
ENVIRONMENT

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Improving US Energy Security: Granting FERC Siting Authority over Interstate High Voltage Electric Transmission

The Biden Administration and the US Congress are giving serious consideration to granting the Federal Energy Regulatory Commission (FERC) the authority to site high voltage (HV) interstate electric transmission lines. FERC already has authority under the Natural Gas Act (NGA) to regulate the siting of and rates charged by interstate natural gas pipelines and storage facilities. Proponents of giving FERC such additional authority point to the extensive buildout of the natural gas pipeline system. These proponents believe that FERC could do the same with interstate HV electric transmission.

While on the surface granting FERC such additional siting authority over HV electric transmission may appear logical, this author believes it is a big mistake—that US energy security would not improve, and even decline

under such FERC authority. The main reason why this author is against transferring interstate electric transmission to FERC is the fact it would federalize all proposals, subject them to the National Environmental Policy Act (NEPA) and related delays, and ultimately give the States de facto veto power over the timing and the construction of these facilities. Such a move without some meaningful changes in existing laws, could likely provide a central venue to opponents of energy infrastructure that will prove administratively unwieldy for FERC and other agencies to manage. The result could be a longer and more litigious siting process with the distraction of NEPA and few projects ever being built.

Transferring siting authority of HV transmission lines to FERC is problematic, but not because the agency lacks the expertise in electric transmission or resources to do a credible NEPA review.

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Transferring siting authority of HV transmission lines to FERC is problematic, but not because the agency lacks the expertise in electric transmission or resources to do a credible NEPA review. The real measure of success of the program would be how many and how quickly HV electric transmission

projects could be constructed. Congress and the Administration would certainly hold FERC accountable for the performance of this new program, but not give FERC the tools needed to successfully oversee and implement the program. The reason being due to the fact the number of HV interstate transmission lines actually built is not completely under FERC's control.

Improving energy security and providing an avenue to bring distributed and renewable energy resources to market really depends on Congress and the Administration, in cooperation with states. For example, the Clean Water Act (CWA) and Coastal Zone Management Act (CZMA) that give the States final say over whether projects subject to NEPA will be constructed or relicensed.¹ This is extremely problematic on linear infrastructure that passes through multiple states since a denial of a permit by one State normally jeopardizes the entire project.

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The Congress and the Council on Environmental Quality (CEQ) should also rethink whether a new category of projects is warranted under NEPA to simplify and build HV electric transmission line projects quickly to achieve national energy security and bring more renewable energy online. The former efforts in the US have all failed to achieve this, largely because Congress has gone out of its way to respect State authority as much

¹ In the case of non-federal hydropower projects, FERC doesn't relicense an existing license unless it has a section 401 WQC.

as possible in siting HV electric transmission. In fact, US energy security and the ability to meet commitments under the Paris Agreement and goals of State Clean Energy Plans are being jeopardized under a "business as usual" approach that has gone on for decades.

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This column discusses key issues and offers several recommendations that can simplify and get new HV interstate electric transmission reviewed, approved and built in the US. This author believes that these measures would be in keeping with the International Energy Agency's Model of Short Term Energy Security² (MOSES) in making the power grid more resilient and be in keeping with the "4 As" of energy security³ that factor into consideration whether such projects make energy available, accessible, affordable (cost) and acceptable (environmentally and socially) to US citizens.

