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I. Introduction

Earthjustice appreciates the opportunity to respond to the Department of Energy's (DOE) request for information (RFI) on Accelerating Speed to Power/Winning the Artificial Intelligence Race ("speed to power"). As we understand it, DOE is seeking information on the best use of its authorities to aid in quickly powering demand from prospective large loads such as "semiconductor fabrication plants, manufacturing facilities," and data centers, which are the primary drivers of the pace and scale of most projections. DOE targets its request to solutions that will facilitate energy projects that "[e]nable a minimum incremental load of 3 gigawatt (GW)…[and] [s]upport up to 20 GW of incremental load.

As discussed below, we recommend that DOE invest its resources in activities and technologies that could power the grid over multiple time horizons (i.e., near-term and long-term) because preparing for sustained economic growth will require technical and economic investments now and for the future. As the RFI notes, many of the expected new loads have accelerated timelines which do not align with the long lead-times to bring new transmission and certain generation resources online. To meet immediate needs (2025-2030), DOE should consider facilitating the development of short-term solutions—e.g., Advanced Transmission Technologies—which will add needed transmission capacity to support supply resources that are quick to market. And to take advantage of the new capacity from ATTs, DOE should consider near-term solutions, such as partnering with regional transmission operators (RTO) and Independent System Operators (ISO) to automate the interconnection studies process which would shorten the timeline for interconnecting resources that are quick to market. DOE should also consider supporting certain long-term solutions, including interregional transmission facilities owned by incumbent utilities and merchant transmission developers, since they have a substantial lead-time and, therefore, planning activities must begin now to meet future needs in 2030 and beyond.

Our response not only offers solutions that will meet the RFI's goals but also warns DOE about the supply options that will fall short, to the detriment of taxpayers and ratepayers, and the hidden pitfalls with highly inflated and uncertain load forecasts. Finally, we couch our recommendations within the sphere of DOE's authority to provide technical assistance and disperse funds.

II. Overview of DOE's loan and financing authorities

The RFI states that DOE "administers a number of funding programs and authorities that may be leveraged to support grid infrastructure, power system investments, and expansion of generation, transmission, and distribution capacity to serve large electric loads."[1] The RFI

[1] Dep't of Energy, *Accelerating Speed to Power/Winning the Artificial Intelligence Race: Federal Action to Rapidly Expand Grid Capacity and Enable Electricity Demand Growth*, 90 Fed. Reg. 45,032, 45,033 (Sept. 18, 2025).

specifically identifies the Transmission Facilitation Program and the Grid Resilience and Innovation Partnerships Program.[2] As DOE considers usage of these authorities, the discussion below highlights some of the key contours of the authorities.

A. Transmission Facilitation Program

The Transmission Facilitation Program provides certain authority for DOE to support transmission projects. The program "lays the groundwork for increasing the availability of lower cost and low carbon electricity sources" and "directs that [DOE] support strong and equitable economic growth, enhanced transmission system reliability and resilience, increased interregional transfers and the use of technology that enhances transmission system capacity, efficiency, resilience, or reliability."[3]

Eligible projects under the Transmission Facilitation Program are limited to transmission facilities and related facilities.[4] Generally, an eligible transmission line must be capable of transmitting at least 1,000 MW.[5] However, the threshold is reduced to 500 MW if the project would upgrade a line in an existing transmission, transportation, or telecommunications infrastructure corridor, or construct a new line in such a corridor.[6] The program expressly excludes "facilities used primarily to generate electric energy" and "facilities used in the local distribution of electric energy."[7]

Under the program, DOE may borrow from the Treasury up to $2.5 billion to support the construction of electric transmission infrastructure.[8] While DOE intends to use project proceeds to replenish its borrowing authority, DOE cannot borrow more than $2.5 billion from the Treasury.[9]

A project supported by the Transmission Facilitation Program must be in the public interest.[10] Additionally, the program may only target a project if through participation in the program the project's completion date is advanced or its capacity is increased.[11] And DOE must certify that the United States is likely to recover the taxpayer funds spent on the project.[12]

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[2] *Id.* The RFI also points to loans and loan guarantees administered by the Department's Loan Programs Office. *Id.* More recently, though, the Department issued an interim final rule and a request for comments associated with authorities of the Loan Programs Office. Dep't of Energy, *Energy Dominance Financing Amendments*, 90 Fed. Reg. 48,705, 48,705 (Oct. 28, 2025). As such, the Loan Programs Office authorities are not discussed here.
[3] Dep't of Energy, *Notice of Intent and Request for Information Regarding Establishment of a Transmission Facilitation Program*, 87 Fed. Reg. 29,142, 29,142 (May 12, 2022) (footnote omitted) [hereinafter TFP Notice and Request].
[4] 42 U.S.C.§ 18713(a)(4), (7).
[5] *Id.* § 18713(a)(2).
[6] *Id.*
[7] *Id.* § 18713(a)(7)(B).
[8] *Id.* § 18713(b), (d)(2).
[9] *See* Dep't of Energy, *Transmission Facilitation Program* (last visited Nov. 8, 2025), https://www.energy.gov/gdo/transmission-facilitation-program.
[10] 42 U.S.C. § 18713(i)(1).
[11] *See id.* § 18713(i)(2).
[12] *Id.* § 18713(i)(3); *see* TFP Notice and Request, 87 Fed. Reg. at 29,143 ("The [Transmission Facilitation Program] must judiciously use the tools included in the statute to support projects that both meet the statute's articulated goals and provide a reasonable expectation that the costs of capacity contracts, loans, or public-private partnerships borne by the Federal Government will be repaid.").

