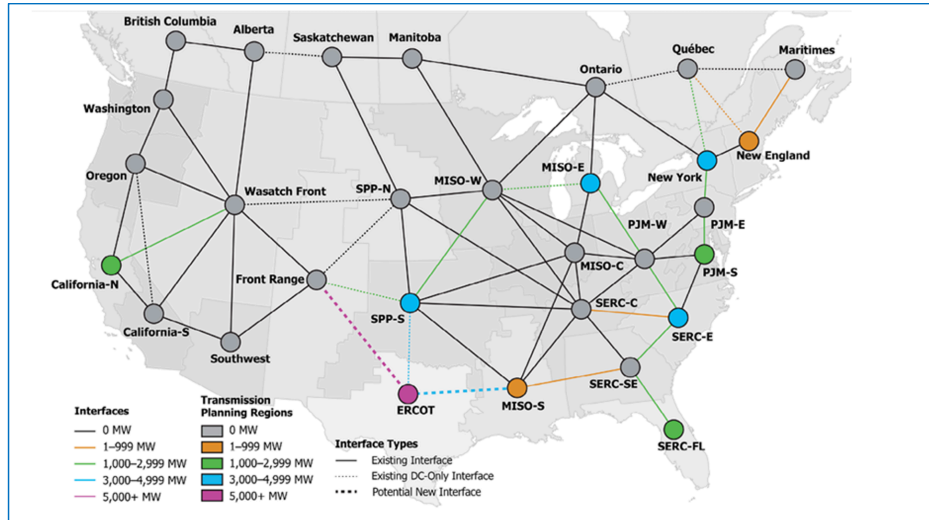
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APPENDIX

NERC Recommendations of Prudent Additions (Source: NERC, ITCS Study)





Transmission Planning Region	Weather Years (WY)/ Events	Resource Deficiency Hours	Maximum Deficiency (MW)	Additional Transfer Capability (MW)	Interface Additions (MW)
ERCOT*	Winter Storm Uri (WY2021) and nine other events	135	18,926	14,100	Front Range*** (5,700) MISO-S*** (4,300) SPP-S** (4,100)w
MISO-E	WY2020 Heat Wave and two other events	58	5,715	3,000	MISO-W** (2,000) PJM-W (1,000)
New York	WY2023 Heat Wave and seven other events	52	3,729	3,700	PJM-E (1,800) Québec** (1,900)
SPP-S	Winter Storm Uri (WY2021)	34	4,137	3,700	Front Range** (1,200) ERCOT** (800) MISO-W (1,700)
PJM-S	Winter Storm Elliott (WY2022)	20	4,147	2,800	PJM-E (2,800)
California North*	WY2022 Heat Wave	17	3,211	1,100	Wasatch Front (1,100)
SERC-E	Winter Storm Elliott (WY2022)	9	5,849	4,100	SERC-C (300) SERC-SE (2,200) PJM-W (1,600)
SERC-Florida	Summer WY2009 and Winter WY2010	6	1,152	1,200	SERC-SE (1,200)
New England	WY2012 Heat Wave and two other events	5	984	700	Québec** (400) Maritimes (300)
MISO-S	WY2009 and WY2011 summer events	4	629	600	ERCOT*** (300) SERC-SE (300)
TOTAL				35,000	

* Transfer capability additions did not fully address identified resource deficiencies | ** Existing interface is dc-only | *** Proposed new interface