US ELECTRIC TRANSMISSION VS NATURAL GAS TRANSMISSION

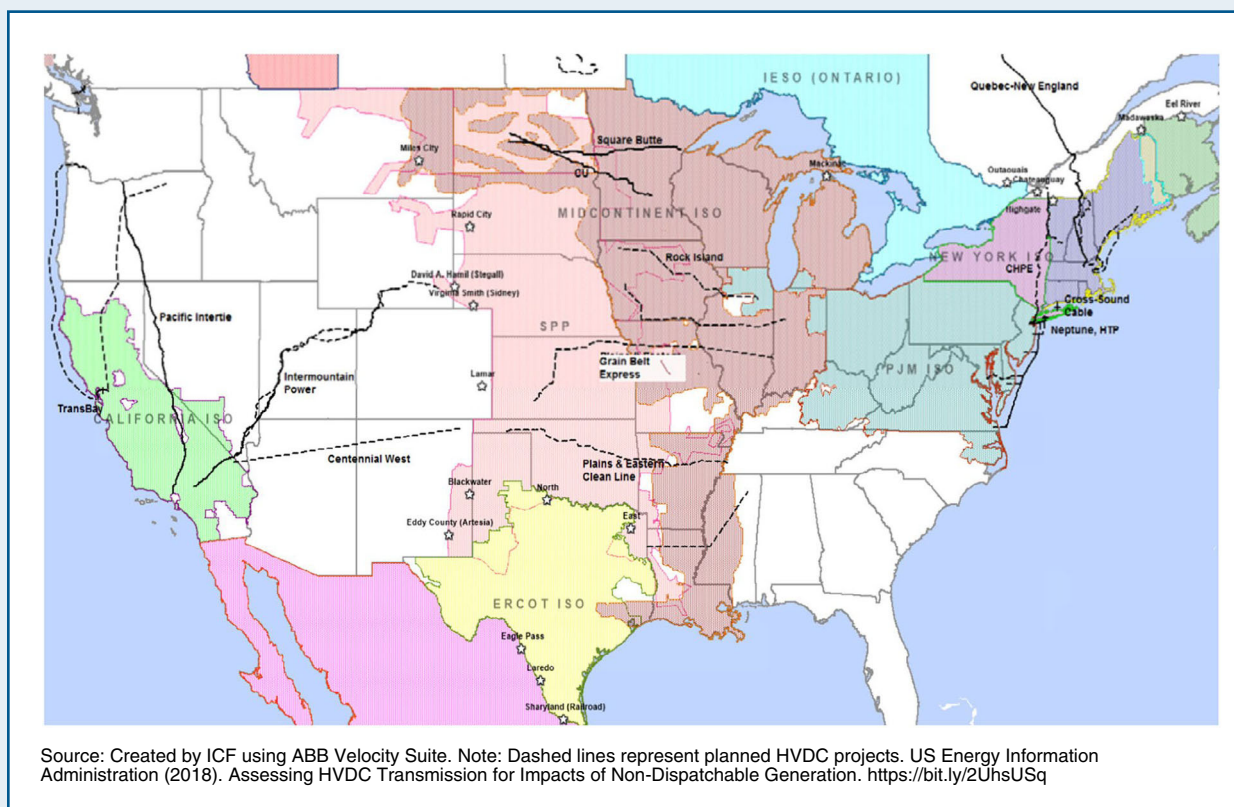
In 2018 there were over 700,000 miles of electric transmission lines in the US. Approximately 100,000 miles of transmission lines are operating at 345 kilovolts (kV) and greater⁴ which are categorized as HV lines in

² The IEA Model of Short-term Energy Security, IEA Paris <https://bit.ly/3CQI7LO>

³ Cherp, A., & Jewell, J. (2014). The concept of energy security: Beyond the four As. *Energy Policy*, 75, 415–421. <https://bit.ly/37Jquzi>

⁴ Department of Energy, Annual U.S. Transmission Data Review, at 6 (2018, March). <https://bit.ly/3CIenAI>

Figure 1. Selected Existing and Planned HV Transmission Lines in US as of 2018



this column⁵ (Figure 1). Most experts agree that building more interstate HV transmission capacity is a key priority to delivering wind and solar energy from remote areas to load centers and help improve the resiliency of the electric power grid and increase decarbonization goals to mitigate the impacts of climate change. However, the US is significantly behind in this area having built only 3 gigawatts (GW) of HV transmission since 2014. During this same time period, China has built 260 GW of interregional transmission capacity that's come online or will come online in the next few years. Europe is way behind at 44 GW, followed by South America at 22 GW and India at 12 GW. Then

⁵ High voltage also includes Alternating Current (AC) transmission lines greater than or equal to 345 kilovolts (kV) and Direct Current (DC) transmission lines greater than or equal to 100 kV and includes both overhead and underground lines.

comes North America at 7 GW.⁶ And, in the US it can take 8 to 12 years to plan, site, and build HV transmission.

Under current US law, applicants of new HV electric transmission lines must secure approvals from each state and numerous government entities that the project would pass through before a line can be constructed.

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⁶ Coy, P. (2020, November). High-Voltage Power Lines Are Ugly, and the U.S. Needs More. Bloomberg Businessweek. <https://bloom.bg/3s7kYj8>

would pass through before a line can be constructed. The federal role and NEPA are a factor when a project crosses the international border or is sited on federal lands. FERC's current role is to set "just and reasonable" rates that the transmission line owners can charge generators once the project is built.