Moreover, DOE must "to the maximum extent practicable" prioritize projects according to specified criteria, each of which is required under the law.[13] The criteria are geared to systemic issues rather than parochial concerns, and expressly implicate equity and environmental issues. According to the criteria, DOE must prioritize projects that:

- Use technology that enhances the capacity, efficiency, resiliency, or reliability of an electric power transmission system;
- Will improve the resiliency and reliability of an electric power transmission system;
- Facilitate interregional transfer capacity that supports strong and equitable economic growth; and
- Contribute to national or subnational goals to lower electricity sector greenhouse gas emissions.[14]

There are three mechanisms by which DOE may support projects under the Transmission Facilitation Program. First, DOE can enter contracts for capacity of a transmission project, so long as DOE pays fair market value.[15] This mechanism is meant "to help provide certainty to developers, operators, and marketers that customer revenue will be sufficient to justify the construction of a transmission line that meets current and future needs."[16] Before entering a capacity contract, DOE must consult with the relevant entities already planning transmission in a relevant region, including to "minimize, to the extent possible, duplication or conflict with the transmission planning region's needs determination and selection of projects that meet such needs."[17] The second mechanism available to DOE is to issue loans for the costs of a project.[18] Finally, DOE may enter a public-private partnership.[19] The law sets out express requirements for such arrangements.[20] For instance, the project must either be located in a national interest electric transmission corridor or be necessary to accommodate *transmission* demand across multiple states or transmission planning regions.[21]

B. Grid Resilience and Innovation Partnerships Program

Through the Grid Resilience and Innovation Partnerships, also known as the GRIP Program, DOE explains that it "enhance[s] grid flexibility and improve[s] the resilience of the power system against extreme weather."[22] The program is not meant to prolong business as

[13] 42 U.S.C. § 18713(j)(8); *see generally Kingdomware Techs., Inc. v. United States*, 579 U.S. 162, 171–72 (2016) (discussing the term "shall"); *Motor Veh. Manufs. Ass'n of the U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (explaining that agencies must not fail to consider important aspects of the matter before them).
[14] 42 U.S.C. § 18713(j)(8); *see also see* TFP Notice and Request, 87 Fed. Reg. at 29,143 ("Community engagement will be central to the successful implementation of all phases of the TFP. Projects funded through the BIL provisions will include Equity, Environmental and Energy Justice principles and priorities.").
[15] *Id.* § 18713(e)(1)(a), (f)(2).
[16] TFP Notice and Request, 87 Fed. Reg. at 29,143.
[17] 42 U.S.C. § 18713(f)(8).
[18] 42 U.S.C. § 18713(e)(1)(B).
[19] 42 U.S.C. § 18713(e)(1)(C).
[20] *Id.* § 18713(h).
[21] *Id.* § 18713(h)(1)(A)–(B).
[22] Dep't of Energy, *Grid Resilience and Innovation Partnerships (GRIP) Program* (last visited Nov. 8, 2025), https://www.energy.gov/gdo/grid-resilience-and-innovation-partnerships-grip-program.

usual or revive dying industries, but rather to "accelerate the deployment of transformative projects."[23] The GRIP Program has a number of components referenced in the RFI.

The Smart Grid Grants Program is a component of the GRIP Program. Its purpose is "to develop the nation's electric grid system by promoting investments in 'smart grid' technologies."[24] Under the law, smart grid functions include the ability to (1) facilitate the aggregation or integration of distributed energy resources; (2) provide energy storage to meet fluctuating electricity demand, provide voltage support, and integrate intermittent generation sources, including vehicle-to-grid technologies; and (3) facilitate the integration of renewable energy resources, electric vehicle charging infrastructure, and vehicle-to-grid technologies.[25] And while the program covers a variety of investment types,[26] it expressly excludes certain investments unless they are *directly* related to enabling smart functions, including "[e]xpenditures for electricity generation, transmission, or distribution infrastructure or equipment" and "[e]xpenditures for physical interconnection of generators or other devices to the grid."[27]

DOE also has certain authority to promote new and innovative approaches to grid resilience.[28] Transmission, storage, and distribution infrastructure are specifically identified as means to achieve this goal.[29] Generation infrastructure is not mentioned.[30] Limitations on funding electric generation projects are also found in DOE's authority underlying the Grid Resilience Utility and Industry Grants.[31]

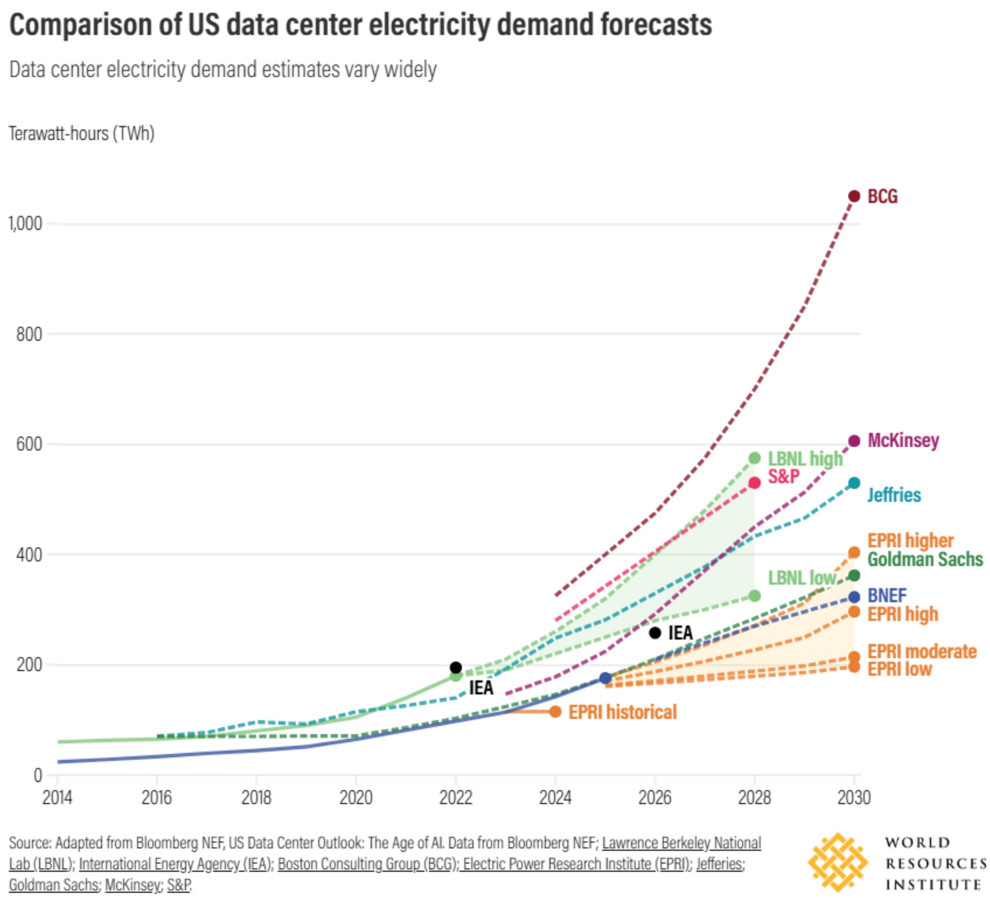
III. DOE should develop a process to overcome the shortcomings with existing demand forecasts

