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BUILDING A NEW GRID WITHOUT NEW LEGISLATION: A PATH TO REVITALIZING FEDERAL TRANSMISSION AUTHORITIES

BY AVI ZEVIN, SAM WALSH, JUSTIN GUNDLACH, AND ISABEL CAREY

DECEMBER 2020

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FOREWORD

Zero-carbon electricity will be the backbone of a net-zero economy, not only keeping the lights on in our homes and offices but also powering our transportation systems and industrial processes. Indeed, research indicates that in order to decarbonize the economy at a reasonable cost and within a reasonable time frame, we must rapidly decarbonize and grow the power sector.

Electricity—how it is generated, moved along the transmission and distribution grids, and used—is already undergoing a rapid transformation in the United States. This transition has been supported over the last decade by steep cost declines for wind, solar, and battery technologies as well as cheap natural gas produced via hydraulic fracturing. But the transition to a net-zero power sector needs to accelerate to mitigate climate change, which is already impacting the health of people around the country and world.

New long-distance, high-voltage transmission lines will be vital if the United States is to deploy enough renewable generation capacity to decarbonize the power sector and to integrate it cost-effectively, as well as electrify our economy in time to meet the targets established in the Paris Agreement. Because Congress may not take timely action to remove barriers to these power lines, policy makers and the incoming Biden administration should explore how the federal government could use existing authorities to foster new long-distance transmission line development.

This paper seeks to explain steps that the federal government—particularly from within the US Department of Energy and Federal Energy Regulatory Commission—could take to facilitate development of a future grid that is capable of supporting a reliable, affordable, and increasingly zero-carbon power sector. Consistent with the mission of the Center on Global Energy Policy at Columbia University to advance smart, actionable, and evidence-based energy and climate solutions through research, education, and dialogue, the goal in publishing this paper in partnership with NYU School of Law's Institute for Policy Integrity is to provide insights that are useful to policy makers in the format and time frame needed.

We hope that this report contributes to supporting informed dialogue on potential tools for building a sustainable power sector in the United States.

Dr. Melissa C. Lott
Senior Research Scholar & Lead, Power Sector and Renewables Research Initiative
Center on Global Energy Policy

EXECUTIVE SUMMARY

Decarbonizing the US economy at a reasonable cost will necessitate the construction of new, long-distance transmission lines. However, state-level regulatory requirements for the selection of transmission line routes and for the assembly of environmental, land use, public utility, and other permits and property rights have proved to be a barrier to broader power transmission. Retaining the current process for siting these transmission lines may stymie the development of renewable resources in critical locations across the United States where sunshine and wind are plentiful.

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 paper outlines the following steps for an administration seeking to construct new, long-distance interstate transmission lines:

- Revitalize section 216 via coordinated efforts by DOE and FERC. would require

coordinated efforts by DOE and FERC. First, DOE should expeditiously designate new transmission corridors on the basis of expected future constraints that would arise if new renewable energy projects are developed without the requisite long-distance transmission. Those corridors should be undertaken in close coordination with FERC's process for issuing federal permits. Namely, corridors should be designated on a project-specific basis and the corridor designation criteria and federal permitting criteria should be harmonized. To further streamline the process, DOE should consider delegating its corridor designation process to FERC.

- FERC should issue new regulations clarifying its permitting process. Those regulations should make clear that transmission projects intended to connect geographically constrained renewable energy to customers are eligible for a federal permit if a state agency impermissibly stalls or rejects the project. The regulations should clarify what constitutes an impermissible stall or rejection, including the failure of a state to consider the interstate benefits of a transmission project, the inability of nonincumbent transmission developers to qualify for necessary permits within a state, and state denial of a permit to a project that FERC deems to be in the public interest. The regulations should also provide a prefiling process that allows FERC to begin review, including environmental review, of a project simultaneous to state consideration.
- Revitalize section 1222 by issuing a refreshed RFP for transmission projects that previews for bidders and other stakeholders a streamlined process of review and implementation. Furthermore, marshal resources—including staff time, political capital, and appropriations—to expedite projects through the steps of contracting and development.
- Refocus the authority and resources of DOE's power marketing administrations on the question of where new transmission development would yield cost-effective improvements to system performance.

