

ONE HUNDRED SEVENTEENTH CONGRESS
Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
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WASHINGTON, DC 20515-6115

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August 2, 2021

Dr. Susan Tierney
Senior Advisor
Analysis Group
111 Huntington Avenue, 14th Floor
Boston, MA 02199

Dear Dr. Tierney:

Thank you for appearing before the Subcommittee on Energy on Tuesday, June 29, 2021, at the hearing entitled “The CLEAN Future Act and Electric Transmission: Delivering Clean Power to the People.” I appreciate the time and effort you gave as a witness before the Committee on Energy and Commerce.

Pursuant to Rule 3 of the Committee on Energy and Commerce, members are permitted to submit additional questions to the witnesses for their responses, which will be included in the hearing record. Attached are questions directed to you from certain members of the Committee. In preparing your answers to these questions, please address your response to the member who has submitted the questions in the space provided.

To facilitate the printing of the hearing record, please submit your responses to these questions no later than the close of business on Monday, August 16, 2021. As previously noted, this transmittal letter and your responses, as well as the responses from the other witnesses appearing at the hearing, will all be included in the hearing record. Your written responses should be transmitted by e-mail in the Word document provided to Lino Peña-Martinez, Policy Analyst, at Lino.Pena-Martinez@mail.house.gov. To help in maintaining the proper format for hearing records, please use the document provided to complete your responses.

Dr. Susan Tierney

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Thank you for your prompt attention to this request. If you need additional information or have other questions, please contact Lino Peña-Martinez with the Committee staff at (202) 225-2927.

Sincerely,

A handwritten signature in blue ink that reads "Frank Pallone, Jr." in a cursive style.

Frank Pallone, Jr.
Chairman

Attachment

cc: The Honorable Cathy McMorris Rodgers
Ranking Member
Committee on Energy and Commerce

The Honorable Bobby L. Rush
Chairman
Subcommittee on Energy

The Honorable Fred Upton
Ranking Member
Subcommittee on Energy

Attachment—Additional Questions for the Record

**Subcommittee on Energy
Hearing on
“The CLEAN Future Act and Electric Transmission: Delivering Clean Power to the
People”
Tuesday, June 29, 2021**

Dr. Susan Tierney, Senior Advisor, Analysis Group

The Honorable Scott Peters (D-CA)

1. Dr. Tierney, I’m not sure everyone has an appreciation for the scale of transmission projects needed to build a 100% clean electric grid.

RESPONSE:

The 2021 report of the National Academies of Sciences, Engineering and Medicine (“[Accelerating Decarbonization of the U.S. Energy System](#)”) provides insights into the scale of electric transmission expansion that will be needed to build a 100% clean electric grid:

The electric sector plays a critical role in decarbonization, both in terms of reducing GHG emissions from electricity production and use and for supporting the decarbonization of other sectors. Since 2005, the share of electricity from zero-carbon emitting sources—including nuclear power, hydropower, wind, solar, biomass, and geothermal—has increased from 28 percent to 37 percent. This growth comes primarily from wind and solar, as cost reductions and policy incentives have combined to drive deployment (even as other zero-carbon emitting technologies have declined or remained stagnant). Wind or solar power is now the cheapest source of new electricity generation in 34 percent of U.S. counties, based on levelized cost of electricity and considering regional differences in capital costs and fuel delivery prices (UT-Austin, 2020). The 2020s are a key decade to build out the electric transmission and distribution infrastructure needed to accommodate flows from and access to these commercially ready new zero-carbon resources.

[Recommended no regrets strategy] Electric transmission: Strengthen and expand U.S. long-distance electricity transmission by identifying corridors needed to support wind and solar deployment (both through 2030 and beyond, given the long siting and build timeline for transmission), which will require policy and process reforms described in Chapter 4. Leverage opportunities to reconductor existing

transmission lines at higher voltages and take advantage of existing rights of way and dynamic line rating to enhance existing transfer capacity. Increase overall transmission capacity (as measured in GW-miles) by about 40 percent by 2030.

2. Can we transition to a 100% clean electric system in the next twenty years without major reforms to transmission policy?