A key step of identifying "large-scale generation, transmission, and grid infrastructure projects that can accelerate speed to power to support manufacturing, industrial, and AI/data center electricity demand growth"[32] involves developing realistic estimates of potential growth and where the growth is expected. Without rigorous review, DOE risks relying on overestimated load forecasts, which will result in funding energy infrastructure that is at worst unnecessary

[23] Dep't of Energy, *Accelerating Speed to Power/Winning the Artificial Intelligence Race: Federal Action to Rapidly Expand Grid Capacity and Enable Electricity Demand Growth*, 90 Fed. Reg. at 45,033.
[24] *United States v. Sullivan*, 118 F.4th 170, 185 (2d Cir. 2024).
[25] 42 U.S.C. § 17386(d)(10)–(14); *see also id.* § 17381(5) ("It is the policy of the United States to support the modernization of the Nation's electricity transmission and distribution system to maintain a reliable and secure electricity infrastructure that can meet future demand growth and to achieve each of the following, which together characterize a Smart Grid: . . . . Deployment of 'smart' technologies (real-time, automated, interactive technologies that optimize the physical operation of appliances and consumer devices) for metering, communications concerning grid operations and status, and distribution automation.").
[26] *Id.* § 17386(b).
[27] *Id.* § 17386(c)(2), (5).
[28] *Id.* § 18712(b)(2) (authorizing the Department to establish a program to carry out the statutory purpose); *id.* § 18712(b)(3) ("The purpose of the program is to coordinate and collaborate with electric sector owners and operators--(A) to demonstrate innovative approaches to transmission, storage, and distribution infrastructure to harden and enhance resilience and reliability; and (B) to demonstrate new approaches to enhance regional grid resilience, implemented through States by public and rural electric cooperative entities on a cost-shared basis.").
[29] *Id.* § 18712(b)(3).
[30] *See id.*
[31] *Id.* § 18711.
[32] 90 Fed. Reg. at 45,033.

(creating stranded assets) and at best an inefficient, overly expensive use of limited resources to upgrade the grid.

It is no secret that estimates of future data center demand are highly speculative. In fact, DOE notes this in their Speed to Power map stating, "there is a high degree of uncertainty in completion rate of planned projects, which typically outnumber realized facilities by a large factor."[2] Several institutions have recently attempted to forecast US data center electricity demand over the next five years, and their results vary widely: [33]



DOE's Speed to Power map relies on data from Baxtel Advisory, depicting nearly 200 GW of total load by an unspecified date (~44 GW operating, ~23 GW of facilities that under construction, and ~132 GW of planned facilities).[4] By contrast, Grid Strategies estimates that demand will grow by 166 GW by 2030.[34] As a first step, DOE should dedicate resources to rigorously evaluate these forecasts in light of robust evidence that many data center forecasts are severely flawed.

It is now widely accepted that data center load forecasts are highly speculative and likely highly inflated from duplicative project requests and premature projects that may never

[33] I. Goldsmith & Z. Byrum, World Resource Institute, Powering the US Data Center Boom: Why Forecasting Can Be So Tricky (Sept. 17, 2025), http://wri.org/insights/us-data-centers-electricity-demand (Sept. 17, 2025).
[34] John D. Wilson et al., Grid Strategies, Power Demand Forecasts Revised Up for Third Year Running, Led by Data Centers (November 2025) at 3, https://gridstrategiesllc.com/project/load-growth-forecast/ (Grid Strategies Report).

materialize.[35] Just last month, PJM's Vice President of Planning cautioned: "Duplicative [large load] requests are generally not being explicitly accounted for by Electric Distribution Companies and Load Serving Entities submitting load adjustments to PJM unless a customer is known to be submitting multiple requests within a single utility territory or collection of utility territories owned by a single parent company."[36] In May, the CEO of Constellation Energy explained: "We know from conversations from our customers and end users that the same data center need is being considered in multiple jurisdictions across the United States at the same time . . . sometimes the same project is showing up in multiple queues simultaneously." He elaborated in the context of the below slide:[37]

