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Subcommittee on Energy

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The CLEAN Future Act and Electric Transmission: Delivering Clean Power to the People
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Testimony

Good morning, Chairman Rush, Ranking Member Upton, and Members of the Subcommittee, and with appreciation to Committee Chairman Pallone for his June 25th, 2021 [memorandum](#) to the Subcommittee.

My name is Susan Tierney.¹ I am a Senior Advisor at Analysis Group, an economic consulting firm where I specialize on policy, regulation, economics, and environmental issues associated with the electric industry.

Thank you for inviting me to testify at this significant and timely hearing on changes that are needed in federal law to support the planning for, investments in and siting of electric transmission facilities in the U.S. I appreciate the Subcommittee's interest in this crucial but too-often unsung issue.

This hearing serves as a legislative hearing for several bills:

- [H.R. 1512](#), the Climate Leadership and Environmental Action for our Nation's Future Act (or the "CLEAN Future Act")
- [H.R. 1514](#), the Prevent Outages with Energy Resiliency Options Nationwide Act (or the "POWER ON Act")
- [H.R. 2678](#), the Interregional Transmission Planning Improvement Act of 2021
- [H.R. 4027](#), the Efficient Grid Interconnection Act of 2021

These are extremely important and constructive bills, and I appreciate this opportunity to share my thoughts and observations with the Subcommittee.

At today's hearing, I am testifying on my own behalf. As part of my testimony, however, I point to various relevant findings and policy recommendations of several recent consensus reports of the National Academies of Sciences, Engineering and Medicine ("Academies") committees² on which I have recently served and/or on which I am still a member. I will be careful to identify those instances

¹ I have provided my bio at the end of this testimony.

² These three Academies' committees on which I have served are:

- *The Future of Electric Power in the U.S.* (2021), <https://www.nationalacademies.org/our-work/the-future-of-electric-power-in-the-us>.
- *Accelerating the Decarbonization in the United States: Technology, Policy and Societal Dimensions* (2021). <https://www.nationalacademies.org/our-work/accelerating-decarbonization-in-the-united-states-technology-policy-and-societal-dimensions>.
- *Enhancing the Resilience of the Nation's Electric System* (2017), <https://www.nap.edu/catalog/24836/enhancing-the-resilience-of-the-nations-electricity-system>.

In my testimony, I will refer to these studies as the "Future of Electric Power Study," the "Decarbonization Study" and the "Resilience Study."

where I am reporting the results of those committees versus expressing my own opinion. The Academies recently released two of those reports -- the Future of Electric Power Study and Decarbonization Study -- in February 2021, just ahead of the introduction of the CLEAN Future Act, the POWER On Act, the Interregional Transmission Planning and Improvement Act of 2021,³ and the Efficient Grid Interconnection Act. I am so pleased that many of the findings and recommendations in these 2021 reports align so strongly with the purposes and provisions of these bills.

I have two main points in today's testimony: First, expansion of the nation's electric grid is essential to our country's energy transition. Second, the bills at the heart of today's hearings would constructively address persistent impediments to planning for, investment in and siting of the transmission infrastructure needed so that the U.S. electric system is fit for purpose in the 21st Century.

The Future of Electric Power Study found that:

In the future, transmission in a low-carbon electric system will need to operate in a reliable and resilient way, even in the face of cyber attacks, extreme weather events, variable supplies and loads, increased distributed energy resources, and other forces. These conditions will require continued efforts to plan for complicated operational requirements on the grid, with the need for local, regional, and interregional planning, and likely additions to the high-voltage transmission system.

Transmission enhancements are not keeping up with the operational and delivery challenges looking ahead.⁴

Although considerable transmission investment has occurred in the past two decades, much of it (along with the capacity additions it has supported) has focused on resolving reliability problems or on modernizing aging transmission infrastructure. Many transmission facilities have been added where justified to address reliability issues.