RESPONSE:

It will be difficult if not impossible to transition to a 100% clean and affordable electric system without major transmission policy reforms. The current challenges in planning for, siting/permitting and allocating the costs of interstate and interregional transmission facilities create substantial barriers to accomplishing that transition in a timely and/or cost-effective way. Many parties, including the authors of the 2021 National Academies of Sciences, Engineering and Medicine [study on the Future of Electric Power in the U.S.](#), call for Congressional action to overcome such barriers. In [Chapter 3 of that NASEM committee report](#), the authors 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. Regional and local planning efforts continue to feel the effects of widely diverse and in some cases highly contested views about whether more or less transmission will be required in a future electric system that needs to link regions with rich renewable resources to distant and diverse load centers, as well as needing to accommodate locally sourced supply from a growing reservoir of more distributed energy resources.

Recommendation 3.3: Re Transmission Siting: In light of the fundamental ways in which interstate commerce is enabled by the high-voltage, multi-state transmission networks in the Eastern and Western Interconnections of the United States and in which transitions in the nation's electric system to increase reliance on remote renewable resources, Congress and the states should support the evolution of planning for and siting of regional transmission facilities in the United States, while recognizing that some developments at the grid edge may partly mitigate the need for new transmission.

- Congress should enact legislation to:

- 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,
- Direct the Federal Energy Regulatory Commission (FERC) to require transmission companies and regional transmission organizations to analyze and plan for all of the following objectives: electric system reliability; efficient dispatch of the bulk power electric system, taking into account economics, environment, and equity; and economical opportunities to expand the interstate electric system to open up access to and development of renewable resources and to connect these regions with areas of high electricity demand.
- Assign to FERC the responsibility to designate any new National Interest Electric Transmission Corridors, in ways that are consistent with the goals of the National Transmission Policy.
- Authorize FERC to issue certificates of public need and convenience for interstate transmission lines in a designated National Interest Electric Transmission Corridor, with need determinations reflecting consideration of non-wires alternatives, expanding the capacity of existing transmission rights of way, state policies, 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.
- Direct the Department of Energy (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.

There is an urgency to reform regional transmission planning and siting processes, given that in general the process of planning, development, permitting, financing, and construction is lengthy. In any event, and pending action by Congress as recommended above, FERC should update its current transmission planning and cost-allocation rules to ensure that they appropriately take into account the drivers of change in the existing industry and the nation's needs for appropriate transmission investment, deployment, and cost recovery.

Recognizing the difficulty of such federal statutory changes, many analysts and scholars have explored how transmission infrastructure can be expanded using existing authorities. One such recent study (A. Zevin et al., [“Building a New Grid Without New Legislation: A Path to Revitalizing Federal Transmission Authorities.”](#) December 2020,

published by Columbia University's Center for Global Energy Policy and the Institute for Policy Integrity) discusses how transmission expansion may occur pending Congressional action.

Ideally, Congress would take action to overcome the regulatory and commercial barriers that have frustrated long-distance transmission development, with legislative solutions rooted in cooperative federalism. However, such action is not guaranteed and may not be realistically expected to occur in a timeframe an administration determines is necessary to address the crisis presented by climate change.

In the absence of legislation, critical long-distance transmission can be developed by applying existing federal legal authorities. A number of important regulatory and commercial measures have been proposed, including streamlining transmission planning, upgrading existing transmission system components, putting transmission lines underground, and using existing rights-of-way from highways and railroads. Even if these solutions are adopted, however, state siting requirements may prove an important obstacle to developing an efficient, national transmission grid. So, this paper examines legal authorities already available to federal agencies to develop the interstate transmission capacity crucial to the energy transition. Judicial interpretations and political roadblocks have limited these authorities' effective use over the past decade but are not fatal, should an administration seek to use them.

The paper focuses on three sources of federal regulatory authority. Section 216 of the Federal Power Act, which directs the Department of Energy (DOE) to designate national interest energy transmission corridors and, if a state agency impermissibly stalls or rejects a project in a corridor, authorizes the Federal Energy Regulatory Commission (FERC) to issue a federal permit that preempts state limits and grants the permit holder eminent domain authority. Section 1222 of the Energy Policy Act of 2005 authorizes DOE to partner with private entities to develop transmission facilities, which both frees development efforts from state-level regulatory requirements and imbues them with federal eminent domain authority.

In addition, federal power marketing administrations that market and deliver hydropower generated by federally owned dams have statutory authority to develop new transmission facilities across large swaths of the continental US without concern for key state-level regulatory requirements and with the power of federal eminent domain.