Natural gas transmission (pipelines) is comparable to the HV electric transmission in that they enable transportation of large quantities of energy over long distances. However, Congress gave FERC siting authority of interstate natural gas facilities before NEPA, CWA, CZMA and ESA were passed. Over decades under FERC, the natural gas pipeline system has grown to be the largest natural gas pipeline system in the world. Even after NEPA was passed by Congress in 1969, FERC through its 999 Policy Statement reviewed and approved over 400 projects. State agencies routinely approved and issued CWA section 401 WQCs and in most cases coastal zone management determinations that allowed these projects to be built. That has all changed in the last five years.

Today, FERC's natural gas pipeline policy is under attack and the agency is routinely taken to court over NEPA compliance for not addressing greenhouse gas (GHG) emissions, landowner concerns and the rights of environmental justice communities. States such as New York and New Jersey have also weaponized the Section 401 WQC permits. New York denied WQCs for the Constitution natural gas pipeline from Pennsylvania, and the Northeast Supply Enhancement natural gas pipeline project that would have served the downstate region of New York.⁷

⁷ Williams Discontinues New York Pipeline Project After Key Permit Denial <https://bit.ly/3ISpO2I>

Natural gas and electric transmission lines share some common characteristics. First, they are linear projects and routes can be changed. Second, the states must cooperate with each other so that interstate transmission is built quickly. Third, opposition to both is not an anomaly, just because a HV transmission line purports to be delivering clean renewable energy will not make reviewing projects easier or expedite their construction. This author believes that the HV electric transmission program will foster similar debates and controversy over land use and specifically the industrialization of land which is a factor that large solar and wind farms face. Finally, electric transmission lines will be proposed and built with private money and many stakeholders will balk at issues like eminent domain that FERC would give private companies when it issues its permits.

All of the above factors may be relevant if HV interstate electric transmission siting authority is transferred to FERC depending on if and how this authority is granted. The result could be a more complicated and time-consuming process with few, if any, HV transmission projects being built faster than they might otherwise.

FEDERALIZING INTERSTATE ELECTRIC TRANSMISSION IS NOT THE ANSWER

Congress should closely examine the track record of interstate HV electric transmission projects required to undergo the NEPA process before making a decision. Three HV transmission projects that illustrate why federalizing interstate electric transmission might not be a wise decision are the TransWest Express, Champlain-Hudson Express and the Boardman to Hemingway projects. None of these projects have begun construction and have so far taken between 10 to 14 years obtain permits (**Table 1**).

All of the above projects have triggered NEPA because they are: a) being sited on federal land, b) cross the international boundary between the US and Canada, or c) will be constructed

Table 1. Permitting Time of Selected US High Voltage Electric Transmission Lines that Trigger NEPA, Section 401 CWA and CZMA

| Project | Years Permitting (started) | Main Federal and State Agencies Involved |
|---|--|--|
| TransWest Express LLC (TransWest) a proposed 1,500 to 3,000 megawatt (MW) project that would carry power from wind turbines in Wyoming to customers in Arizona, Nevada, and Southern California | 13 years, Started in 2008 ^a | Bureau of Land Management and Western Area Power Administration |
| Champlain Hudson Express (CHPE) a proposed 1,250 MW project that will carry hydroelectric power across the US-Canadian border and run 339 miles to New York City | 10 years, Started in 2014 ^b | Army Corps of Engineers, Department of Energy, Dept of Defense |
| Boardman to Hemingway (B2H), a proposed 500-kilovolt (kV) transmission line that will run approximately 290 miles across eastern Oregon and southwestern Idaho | 14 years, Started 2007 ^c | Bureau of Land Management, US Forest Service, and Bonneville Power |

Source: Russo on Energy LLC.
^a Includes State and county permitting completed, with the first county authorization received December 2018 and the last received January 2020. <http://bit.ly/3fYgCpF>
^b Changed capacity from 1,000 MW to 1,250 MW in 2021. <https://bit.ly/3yEFKsQ>
^c Was currently in litigation but Court ruled in favor of project and NEPA compliance issues.

under navigable streams and rivers. In addition, state WQCs are required for all of the projects and a CMZA determination from the state in the case of the CHPE project.