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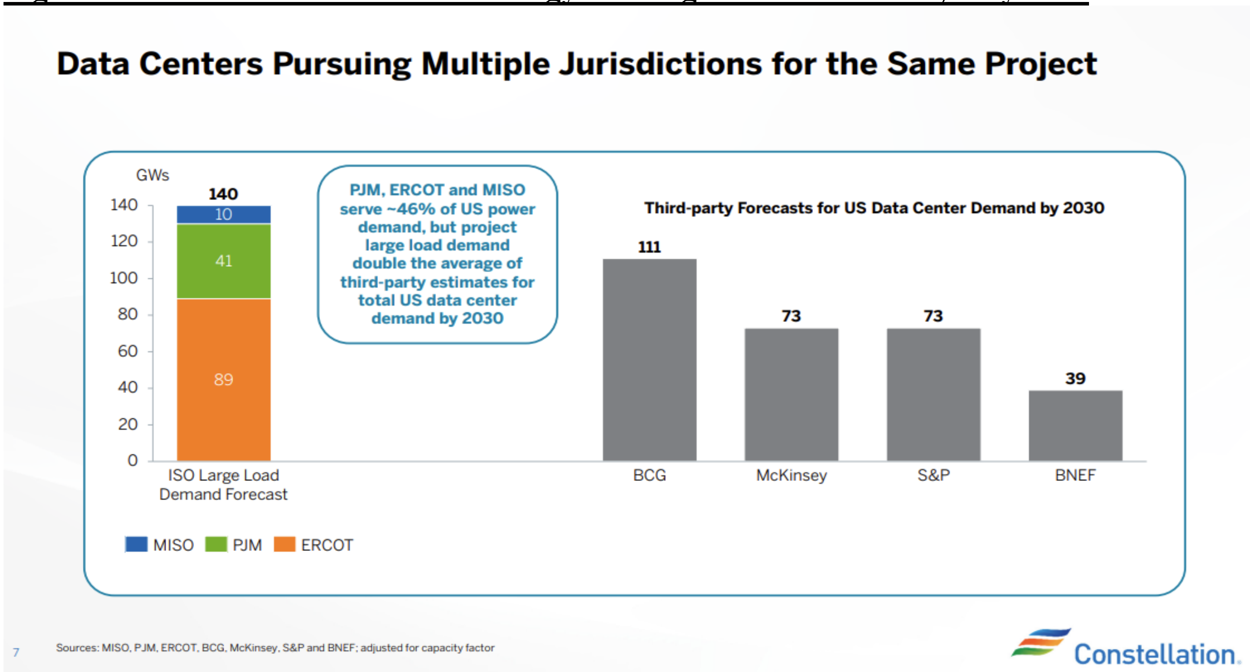
[35] *See, e.g.*, *id.*; P. Freed & A. Clements, How to reduce large load speculative? Standardize the interconnection process, *Utility Dive* (Feb. 19, 2025), https://www.utilitydive.com/news/data-center-large-load-interconnection-process-clements/740272/ (opinion piece from former FERC Commission Allison Clements and former director of energy strategy at Meta cautioning about "rampant speculative behavior" from data center developers and concluding that there "is a significant amount of 'phantom' load that not only inflates demand projections across the country but also introduces material uncertainty and inefficiency into individual utilities' load interconnection processes"); T. Snitchler, Load forecasts from data centers risk falling into irrational exuberance territory, *Utility Dive* (Jan. 15, 2025), https://www.utilitydive.com/news/load-forecasts-data-centers-risks-consumers-cost-epsa/737280/ (opinion piece from the president and CEO of the Electric Power Supply Association likening the current hype around data center demand to similar situations in the past, where "estimates [were] often wildly optimistic compared to the actual demand the system achieved over time"); London Economics International LLC, Uncertainty and Upward Bias Are Inherent in Data Center Electricity Demand Projections (July 7, 2025), https://www.selc.org/wp-content/uploads/2025/07/LEI-Data-Center-Final-Report-07072025-2.pdf; Direct Testimony of Jeremy Fisher, *In the Matter of*: Electronic Application of Kentucky Utilities Company and Louisville Gas and Electric Company for Certificates of Public Convenience and Necessity and Site Compatibility Certificates, Kentucky Public Service Commission Case No. 2025-00045 (June 16, 2025).

[36] Pre-Technical Conference Remarks of Jason Connell, FERC Reliability Technical Conference, Docket No. AD25-8-000, 4–5 (Oct. 10, 2025).

[37] Constellation Energy Corp, Earnings Conference Call First Quarter 2025 (May 6, 2025) at slide 7, https://investors.constellationenergy.com/static-files/639e4f87-3efd-4ef7-b215-b73d3594a6b9.

<u>Figure 1: Slide from Constellation Energy Earnings Conference Call, May 2025</u>[38]



Even when load forecasts are not duplicative, they are likely overestimated. As just one recent example, Ohio AEP reduced their large load forecasts by over 50% in just one year of formal study and following the implementation of protective tariffs.[39] DOE's efforts will only be as useful as their load forecasting is accurate, and so DOE must first dedicate resources to vetting their load forecasts, at the very least differentiating between likelihood of completion for planned projects.

IV. <u>DOE should pursue using its authorities to facilitate construction and development of only the most viable options that will protect consumers from unduly high utility rates</u>

A. <u>DOE should provide economic and technical support to state permitting and siting authorities and encourage developers to engage with affected communities early in permitting and siting processes</u>

To address the pace and scale of large-scale electricity demand, DOE must include practices that support inclusive, community-forward solutions. The RFI requests consideration of "community engagement and acceptance" when identifying "primary challenges and barriers to

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[38] Constellation Energy Corp, Earnings Conference Call First Quarter 2025 (May 6, 2025) slide 7, https://investors.constellationenergy.com/static-files/639e4f87-3efd-4ef7-b215-b73d3594a6b9.

[39] Zachary Skidmore, *AEP Ohio Slashes Data Center Pipeline by More Than Half – Report*, Data Center Dynamics (Oct. 1, 2025), https://www.datacenterdynamics.com/en/news/aep-ohio-slashes-data-center-pipeline-by-more-than-half-report/ ("The utility went on to state that the "number may reduce further — and become more accurate — as AEP Ohio continues the data center tariff process by presenting binding contracts for data centers to sign. An AEP Ohio spokesperson went on to state that the utility had been "very clear in the data center tariff case" that many projects in the queue "could be duplicative or speculative.").

expanding infrastructure and deploying large-scale generation to transmission projects."[40] However, studies demonstrate that early engagement with affected communities improves the timeline for implementing energy infrastructure projects while fostering open communication, transparency, and trust among all involved stakeholders.[41] A study evaluating permitting challenges for 37 transmission projects found that early engagements was a key characteristic of projects that were implemented in a timely manner and that other factors, like ineffective interagency coordination and personnel shortages, were the root cause of project delays.[42] Similarly, a study of over 30 generator projects determined that projects have a higher chance success when developers seeking permitting and siting approval "consider both cultural and financial value of the land" through engaging with stakeholders within the affected community. [43]

For the purposes of this RFI, we encourage DOE to (1) prioritize meaningful community engagement as a foundational step and (2) provide financial resources to support that engagement. Communicating with stakeholders, "first" as opposed to in later stages of planning and development, allows for more time to share information, receive feedback, and collectively address concerns.[44] Communications should be clear, readily accessible, and importantly, feature two-way engagement, whereby stakeholders can provide information, input and feedback to project developers while also receiving it.