The Honorable Lisa Blunt Rochester (D-DE)

1. Your testimony stresses the importance of investing in non-wires alternatives, where appropriate, and you also state that non-wires alternatives may protect ratepayers from unnecessary costs. Can you discuss the benefits to ratepayers in investing in non-wires alternatives?

RESPONSE:

“Non-wires alternatives” refers to a variety of types of projects, investments, and/or measures that can defer or avoid investment in transmission (and/or distribution) facilities. Such non-wires alternatives may include energy efficiency measures, energy storage, grid control technologies, and other distributed energy resources (e.g., cogeneration, solar) that have the potential to reduce or manage electrical loads and relieve pressure on the grid that would otherwise require the addition of expanded transmission and/or distribution capacity. In certain locations, combinations of such non-wires alternatives may be more cost-effective solutions than building, operating and paying for traditional wires solutions; in other locations and combinations, the non-wires alternatives may not provide the necessary reliability capabilities at lower cost. (I have discussed these location-specific considerations in a paper, [“The Value of “DER” to “D”:
The Role of Distributed Energy Resources in Supporting Local Electric Distribution System Reliability.”](#) March 2016.) Con Edison’s Brooklyn Queens Demand Management (BQDM) Project is an early example (initially proposed in 2014) of a non-wires alternative that “deferred the need for a substation upgrade that would have cost \$1.2 billion.” (Source: [“Non-Wires Alternatives: Case Studies from Leading U.S. Projects.”](#) November 2018.)

2. As a follow-up, would permitting cost recovery of non-wires alternatives effectively encourage the deployment of non-transmission alternatives?

RESPONSE:

Yes: where regulators determine that contracting for and/or investment in non-wires alternatives is a lower-cost alternative to transmission and/or distribution investments, allowing cost-recovery can encourage deployment of the most cost-effective solution for consumers.

The Honorable Kathy Castor (D-FL)

1. Dr. Tierney, would reforming interconnection cost allocation consistent with a “beneficiary pays” principle reduce the pressure on developers to enter speculative projects in interconnection queues? How would that help lower overall interconnection costs?

RESPONSE:

When a new generating unit proposal seeks to interconnect with the high-voltage transmission system, the power company must submit an “interconnection request” so

that the transmission system operator can determine whether transmission upgrades will be required in order to safely interconnect the new power plant to the grid and then operate the facility once it is ready for service.

If transmission upgrades are needed, current practice in most parts of the country is to require that plant owner to cover most if not all of the cost of the network upgrades, even when other parties might also end up benefitting from those investments. If there is sufficient capacity already existing on the transmission grid, the new plant might not trigger the need for additional transmission upgrades (in which case, that plant can avoid the cost of the upgrades and use capacity on the system that was initially funded by others).

Because transmission system operators take up interconnection requests on a first-come, first-serve basis, a plant's position in the transmission interconnection queue may end up determining which projects must pay for upgrades and which ones do not. This sometimes leads to instances where a power plant developer submits an interconnection request for a speculative project in order to reserve a particular position in the interconnection queue, which can have a domino effect on the costs of other facilities that have later positions in the queue.

This costly positioning of projects, based on current cost-allocation practices for network upgrades, could be addressed through different policies for assigning costs so that all of the beneficiaries of the upgrade projects pay their fair share of the costs.

2. Dr. Tierney, how do financial deposit requirements and site control requirements help ensure that generation and storage projects in interconnection queues are not speculative?

RESPONSE:

Requiring some form of meaningful financial commitment to hold a position in an interconnection queue would lessen the likelihood that speculative projects will enter the queue in the first place and enable more equitable review of more concrete project proposals.

3. Consumers are currently paying for transmission congestion and are unable to access affordable renewable energy that cannot connect to the electric grid. Dr. Tierney, how could reforming interconnection cost allocation consistent with a "beneficiary pays" principle save consumers money on their electricity bills?

RESPONSE:

The practice of assigning costs of network upgrades fully to the power plant project that triggers the need for such upgrades creates a barrier to entry for projects that might otherwise move forward if the costs were more fairly assigned to all of the beneficiaries of system upgrades. Considering the pace of expansion of both renewable energy and transmission facilities that is needed to reduce emissions from the electric sector, reforming network-upgrade cost-allocation rules is an important element of the nation's energy transition and will lower the overall costs that are ultimately borne by electricity consumers.