By contrast, it is incredibly hard to successfully site interstate transmission projects designed to reduce the economic costs of congestion on the electric system or to facilitate the achievement of public policy objectives beyond reliable power supply. And yet, "many states have policy commitments to add renewable and other zero-carbon electrical resources, and in many places expansion of the bulk power system to connect regions with high-quality wind and solar resources with high-density load centers could help enable those transitions. Many studies have shown that interstate power lines are essential to optimize least-cost physical location of renewables, but building new lines could be constrained by the challenges of siting multistate transmission."⁵

The bills under consideration today would deftly tackle many of the toughest challenges that frustrate responsible expansion of the nation's interstate transmission grid:

- *Addressing difficulties in siting interstate projects aimed at reducing congestion (and associated costs to consumers) and supporting public policy objectives (e.g., opening up access to renewable resources, or reducing local pollution):*

³ I recognize that the Interregional Transmission Planning and Improvement Act was previously introduced in 2019.

⁴ Future of Electric Power Study, pages 125-126.

⁵ Future of Electric Power Study, page 37.

Section 211 of the CLEAN Future Act would provide needed clarity on the national goals that may be supported by transmission expansion, and include not only the traditional, longstanding objectives of electric system reliability and economic efficiency but also the importance of reducing local air pollution and providing greater access to regions with abundant renewable resources. Section 211 provides important instructions to regulators and other executive branch officials about the range of values that should be taken into account in planning for and investment in the grid (including through non-wires alternatives).

As a former regulator myself, I can attest to the importance of having clear statutory language to help make decisions that are in the “public interest.” The Future of Electric Power Study recommended that Congress establish that the “United States has a National Transmission Policy to rely on the high-voltage transmission system to support energy diversity, energy security, and the nation’s equitable transitions to lower carbon energy economy.”⁶ And the Decarbonization Study called upon Congress to “establish a U.S. National Transmission Policy to enable a high-voltage transmission system to support the nation’s (and states’) goals to achieve net-zero carbon emissions in the power sector.”⁷

The CLEAN Future Act nicely articulates such important elements of a national transmission policy.

- ***Facilitating development of economical renewable electricity projects by planning for and opening up transmission access to regions with abundant and high-quality renewable energy and by connecting them with regions with high electricity demand:***

Section 213 of the CLEAN Future Act would broaden the current definition of ‘national interest’ transmission corridors to focus on those that are high priority for saving consumers money and for accessing and integrating location-specific, high-quality renewable resources. Sections 216 and 217 would encourage planning to identify how new transmission might address improving access to broader regional power markets and resource development beyond the traditional boundaries of electrical regions.

The Interregional Transmission Planning and Improvement Act would direct the Federal Energy Regulatory Commission (“FERC”) to take rulemaking steps to increase the effectiveness of interregional transmission planning and the processes for identifying projects that “provide economic, reliability, operational, public policy, and environmental benefits (including reductions in carbon emissions), taking into consideration the public interest, the integrity of markets, and the protection of consumers.”

These bills would address an important transmission-planning and -siting challenges, noted in the Decarbonization Study: A “chicken-and-egg problem currently exists with respect to the development of high-quality renewable projects in remote areas (e.g., offshore wind, wind in the Prairie states) and access to transmission to ensure that that renewable power can be delivered to distant load centers.”⁸

⁶ Future of Electric Power, page 126.

⁷ Decarbonization Study, page 159.

⁸ Decarbonization Study, page 158.

▪ ***Strengthening the role of national needs in regulatory approvals of certain interstate transmission construction projects:***

The CLEAN Future Act would clarify the conditions under which FERC would have authority to issue permits for construction of transmission projects in high-priority corridors and, in so doing, otherwise encourage states to look at regional benefits when they review proposals to construct new transmission lines within their borders.

As observed by the Future of Electric Power Study, the “current framework that relies on the Secretary of Energy’s authority to designate National Interest Electric Transmission Corridors and FERC’s ability to exercise limited backstop authority to act upon proposals to construct interstate transmission has been ineffective in addressing federal/state jurisdictional tensions over the siting of new transmission projects.”⁹

The CLEAN Future Act would remedy some of the challenges with this arrangement, including by expanding the attributes of high-priority corridors that the Secretary might designate, by strengthening FERC’s ability to issue construction permits (e.g., where states do not have the authority to consider regional benefits) and by authorizing the Secretary to provide direct assistance to states, tribes and localities in analyzing, problem-solving, and mediating issues in support of advancing needed transmission projects (*see* Section 218 of the CLEAN Future Act).