In addition, DOE should provide resources to state and local entities charged with planning, siting, and permitting authorities and invest in agency-led programs within DOE. Investments may fund technical assistance programs, establish micro-grant programs for community-led organizations seeking to increase capacity, and support project-specific advisory committees. Funding to facilitate community engagement should be provided for public services such as written and verbal interpretation services, instructions for technology usage and public participation, and educational forums to train developers about a region's cultural, sacred, or other unique characteristics.[45]

B. **<u>Aging generators that are scheduled to retire share characteristics that make them untenable options to achieve the RFI's stated goal of satisfying "electricity demand growth across the country in a reliable and affordable manner"</u>**

One set of potential projects that the RFI seeks information on is "bringing retired thermal generation facilities back into service or otherwise using the existing interconnection

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[40] U.S Department of Energy, *Accelerating Speed to Power: Request for Information on Large-scale Transmission and Generation Infrastructure Projects* (September 18, 2025) at 7, https://www.energy.gov/speed-to-power.
[41] Niskanen Center et al, E*vidence-Based Recommendations for Overcoming Barriers to Federal Transmission Permitting* (April 2024) at 17, 27, 78, 80, https://www.niskanencenter.org/evidence-based-recommendations-for-overcoming-barriers-to-federal-transmission-permitting/ (Transmission Report).
[42]Transmission Report at 21-37.
[43] Lawrence Susskind et al, Sources of Opposition to Renewable Energy Projects in the United States (April 12, 2022) at 13, https://www.sciencedirect.com/science/article/pii/S0301421522001471?via%3Dihub.
[44] Earthjustice, WE ACT for Environmental Justice, et al., Building Transmission to Secure A Clean and Equitable Electricity Grid (June 22, 2023) at 3, https://earthjustice.org/wp-content/uploads/2023/06/06222023_transmission_whitepaper_final.pdf.
[45] Americans for a Clean Energy Grid, The Pace of Trust: A Framework by Community Voices for Advancing Transmission (January 15, 2025) at 2, https://cleanenergygrid.org/wp-content/uploads/2025/01/PACE-Report_FINAL.pdf.

capacity to provide reliable power generation."[46] We urge DOE to not spend its time and resources to pursue reviving retired coal-fired generators, or delaying planned coal plant retirements, as doing so would be a textbook example of throwing good money after bad as DOE would not be investing in new, state-of-the-art power generation. Instead, DOE should recognize that the interconnection rights and other characteristics of those coal plant sites are valuable assets that can and, as appropriate, should be utilized to expedite the buildout of new clean generation and storage.[47]

Retired and retiring coal units are old jalopies that are increasingly uneconomic, ill-suited to today's energy needs, and unreliable. The median age of the coal units that have retired in the past four years is 56 years,[48] and the units that are expected to retire over the next few years are of a similar age. As coal units age, their efficiency decreases and they become more costly to operate, making them less competitive in today's energy markets. As a result, the average capacity factor of coal units in the U.S. has declined from over 70% in 2005-2008 to 43% in 2023.[49] In addition to being increasingly costly, coal units are also inflexible. In particular, they have slow ramping ability and long startup and shutdown times, and therefore do not provide the type of flexibility and responsiveness that today's electric grid needs especially as voltage-sensitive large loads come online.[50]

It is also increasingly clear that coal units cannot be counted on to provide reliable power generation when it is needed most. For example, the North American Electric Reliability Corporation's ("NERC") 2024 State of Reliability report found that a critical measure of reliability - the WEFOR rate – for coal units has steadily increased from approximately 8% in 2014 to 12% or higher in each of 2021, 2022, and 2023.[51] PJM gives coal an 83% capacity accreditation, which is based on an estimate of how often it can contribute to meeting peak

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[46] RFI at 3.

[47] Also, various RTOs/ISOs have a fast-track interconnection service that allows retiring generators to be quickly replaced with new generators.

[48] IEEFA, *Reopening Closed Coal Plants Makes No Economic Sense* (April 2025) at 2, available at https://ieefa.org/sites/default/files/2025-04/REVIEWED_17342-Briefing%20Note_Coal%20Restart%20Rebuttal%20Analysis%20%282%29.pdf (hereinafter "IEEFA Report")

[49] U.S. EPA, Power Sector Trends: Coal (last updated June 3, 2025), available at https://www.epa.gov/power-sector/power-sector-evolution#coal

[50] RMI, *Reality Check: We Have What's Needed to Reliably Power the Data Center Boom, and it's Not Coal Plants* (Aug. 12, 2025) (hereinafter "RMI Reality Check"), available at https://rmi.org/reality-check-we-have-whats-needed-to-reliably-power-the-data-center-boom-and-its-not-coal-plants/ (explaining that "Coal units are inherently inflexible: they ramp slowly, respond poorly to sudden load shifts, and are difficult to turn on or off quickly. This rigidity is a poor match for the dynamic and often unpredictable nature of data center demand."); *see also* Eric G. Gimon, Energy Innovation, *Dodging the Firm Fixation for Data Centers and the Grid* (November, 2025) at 29, https://energyinnovation.org/wp-content/uploads/Dodging-the-Firm-Fixation-for-Data-Centers-and-the-Grid.pdf (which notes that, alternatively, "On-site prime generation solutions built around renewables and flexibility (modulating demand and using batteries) may provide cheaper, cleaner, and faster means for meeting new and existing data center demand.").

[51] NERC, *2024 State of Reliability: Technical Assessment of 2023 Bulk Power System Performance* (June 2024) at 59, available at https://www.nerc.com/globalassets/programs/rapa/pa/nerc_sor_2024_technical_assessment.pdf. "WEFOR" is weighted equivalent forced outage rate, which "measures the probability that a group of units will not meet their generating requirements because of forced outages or forced derates." https://www.nerc.com/programs/reliability-assessment--performance-analysis/generating-availability-data-system/gads-conventional/general-availability-review-weighted-efor-dashboard

demand.[52] During times of extreme weather, coal is even more vulnerable.[53] For example, NERC found that for winter 2024-2025, the WEFOR rate for coal units averaged around 15%.[54]

Reviving retired coal units would be an extremely expensive proposition. Of the 88 coal units that have retired over the past four years, at least 24 had been fully or partially demolished as of early 2025 and, therefore, cannot be returned to service.[55] While most of the rest of the retired units hypothetically could be returned, doing so would come at a massive cost. This is for at least two reasons. First, utilities start ramping down their capital and maintenance spending on coal units, which often can be in the tens of millions of dollars or more per year for each unit, in the years leading up to a planned retirement. In order to restart the unit, all of that deferred maintenance and capital spending would need to be made up, which would impose a significant cost on utility customers.[56] In addition, once a unit retires, utilities typically do not continue anything beyond extremely minimal maintenance, which means that the unit would have incurred additional degradation since it retired which would require even more spending to address.[57] While the costs of bringing a retired coal unit back in service would vary by unit, one illustrative example is the Cholla Power Plant in Arizona, which retired in March 2025. The Chair of the Arizona Corporation Commission has noted that it would cost utility customers as much as $1.9 billion to restart that plant.[58]