INTRODUCTION

There is now broad agreement (if not a consensus) that new long-distance high-voltage transmission lines will be indispensable if the United States is to integrate enough renewable generation to decarbonize the electric system in a timely manner and to do so cost-effectively.[1] But several impediments stand in the way. One well-known impediment is that state authority over "siting"—that is, the procedural and substantive requirements for the selection of a route and assembly of environmental, land use, public utility, and other permits and property rights required to build there—can be used by opponents to stop projects that are in the national interest.[2] The academic literature and a variety of industry reports have explored this problem and have proposed solutions focused on new legislation or voluntary state action. But none has focused significant attention—as this article does—on the potential for existing sources of legal authority to allow federal agencies to shield transmission project siting from state control.

Congress added two new authorities in the Energy Policy Act of 2005 (EPAct 2005), a "backstop" provision and a "partnership" provision. The backstop provision amended the Federal Power Act (FPA) to allow the Federal Energy Regulatory Commission (FERC) to preempt state vetoes of privately developed interstate transmission facilities by issuing federal siting permits for projects located within geographic areas designated by the Department of Energy (DOE) as national interest electric transmission corridors (transmission corridors). The partnership provision grants DOE authority to partner with private transmission developers to develop projects and thereby marry DOE's authority to free projects from state obstruction with private developers' access to financing and operational expertise.

In their first attempts to use these authorities, DOE and FERC faced a rocky road. Two adverse rulings in the federal courts of appeals disrupted use of the backstop provision, one related to DOE's transmission corridor designation process, the second related to the conditions under which FERC could issue federal siting permits. And political intervention in the first application of EPAct 2005's partnership provision caused the leading project advanced under that provision to founder. Partly due to those setbacks, the agencies have left these authorities to gather dust. Their disuse has, in turn, given rise to a conventional wisdom that while Congress *sought* to create federal authority over the siting of critical transmission lines, the teeth of its interventions were pulled.[3] Adherents of this view contend that new legislation is the only way to empower federal agencies to pursue transmission siting with the national interest in mind and in spite of parochial and incumbent interests.

To be sure, legislative proposals like those recently published by the House Select Committee on the Climate Crisis,[4] and echoed by others,[5] would be the best way to advance a federal role in transmission. Indeed, such legislation should be pursued aggressively. However, because there is no time to lose and no certainty that any of these legislative proposals will pass, this article highlights measures that do not rely on new legislation but could still facilitate the development of new transmission by eliminating siting-related obstacles. This paper discusses how federal agencies can support the siting of transmission facilities and to

provide recommendations to federal entities for how to take coordinated action to site new transmission capacity using the authority Congress has already granted them.

The article proceeds in four parts. Part 1 recounts why new long-distance high-voltage transmission lines are vital for decarbonizing the US electric sector. Part 2 notes that such transmission lines are susceptible to opposition, in particular because of states' authority over siting. That part also identifies measures that can serve as partial substitutes for new transmission, highlighting that they cannot substitute completely. Part 3 describes the legal authorities that are currently available to federal agencies for the purpose of helping to site and develop new long-distance high-voltage transmission—the backstop siting provision Congress enacted as section 216 of the FPA, the partnership provision adopted in section 1222 of EPAct 2005, and the authority available to federal power marketing administrations (PMAs).[6] Part 4—the heart and the bulk of the article—explains why those different authorities remain available and effective, notwithstanding unfavorable court decisions and past political interventions. This fourth part recommends several ways that those authorities can be applied to support the development of long-distance transmission projects and points out how, in several respects, projects relying on these authorities have actually—in contrast to the conventional wisdom noted earlier—laid the groundwork for successful applications in the future. For ease of reference, the following table distills the article's 20 recommendations for policy makers.