The Future of Electric Power Study committee and the Decarbonization Study committee both recommended that Congress go one step further -- by assigning to FERC (rather than the Secretary) the responsibility to designate any new high-priority transmission corridors (in ways that are “consistent with the goals of the National Transmission Policy”) and by authorizing FERC to issue certificates of public need and convenience for interstate transmission lines in such corridors, “with need determinations reflecting consideration of non-wires alternatives, expanding the capacity of existing transmission rights of way, state policies, community and state impacts, cost, reliability, the location of renewable and other resources to support climate-mitigation objectives. Any such approved certificate should broadly allocate the costs of transmission enhancements designed to expand regional energy systems in support of decarbonizing the electric system.”¹⁰

The latter recommendation reflected the Decarbonization Study committee’s view that “the current federal/state jurisdictional split, in which FERC regulates transmission planning/access and the states determine whether to approve transmission facilities, has proven to stand in the way of building out the kind of high-voltage transmission system needed for deployment of renewables at scale...”¹¹

⁹ Future of Electric Power, page 126.

¹⁰ Future of Electric Power Study, page 126. The recommendation in the Decarbonization study had slightly different language: Congress should “[a]uthorize FERC to issue certificates of public need and convenience for interstate transmission lines (along the lines now in place for certification of gas pipelines), with clear direction to FERC that it should consider the location of renewable and other resources to support climate-mitigation objectives, as well as community impacts and state policies as part of the need determination (i.e., in addition to cost and reliability issues) and that FERC should broadly allocate the costs of transmission enhancements designed to expand regional energy systems in support of decarbonizing the electric system.” Decarbonization Study, page 159.

¹¹ Decarbonization Study, page 158.

- ***Recognizing the benefits that accrue to states and to their citizens and consumers when, through transmission infrastructure enhancements, they have access to broader interstate electrical regions and power markets and to the economic, resiliency, reliability, and public health outcomes that those larger and more diverse electric regions can provide:***

Sections 216 and 217 of the CLEAN Future Act direct the FERC and the Department of Energy (DOE) to undertake and implement actions to improve regional and interregional transmission planning.

The Clean Future Act would direct FERC to consider the broad distribution of electrical and non-electrical benefits of transmission investment and to allocated costs more broadly to those beneficiaries.

The other bills -- the POWER On Act, the Interregional Transmission Planning and Improvement Act and the Efficient Grid Interconnection Act -- would introduce other important means to clarify that where transmission investment supports such broad economic, social and electric-system benefits, costs should be broadly allocated to beneficiaries.

- ***Addressing the economic impediment in the current interconnection process that assigns a disproportionate share of the cost of transmission upgrades to the first project seeking to develop in an area with inadequate transmission service:***

The Efficient Grid Interconnection Act would allocate costs more broadly to projects that benefit from system upgrades and give developers the option to provide front-end financing of timely and important upgrades and to seek reimbursement for some share of that investment by subsequent users and beneficiaries of it.

- ***Ensuring that transmission enhancements only occur where needed:***

The CLEAN Future Act would advance this goal in several ways:

First, Section 214 of the CLEAN Future Act would clarify and reinforce the important role that non-wires alternatives may place in supporting a modern grid, and calls for transmission planning to take non-wires alternatives into account and for transmission ratemaking to allow for the recovery and allocation of appropriate non-wires costs. These provisions fortify the robustness of the planning process, and help to lead to cost-effective solutions where non-wires alternatives can provide the functionalities that might otherwise be supply by new transmission investment. The Act would reinforce the importance of pursuing non-wires alternatives in avoiding transmission, and in so doing potentially strengthens the showing of need for those projects that solve reliability, efficiency and resource accessibility issues that cannot be addressed through non-wires alternatives.

I note that the Future of Electric Power Study committee recommended that transmission planning and project certification should take into consideration non-wires alternatives.¹²

Second, Section 218 of the CLEAN Future Act supports the important role that members of the public, states, tribes, and local communities must play in the transmission planning and energy facility siting. The Act would authorize \$75 million a year in financial assistance (through

¹² Future of Electric Power Study, page 126.

planning and public participation grants and direct technical assistance administered by DOE) to states, tribes and localities so that they are able to analyze transmission projects and participate more fully in siting processes related to project proposals.