Trying to keep open coal units that are scheduled to retire over the next few years would also be quite costly. While such units would, of course, not yet face post-retirement degradation costs, the utilities planning for those retirements have almost certainly deferred maintenance and capital spending on the units for years. A recent study by Grid Strategies on behalf of Earthjustice and other organizations found that ratepayer costs could exceed $3 billion if the approximately 35 GW of fossil-fueled power plants expected to retire between now and the end of 2028 were required to continue operating.[59] While that list of plants includes some gas-fired units, much of the cost is for the coal units that are expected to retire. Just a few examples include R.M. Schahfer in Indiana ($75 million per year), Transalta Centralia in Washington ($65 million per year), Intermountain in Utah ($73 million per year), and Sioux in Missouri ($98 million per year).[60]

Finally, it is important to keep in mind that the sites of recently retired and soon-to-be-retired coal plants have valuable assets in terms of interconnection rights and infrastructure

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[52] PJM, *ELCC Class Ratings for the 2026/2027 Base Residual Auction*, available at https://www.pjm.com/-/media/DotCom/planning/res-adeq/elcc/2026-27-bra-elcc-class-ratings.pdf
[53] RMI Reality Check
[54] NERC, *Cold Weather Data Collection and Analysis: Informational Filing* (Oct. 1, 2025) at 18, available at https://www.nerc.com/globalassets/who-we-are/legal--regulatory/filings--orders/nerc-filings-to-ferc/2025/nerc-2025-cold-weather-data-collection-and-analysis-informational-filing.pdf.
[55] IEEFA Report at 2. In addition to the 88 units that retired, another 14 coal units converted to burn other fuels over the past four years.
[56] *Id*. at 4.
[57] *Id*.
[58] Arizona Corporation Commission, *ACC Chair Thompson Responds to Calls from State Electeds to Burden Ratepayers with Nearly $2 Billion in Additional Costs to Re-Open Cholla Coal Plant* (May 30, 2025), available at https://www.azcc.gov/news/home/2025/05/30/acc-chair-thompson-responds-to-calls-from-state-electeds-to-burden-ratepayers-with-nearly--2-billion-in-additional-costs-to-re-open-cholla-coal-plant
[59] Grid Strategies, *The Cost of Federal Mandates to Retain Fossil-Burning Power Plants* (Aug. 2025), available at https://gridstrategiesllc.com/wp-content/uploads/Grid-Strategies_Cost-of-Federal-Mandates-to-Retain-Fossil-Burning-Power-Plants.pdf
[60] *Id*. at Appendix B.

needed to use those rights. As such, once the aging coal unit retires, the sites provide prime opportunities for the development of new, state-of-the-art clean power generation projects by enabling them to avoid the interconnection delays and costs that have been holding back so many potential projects. Some utilities are already pursuing this strategy, such as DTE Electric in Michigan which is installing a 220 MW battery storage facility at the site of its retired Trenton Channel coal plant,[61] and Xcel Energy in Minnesota, which is seeking to build 710 MW of solar and 600 MW of battery storage at the site of its retiring Sherco coal plant.[62] And, to the extent that data centers are going to come online anyways, the sites of retired or retiring coal plants can also be repurposed for data centers in combination with new generators.[63] Certainly, any reuse of the site of a retired or soon-to-be-retired coal plant must be based on a careful site-by-site assessment and include early and meaningful community engagement. But the potential to use these sites to accelerate the buildout of new, state-of-the-art clean power generation provides yet another reason for DOE to not focus its time and resources on trying to revive retired or retiring coal plants.

C. DOE should consider solutions that can meet the RFI's immediate goals while also establishing processes that will help with power future energy needs

a. Support energy resources that can be developed quickly

Wind and solar can be assembled in months, while gas plants face supply chain constraints that have created a substantial backlogs for new gas turbines.[64] Estimates for the backlogs vary; some say the delay is between 3-4 years,[65] while the CEO of the Electric Power Supply Association estimates that turbine orders are delayed by 5-6 years.[66] While developers can bring solar plants online within 18 to 24 months, other major generation projects usually take 3 to 15 years to come online.[67] On average, solar can be developed and deployed within 1.4 years and batteries and wind can be deployed within 1.7 years.[68] In contrast, natural gas usually

[61] Utility Dive, *DTE Energy to Deploy 220 MW of Battery Storage at Former Coal Plant* (June 11, 2024), available at https://www.utilitydive.com/news/dte-energy-battery-energy-storage-trenton-coal-plant/718593/

[62] Xcel Energy, *Xcel Energy to Build Upper Midwest's Largest Battery Storage Site* (Nov. 3, 2025), available at https://newsroom.xcelenergy.com/news/xcel-energy-to-build-upper-midwests-largest-battery-storage-site

[63] Pacific Northwest Laboratories, Redeveloping Coal Power Plants: Data Centers, PNNL-SA-201505 (Sept. 2024), available at https://www.pnnl.gov/sites/default/files/media/file/PNNL-SA-201505-CoaltoDataCenter.pdf

[64] Mattea Mrkusic & Lena Moffitt, *Clean Energy is Still the Cheapest Energy. States Must Deploy it, Fast*, Evergreen Action (Jul. 31, 2025), https://www.evergreenaction.com/blog/clean-energy-is-still-the-cheapest-energy-states-must-deploy-it-fast; Jared Burden, *Energy Meets Urgency: Solving the Data Center Power Problem with Solar*, Utility Dive (Sep. 4, 2025), https://www.utilitydive.com/news/data-center-power-problem-solar/758809/.

[65] Jared Burden, *Energy Meets Urgency: Solving the Data Center Power Problem with Solar*, Utility Dive (Sep. 4, 2025), https://www.utilitydive.com/news/data-center-power-problem-solar/758809/.

[66] Ethan Howland, *Independent Power Producers Hit Back at Utility Critics Over PJM Price Surge*, Utility Dive (August 5, 2025), https://www.utilitydive.com/news/ipps-epsa-pjm-capacity-auction-utilities-snitchler/756730/; see also Jarad Anderson, *US Gas-Fired Turbine Wait Times As Much AS Seven Years*; Costs Up Sharply, S&P Global (May 20, 2025) (noting that the estimated backlog is 5-7 years) https://www.spglobal.com/commodity-insights/en/news-research/latest-news/electric-power/052025-us-gas-fired-turbine-wait-times-as-much-as-seven-years-costs-up-sharply.