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Beginning in 2009, the Obama Administration required federal agencies to sign memoranda of agreement to expedite and simplify building HV transmission and despite these efforts, the transmission siting process is extremely slow.⁸ Congress and

⁸ In October of 2009, nine Federal entities including, the White House Council on Environmental Quality (CEQ), the Department of the Interior (DOI), the Department of Agriculture (USDA), the Department of Energy (DOE), the Department of Commerce, the Department of Defense, the Environmental Protection Agency, the Federal Electric Regulatory Commission (FERC), and the Advisory Council on Historic Preservation, signed a Memorandum of Understanding increasing their coordination to expedite and simplify building of transmission lines on Federal lands.

former administrations tried unsuccessfully to speed federal reviews by passing the Fixing America’s Surface Transportation Act in 2015. None of these initiatives have made a significant difference. In the last four years through executive orders, all federal agencies were required to cooperate in the preparation of environmental impact statements (EIS) and to develop a single record of decision (ROD) for projects. Also, the CEQ reformed the NEPA regulations with the goal of expediting reviews and decision making. The regulations became final on September 20, 2020. Today, TransWest is the only HV transmission project that is “shovel ready” and has started an initial capacity allocation process as of January 2021. The CHPE is still obtaining some permits based on the latest route changes but is close to being shovel ready.

CURRENT APPROACHES TO SITING HV ELECTRIC TRANSMISSION

There are a number of proposals to increase the energy security of the US power grid, including the National Renewable Energy

Laboratory's (NREL) proposal to increase HV direct current (HVDC) transmission capacity between Eastern and Western US grids. This is commonly referred to as the Interconnections Seam Study or Project.⁹

Congress amended the Federal Power Act Section 216 "backstop siting" authority as a means of addressing climate change. Their objective was to facilitate the construction of more long-haul transmission lines within a National Interest Electric Transmission Corridor under certain circumstances from areas with excess renewable generation, so zero-emitting wind, solar hydropower and geothermal generation can reach more markets. A 2009 court decision significantly narrowed this already limited backstop transmission siting authority.¹⁰

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While on the surface National Interest Electric Transmission Corridors are a good idea, they don't go far enough. Even when the Department of Energy (DOE) designates a national corridor, it does not mean that additional transmission capacity is needed or is the best solution to resolve congestions issues. More importantly, the designation does not propose, direct or permit anyone to build a HV interstate transmission line. In fact, every HV electric transmission project must slog through its own interminable NEPA review to justify the need for the additional capacity project. This is simply unworkable.

⁹ National Renewable Energy Laboratory Interconnections Seam Study. <https://bit.ly/3ANoUJ7>

¹⁰ Piedmont Environmental Council v. FERC, 558 F.3d 304 (4th Cir. 2009).

Federalism¹¹ essentially prohibits the federal government from expediting HV transmission lines. Congress simply goes out of its way to respect State authority as much as possible in siting HV electric transmission and other energy infrastructure projects that are subject to NEPA review. This appears to be the "third rail" in our national discussion of energy infrastructure. Congress and prior administrations have not really addressed this critical issue. Yet by ignoring it, Congress has created a conundrum for HV transmission investors and federal and state regulators which this author believes must be resolved to address climate change and improve energy security of the electric grid.

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Although the Electric Reliability Council of Texas (ERCOT) lacks interconnects to the Eastern and Western grids, Texas addressed the challenge of siting HV electric transmission lines within state boundaries by using Competitive Renewable Energy Zones (CREZ). According to Cohn and Jankovska 2020,¹² and unlike the DOE's National Transmission Corridors, the Texas Legislature effectively addressed all three of the requirements for initiating a major transmission project: 1) the law established the necessity for new service and the adequacy of existing service, thus allowing the regulatory

¹¹ Federalism is a political system that believes each state under a central government can have its own laws and customs while still sharing unified laws, customs, and currency. The central or federal government and regional governments (provincial, state, cantonal, territorial or other sub-unit governments) share the governing power.

¹² Cohn, J., & Jankovska, O. (2020). Texas CREZ Lines: How Stakeholders Shape Major Energy Infrastructure Projects. Rice University, Baker Institute, Center for Energy Studies. <https://bit.ly/3sbuuSr>

commission to focus on planning; 2) earlier state law established postage-stamp reimbursement of transmission costs, shared by all ratepayers, thus offering a clear method for repayment to transmission investors without burdening renewable generators that would be the predominant users of the lines; and 3) with all CREZ lines internal to the state, only one agency—the Public Utility Commission of Texas (PUCT)—had regulatory oversight for permission and siting.

Cohn and Jankovska (2020)¹³ point out that due to Texas law and policy, landowners, local governments, and regional organizations also played an unexpectedly important role in shaping this significant energy infrastructure. Projected in 2008 to cover 2,300 circuit miles at a cost of \$4.93 billion, the completed transmission lines stretched more than 1.5 times that distance at a cost of \$6.9 billion.