Both the Future of Electric Power Study committee and the Decarbonization Study committee called upon Congress to authorize and appropriate funding for this critically important purpose.¹³ For example, the Decarbonization Study recommended that Congress appropriate funding totaling \$75 million per year to DOE to provide support for technical assistance and planning grants to states, communities, and tribes to enable meaningful participation in regional transmission planning and siting activities, and for analyzing, planning for, and developing workable business models and regulatory structures to support development of offshore wind and for development, permitting, and construction of high-voltage transmission lines, including high-voltage direct-current lines.

This latter recommendation was grounded in the Decarbonization Study Committee's conclusion that

Planning for and siting of transmission requires many improvements: a national statement of the important role of transmission in supporting the nation's, regions', and states' achievement of GHG-emission reduction targets (House Select Committee, 2020); provision of "side-payments" or other economic incentives for states that need to host transmission enhancements for national and regional purposes (Reed et al., 2020; Ito, 2016); greater use of existing rights of way to site new transmission (Reed et al., 2020, 2019); financial support for state and local governments to analyze transmission projects and to provide meaningful analyses of barriers to local economic development through transmission, such as poorly designed incentive schemes (Haggerty et al., 2014); and support for authentic engagement of stakeholders, with community groups supported by resources so that they can meaningfully participate in regional planning processes (Ito, 2016).

Conclusion

I hope that the Subcommittee finds my testimony useful and relevant as it determines what changes are needed in federal law to support the expansion of the nation's electric transmission system.

Expansion of the grid is fundamental to enabling the nation and the states to meet the goals for a reliable and affordable electric system while also supporting electric-system transitions toward supply portfolios that rely more on renewable, other zero-carbon and affordable supplies in the future.

Thank you for affording me this opportunity to present this information and my opinions to the Subcommittee.

¹³ Future of Electric Power Study, page 126; Decarbonization Study, page 160.

Bio

Susan F. Tierney, Ph.D.

I am a Senior Advisor at Analysis Group, an economic consulting firm headquartered in Boston, with other numerous U.S. offices (in California, Colorado, Illinois, New York, Texas, and Washington, D.C.).

I have been involved in issues related to public utilities, electric industry policy and regulation, electric system reliability and resilience, and energy and environmental economics and policy for over 35 years. During this period, I have worked on electric industry issues as a utility regulator and energy/environmental policy maker, consultant, academic, and expert witness. I have been a consultant and/or advisor to private and publicly owned energy companies, grid operators, federal, state or tribal government entities, large and small energy consumers, environmental and other non-governmental organizations, foundations, and other entities on a variety of economic and policy issues in the energy sector.

Before becoming a consultant, I held several senior governmental policy positions in state and federal government, having been appointed by elected executives from both political parties. I served as the Assistant Secretary for Policy at the U.S. Department of Energy. I held senior positions in the Massachusetts state government as Secretary of Environmental Affairs, Commissioner of the Department of Public Utilities, and Executive Director of the Energy Facilities Siting Council.

My Master's degree in city and regional planning and my Ph.D. in regional planning are from Cornell University. I previously taught at the University of California at Irvine and at MIT. I am a member of the advisory councils at Columbia University's Center for Global Energy Policy, New York University's Institute for Policy Integrity, and Duke University's Nicholas School for the Environment.

I currently sit on several non-profit boards and commissions, including as: chair of the board of ClimateWorks Foundation and of Resources for the Future; a trustee of the Barr Foundation; and a director of World Resources Institute and of the Energy Foundation. I am currently a member of two Committees of the National Academies of Sciences, Engineering, and Medicine: the Committee on Accelerating the Decarbonization of the U.S. Energy System; and the Committee on the Future of Electric Power in the United States. I chair the National Renewable Energy Laboratory's External Advisory Council. I previously chaired the U.S. Department of Energy's Electricity Advisory Committee, and was a member of the National Academy of Sciences' committee on resiliency of the U.S. electric system. I serve on the NYISO's Environmental Advisory Council. I was co-lead convening author of the Energy Supply and Use chapter of the Third National Climate Assessment. I previously served on the Secretary of Energy's Advisory Board, and chaired the Policy Subgroup of the National Petroleum Council's study of the North American natural gas and oil resource base.

After being raised and attending college in Southern California and then after spending 35 years in Boston, I moved with my husband to his home state of Colorado in 2016.