[67] Jared Burden, *Energy Meets Urgency: Solving the Data Center Power Problem with Solar*, Utility Dive (Sep. 4, 2025), https://www.utilitydive.com/news/data-center-power-problem-solar/758809/.

[68] *Why Batteries are the Electric Grid's Most Powerful Asset*, Solar Energy Industries Association (Apr. 18, 2025), https://seia.org/blog/why-batteries-are-the-electric-grids-most-powerful-asset/.

takes 2.6 years (for natural gas combustion turbine) to 4 years (for natural gas combined cycle) to develop, while coal takes 6.7 years to develop and nuclear takes 15.7 years.[69] Additionally, renewables are currently ready to deploy. In fact, solar and battery storage dominate generating capacity additions thus far in 2025 and planned for the rest of the year.[70] Conversely, there are only 3 nuclear restarts across the U.S. that can deploy from 2027-2030 and any currently unplanned natural gas plants will not be available until after 2030.[71] Even the chief executive of the North American Electric Reliability Corporation (NERC) acknowledges that "[t]o the extent that we're going to unleash abundant energy in North American in the near term, it's going to mostly be wind and solar."[72]

And, importantly, wind and solar are cheaper to build, which is imperative given the rapidly increasing energy affordability issue. The levelized cost of energy metric (LCOE) measures "the estimate of the revenue required to build and operate a generator over a specific cost recovery period."[73] According to a June 2025 LCOE analysis published by Lazard, a financial advisory and asset management firm, on average, solar and wind have lower LCOEs than new builds of gas and coal.[74]

In sum, from a comparative perspective, state-of-the-art, new generation, like wind, solar, and battery storage paired with transmission capacity and demand-side resources (e.g., demand response) can reliably power burgeoning industries at the most reasonable costs. In contrast, as discussed earlier, aging coal plants are costly and unreliable, particularly when needed the most during extreme weather events. And while requests to build gas plants have increased, the demand is on track to outpace available supply for needed materials, like turbines.[75] As this supply constraint intensifies, projects will likely be delayed and,[76] therefore, fail to meet the stated objective of the RFI.

b. <u>Implement targeted improvements to generator interconnection processes to vastly improve the interconnection timeline</u>

As of the end of 2023, across the nation, over 11,000 generator projects sought interconnection to the transmission grid. While the completion rates for solar and batteries are lower than the average generator projects, the projected supply is still substantial at 152GW and

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[69] *Id.*
[70] US Energy Information Administration, *Solar, Battery Storage to Lead New U.S. Generating Capacity Additions in 2025,* Today in Energy (February 24, 2025), https://www.eia.gov/todayinenergy/detail.php?id=64586; US Energy Information Administration, *U.S. developers report half of new electric generating capacity will come from solar*, Today in Energy (August 20, 2025), https://www.eia.gov/todayinenergy/detail.php?id=65964.
[71] Sam Newell, et. al., *A Wide Array of Resources is Needed to Meet Growing U.S. Energy Demand*, Brattle (Feb. 2025), at 6, https://conservamerica.org/wp-content/uploads/2025/02/ConservAmerica.Brattle.EnergyDemandReport.FINAL_.pdf.
[72] Brad Plumer, *Want Cheap Power, Fast? Solar and Wind Firms Have a Suggestion.*, The New York Times (Mar. 17, 2025), https://www.nytimes.com/2025/03/17/climate/renewable-energy-trump-electricity.html
[73] *Levelized Costs of New Generation Resources in the Annual Energy Outlook 2025*, U.S. Energy Information Administration (Apr. 15, 2025), https://www.eia.gov/outlooks/aeo/electricity_generation/.
[74] *Levelized Cost of Energy* + (Jun. 2025) at 8, https://www.lazard.com/media/eijnqja3/lazards-lcoeplus-june-2025.pdf).
[75] Jessie Cohen et al, Rocky Mountain Institute, Gas Turbine Supply Constraints Threaten Grid Reliability; More affordable Near-Term Solutions Can Help (June 18, 2025), https://rmi.org/gas-turbine-supply-constraints-threaten-grid-reliability-more-affordable-near-term-solutions-can-help/.
[76] *Id.*

133GW, respectively.[77] However, regulatory and administrative barriers are making the interconnection process too slow: the average median duration from the beginning point of the interconnection process, initiation of interconnection request, to the commercial operation date, was approximately five years for projects completed in 2022-2023.[78] The majority of the processing time is during the interconnection study phases—Cluster System Impact Study, Affected System Study, and Facility Study—and the timeline for developing any resulting network upgrade varies,[79] which presents a high degree of uncertainty for developers. Since the study process and implementation of network upgrades are key drivers for the five-year processing timeline,[80] DOE should focus its efforts on implementing available solutions that can sharply reduce that rate.

i. **Assist RTOs/ISOs and non-RTO Balancing Authorities with implementing automation tools to perform interconnection studies**

After conducting an extensive stakeholder process and data collection and analysis, last year, DOE published a roadmap with 35 solutions to improve the process for connecting generators to the bulk power system.[81] We urge DOE to reengage with this process and, at a minimum, use its technical assistance programs to advise RTOs/ISOs and the remaining Balancing Authorities on practical approaches to implement the recommendations in the roadmap that will have a substantial impact with improving the interconnection process, like shortening the interconnection study phase using automation tools to build and execute scenario models.[82] This recommendation is consistent with FERC Commissioner Rosner's statement that "achieving a truly fast and efficient interconnection process requires continuous innovations that leverages the latest software and automation solution."[83]

So far, at least one RTO/ISO has taken the initiative to implement automation tools. The Midcontinent Independent System Operator (MISO) implemented a pilot to evaluate using the SUGAR software to automate its process for conducting interconnection studies.[84] The software would replace MISO's current "iterative, and highly manual, process."[85] The automation reduced modeling tasks that took MISO multiple weeks down to under fifteen minutes.[86] In a letter to MISO, Commissioner Rosner highlighted MISO's pilot noting that it shortened the study timeline for the test cluster from "nearly two years" to "just 10 days and arrived at largely similar