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While Congress could possibly adopt elements of the Texas CREZ approach, it would have to address several other factors: 1) NEPA compliance, if it transferred siting authority to FERC, 2) how federal land management agencies would treat CREZ like transmission zones with respect to their enabling statutes and NEPA, and 3) constitutional challenges from the States.

HOW OTHER COUNTRIES ARE DEALING WITH HV ELECTRIC TRANSMISSION CHALLENGES

As discussed earlier, the US currently lags behind China, Europe and South America in

¹³See Footnote 12

building HV electric transmission lines. The autocratic system in China actually enhances and simplifies the planning and likelihood that HV electric interregional transmission projects will be built even if they are not popular with provincial governments and local communities that they affect. The same holds true in many African and South American countries that are characterized by weak regulations, poor environmental reviews and limitations on judicial reviews of government projects. While these authoritarian regimes might make it easier to site and build large energy projects, there are other negative consequences and tradeoffs that are another matter altogether.

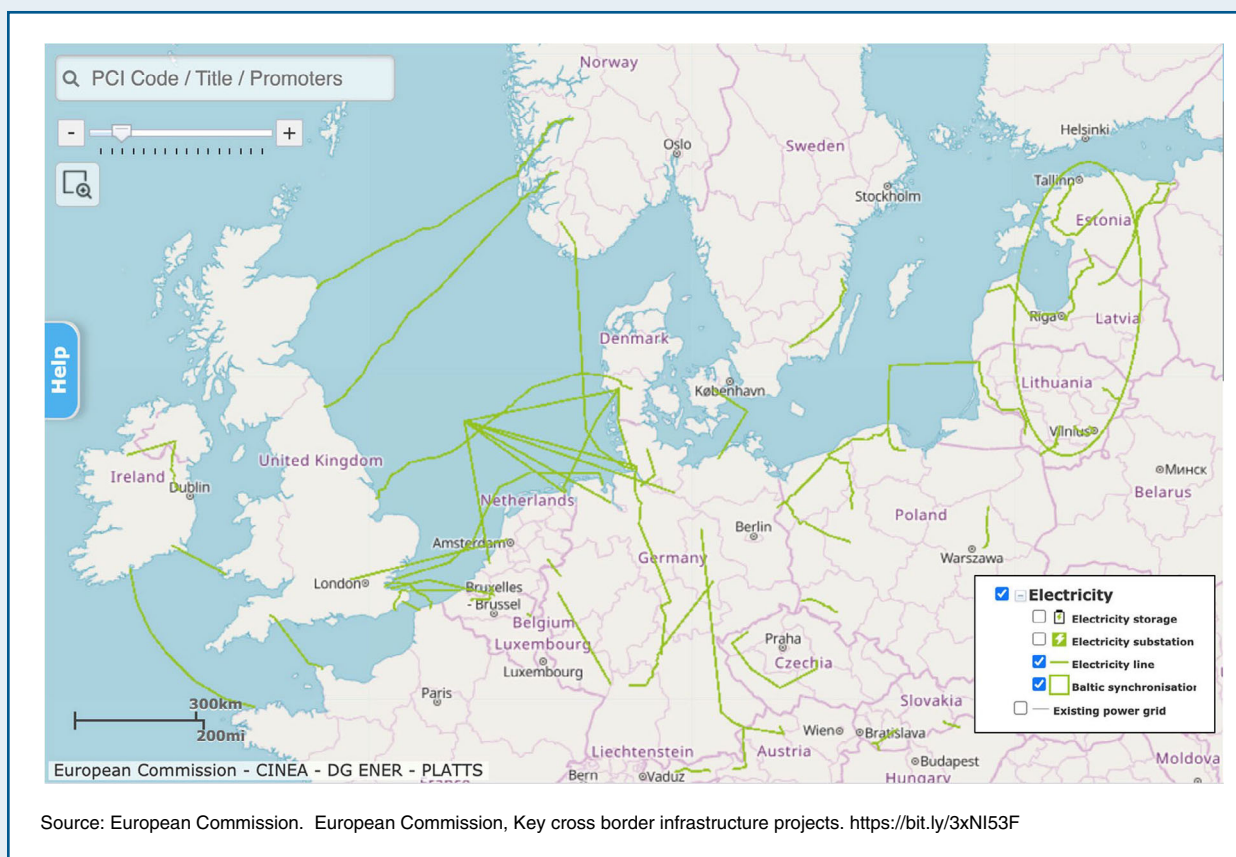
However, Europe's progress in building HV electric transmission does not rely on an autocratic system. The European Union (EU) and its regulators share similar values and challenges with the US with respect to environmental laws, a degree of federalism to the member countries and dealing with landowners, NIMBYism and environmental justice.¹⁴ The latter are definitely a challenge when HV transmission lines are planned near European communities. The EU, however, has dealt with this by using a concept called "Projects of Common Interest" (PCI).