[77] Queued Up Report at 3,11. Completion rates for solar and battery storage are 14% and 11%, respectively. Of the 1,570 GW of generator capacity in the queues at the end of 2023, solar comprised 1,086. And 1,030 GW of storage projects were seeking interconnection.
[78] *Id.* at 41.
[79] *Id.* at 6.
[80] These projects also need to receive permits and all the necessary construction materials.
[81] Will Gorman et al, Department of Energy, Interconnection Innovation e-Xchange (i2X), Transmission Interconnection Roadmap: Transitioning Bulk Transmission Interconnection by 2035, https://emp.lbl.gov/publications/transmission-interconnection-roadmap (Interconnection Roadmap).
[82] Interconnection Roadmap at 26.
[83] FERC Commissioner David Rosner, March 17, 2025 Letter to John Bear, President and CEO of MISO, https://www.ferc.gov/media/commissioner-rosner-letter-miso-interconnection-automation-letter (MISO Letter).
[84] MISO Whitepaper, MISO Transmission Mitigation Selection and Cost Estimation Approach (January 2025), https://cdn.misoenergy.org/20250304%20IPWG%20Item%2005%20SUGAR%20Implementation682016.pdf.
[85] Pearl Street Technologies, Ulteig, Power Flow Model Building with SUGAR: A MISO Study (May 17, 2022) at 12 (Ulteig Report).
[86] Ulteig Report at 13.

results." [87] Even if the earlier stages of the queue process noted in Figure 2 remain the same, and the SUGAR modeling timelines doubled or tripled, MISO would still be able to complete the study process in under six months. This development demonstrates that using automation to substantially reduce the processing time for interconnection studies is worth investing DOE's economic and technical resources.

ii. Strategically implement Grid Enhancing Technologies (GET) to reduce or eliminate the need for the traditional network upgrades

GETs, and other Advanced Transmission Technologies (ATTs), like rewiring existing lines with steel reinforced cables, can quickly and cost-effectively add substantial capacity to the grid and obviate the need for network upgrades. The estimated capacity increases vary by technology. Dynamic Line Ratings can provide up to 50% of additional capacity, while rewiring (also called advanced conductoring) can double the capacity on a line. A 2024 report from RMI analyzed the potential of using GETs to facilitate increased interconnection across five states within PJM. The study found that deploying ATTs (i.e., Dynamic Line Ratings, Power Flow Controls, and Topology Optimization) as network upgrades would allow over 6 GW of new capacity to come online within the next three years with cost savings up to $523 million compared to standard network upgrades.[88] Aside from Texas, PJM has experienced the highest amount of load growth from data center.[89]

Importantly, most ATTs can be implemented in under a year, after the initial deployment phase. DLRs can be installed within 3-6 months,[90] Power flow Controls can be deployed in 3-6 months,[91] and advanced conductors can be installed within 12-36 months,[92] which is five times faster than most traditional transmission projects.[93]

DOE has authority under GRIP and the LPO to help offset the expenditures for these solutions. While ATTs are inexpensive compared to traditional lines, some solutions like advanced conductors might experience pushback from state utility authorities since they cost substantially more than regular conductors.[94] In addition, MIT's Center for Energy and Environmental Policy Research recommends that DOE adopt a national conductor efficiency standard and "provide funding to regional state committees for staff or consulting expertise to identify opportunities for ATTs."[95] While many ATTs have been used for decades, adoption in the United States is relatively low for a variety of reasons including the lack of standards as well as

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[87] MISO Letter at 1.
[88] Katie Siegner, Sarah Toth, Chaz Teplin, and Katie Mulvaney, *GETting Interconnected in PJM: Grid-Enhancing Technologies (GETs) Can Increase the Speed and Scale of New Entry from PJM's Queue*, RMI, 2024, https://rmi.org/insight/analyzing-gets-as-a-tool-for-increasing-interconnection-throughput-from-pjmsqueue/.
[89] Grid Strategies Report at 5.
[90] Louise White et al., Department of Energy, Pathways to Commercial Liftoff: Innovative Grid Deployment (April 2024) at 5, https://static1.squarespace.com/static/67f555826ee1df58205ff806/t/6827af76cb588c0ccb63581b/1747431307855/Liftoff_DOE_Innovative+Grid+Deployment_Apr+2024.pdf (Pathways Report)
[91] Pathways Report at 22.
[92] *Id.* at 22.
[93] Reconductoring Policy Report at 2.
[94] *Id.* at 18.
[95] Deese, B., Gramlich, R., Pasnau, A., *A Roadmap for Advanced Transmission Technology Adoption.* MIT Center for Energy and Environmental Policy Research (September 2024) at 8, https://ceepr.mit.edu/wp-content/uploads/2024/09/MIT-CEEPR-RC-2024-06.pdf Deese et al., 2024., pg. 8.

educational and training barriers.[96] Importantly, DOE can use its technical expertise to train or support utilities that would be using ATTs for the first time or that still have reservations.

In sum, by strategically deploying ATTs and automating the interconnection queue studies, DOE can fast track the deployment of the resources in the standard interconnection queue that are the fastest and cheapest to build. If these solutions are set in motion imminently, DOE could meet or exceed the RFI's goals while instilling a process that employs ATTs and automates interconnection studies on an ongoing basis.

iii. Given the lead-time for other needed infrastructure to power growing industries and other burgeoning energy needs, DOE should support the development of regional and interregional transmission lines

Since we expect that several other commenters will provide in depth coverage on traditional transmission solutions, we will briefly mention that DOE should consider supporting traditional transmission solutions given the lead-time necessary to complete all the steps to bring these assets online. Transmission expansion, particularly at the regional and interregional level, is a well understood solution to increase the capacity, reliability, and efficiency of the U.S. grid. In 2024, DOE's National Transmission Planning Study estimated that meeting future growth reliably would require expanding the total transmission system by 2.1 to 3.3 times the 2020 system.[97] The study found that expanding transmission could lower system costs by $270-490 billion, while also providing reliability benefits.[98] We urge DOE to use its economic and technical authorities to facilitate expanding transmission infrastructure at the scale and pace recommended in its 2024 transmission needs assessment.

V. Conclusion

In conclusion, we appreciate the opportunity to comment on the RFI and respectfully request that DOE implement the recommendations discuss above.

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[96] Reconductoring Policy Report at 28.
[97] U.S. Department of Energy, Grid Deployment Office. 2024. *The National Transmission Planning Study*. Washington, D.C.: U.S. Department of Energy, https://www.energy.gov/gdo/national-transmission-planning-study.
[98] *Id*.