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PCIs are a category of projects that the European Commission has identified as a key priority for interconnecting the EU's energy system infrastructure. Major infrastructure facilities qualify as PCIs when they connect energy networks across the EU and boost the use of renewables and

¹⁴NIMBYism is the practice of objecting to something that will affect one or take place in one's locality.

Figure 2. Electric Transmission Lines included in EU's Projects of Common Interest List



ensure that clean, secure and affordable energy is available and accessible to its citizens. The projects placed on the PCI list included HV transmission lines (**Figure 2**) are also deemed critical to the 2050 decarbonization of the EU's economy in accordance with the Paris Agreement.

The PCI list is reviewed every two years. Projects selected as PCIs are eligible to receive public funds, and benefit¹⁵ from:

- accelerated planning and permit granting
- a single national authority for obtaining permits

improved regulatory conditions

- lower administrative costs due to streamlined environmental assessment,¹⁶ not to

¹⁵ See <https://bit.ly/3s8QWeS>

¹⁶ Streamlining environmental assessment procedures for energy infrastructure Projects of Common Interest (PCIs). <https://bit.ly/3jP2Uqj>

exceed a period of three (3) years and six (6) months, with a possible nine (9) month extension period allowed

- increased public participation via consultations
- increased visibility to investors

On August 9, 2021, a major new report¹⁷ from the Intergovernmental Panel on Climate Change (IPCC) indicated that humans have, in fact, released enough GHGs into the atmosphere to warm the planet about 1.5°C.

¹⁷ IPCC (2021). Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. V. Masson-Delmotte, P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, & B. Zhou (Eds.). Cambridge University Press. In press.

The majority of that warming is tied to two gases—carbon dioxide and methane—that¹⁸ are largely released by fossil-fuel production, and use. The IPPCC report may be the impetus needed to get Congress and the Administration to abandon the “business as usual” approach to building HV transmission lines necessary to fight climate change and to improve the resiliency and energy security of the US.

The US could benefit from a program that is similar to Europe’s PCI program. It could leverage the work already done by DOE and then focus on accelerating review and construction of HV transmission lines that qualify for a US Projects of National Interest (PNIs), which would have key elements that the EU has adopted. The name is not important but designating HV transmission for separate and high priority treatment is.

The CEQ also has a role to play if PCIs or PNIs are identified. CEQ could fashion guidelines specific to a new NEPA category of PNIs based on the work contained in the EU’s guidelines. PNIs would receive similar benefits comparable to European PCIs. The CEQ could also encourage States affected by a HV-transmission line project to adopt the NEPA document as its own to meet the requirements of a State’s Environmental Quality Act, where appropriate.

Congress could also deal effectively with States affected by PNIs by amending section 401 of the CWA to limit the time to one year for issuance of a WQC and six months for a CZMA determination. The review periods would begin when the NEPA process begins.

If the three elements above were implemented this author would support giving FERC siting authority for HV interstate electric transmission.

¹⁸See Footnote 17.

CONCLUSION

Giving FERC authority to review and site all HV transmission is a bad idea, because the agency would not have complete control over whether transmission actually gets built. The latter decision depends largely on whether the States will issue timely WQCs and coastal zone determinations pursuant to section 401 of the CWA and CZMA, respectively.

While modifications of the aforementioned environmental law is unlikely, CEQ could create a new category of projects under NEPA that would speed up reviews and HV transmission lines built. DOE could also adapt some elements of the Texas CREZ built in the state as well.

The need for new HV transmission is key to accommodating more solar, wind and hydroelectric energy on the US grid. However, the current 10–14 years needed to conduct NEPA reviews of HV transmission is the biggest challenge. Another important issue is the need to resolve land use disputes, specifically the industrialization of land which is a factor that large solar and wind farms face.

The need for new HV transmission is key to accommodating more solar, wind and hydroelectric energy on the US grid.

In light of the recent IPPCC report on global warming and climate change, Congress and the Administration should seriously consider identifying PNIs similar to the EU’s PCI program. This type of program would identify and elevate energy projects that clearly will contribute to a clean energy industry and increased energy security of the US. To do otherwise would continue with the “business as usual” approach that will not meet the goals of the Paris Agreement or improve US energy security. 