Table 1: Twenty recommendations for policy makers

Recommendation	Legal Authority	Page
Reducing obstacles to transmission		
1. Technologies and policies that increase use of the existing transmission system, minimize the extent of new transmission needs, reduce public opposition, or eliminate the need for state permitting should all be implemented to the greatest extent feasible.	Various	17-20
Transmission corridor designation (FPA § 216(a))		
2. DOE should finalize a new study of transmission congestion, which will facilitate designating new transmission corridors.	42 U.S.C. § 824p(a)(1)	32
3. DOE should expeditiously designate new transmission corridors that are a prerequisite to FERC issuing federal siting permits.	42 U.S.C. § 824p(a)(2)	29-32
4. When designating transmission corridors, DOE should consider how new transmission will benefit customers by connecting areas with high renewable potential to customers.	42 U.S.C. § 824p(a)(3)	30
5. DOE should take care to consult with states when studying transmission congestion as required by the US Court of Appeals for the Ninth Circuit.	42 U.S.C. § 824p(a)(1)	30, 32
6. DOE should meaningfully incorporate state feedback into transmission corridor designation that goes beyond merely accepting public comments.	42 U.S.C. § 824p(a)(2)	30, 32
7. DOE should designate narrow transmission corridors with specific projects in mind rather than wide ones that affect a larger area and more stakeholders.	42 U.S.C. § 824p(a)(2)	32-33

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Recommendation	Legal Authority	Page
8. DOE and FERC should issue coordinated project-specific transmission corridor designations and federal siting permits for the project (requires FERC to update its regulations).	42 U.S.C. § 824p(a), (b)	33-35
9. DOE should consider delegating transmission corridor designation responsibilities/authority to FERC to further streamline the process.	42 U.S.C. § 7252	35-37
Federal Permitting of Transmission (FPA § 216(b))		
10. FERC should issue a new order refining the procedure for issuing federal permits and clarifying its interpretation of the criteria FERC will use to evaluate applications.	42 U.S.C. § 824p(b)	38-42
11. FERC's new order should clarify that transmission projects connecting renewable energy to population centers meet the statutory criteria for federal permits.	42 U.S.C. § 824p(b) (2)–(6)	38-39
12. FERC's order should reiterate FERC's interpretation that it may grant a federal permit when a state affirmatively denies siting to a project and apply that interpretation to projects in states outside the US Court of Appeals for the Fourth Circuit (Maryland, North Carolina, South Carolina, Virginia, or West Virginia).	42 U.S.C. § 824p(b)(1) (C)(i)	41-42
13. FERC's order should permit applicants to begin the prefiling process in parallel with state review of project applications.	42 U.S.C. § 824p(c)	42-43
14. FERC's order should encourage developers to apply for federal siting permits when states lack authority to approve their projects, when states fail to consider a project's interstate benefits, when states only permit projects that serve in-state customers, or when states impose unreasonable conditions.	42 U.S.C. § 824p(b)(1) (A), (B), (C) (ii)	43-46
DOE–private developer partnership projects (EPAct05 § 1222)		
15. DOE should issue a new request for proposals that declares the agency's willingness to evaluate new partnership projects and, under appropriate circumstances, commit itself to seeing those projects through.	42 U.S.C. § 16421	47
16. DOE should make the beginning of the section 1222 review process automatic.	42 U.S.C. § 16421	48
17. DOE should structure deals under section 1222 to provide material inducements that might aid in building public support for projects.	42 U.S.C. § 16421	48
18. If it moves forward with future projects, DOE should consider whether existing appropriated funds might be available (or whether new appropriated funds should be requested) to support such projects.	42 U.S.C. § 16421	48
Power marketing administration transmission projects		
19. DOE, acting through its Office of Electricity, should consider providing appropriated taxpayer funds to study PMA transmission systems and existing rights-of-way with the goal of identifying upgrades and system additions that could cost-effectively enable increased integration of renewable energy.		50
20. DOE should continue to support the Western Area Power Administration's administration of its program to borrow funds for transmission development.		50

1. DECARBONIZATION REQUIRES MORE TRANSMISSION

Most pathways to eliminating greenhouse gas emissions generated by economic activity in the United States rely on access to a net-zero-emissions electricity system.[7] Electricity itself accounts for approximately one-third of US greenhouse gas emissions, which will have to be eliminated.[8] And the most promising emission reduction opportunities for the other major contributing sectors—transportation, buildings, and industrial production[9]—involve electrification. But that electrification can only contribute to the reduction of economy-wide emissions if the electricity comes from new clean resources.[10] Reducing emissions associated with the electricity needed to meet current and future demand will require replacing emitting resources with affordable clean alternatives, such as wind and solar, and doing so on a massive scale.[11] It will also require enabling the electricity system to accommodate those resources' variability.[12]

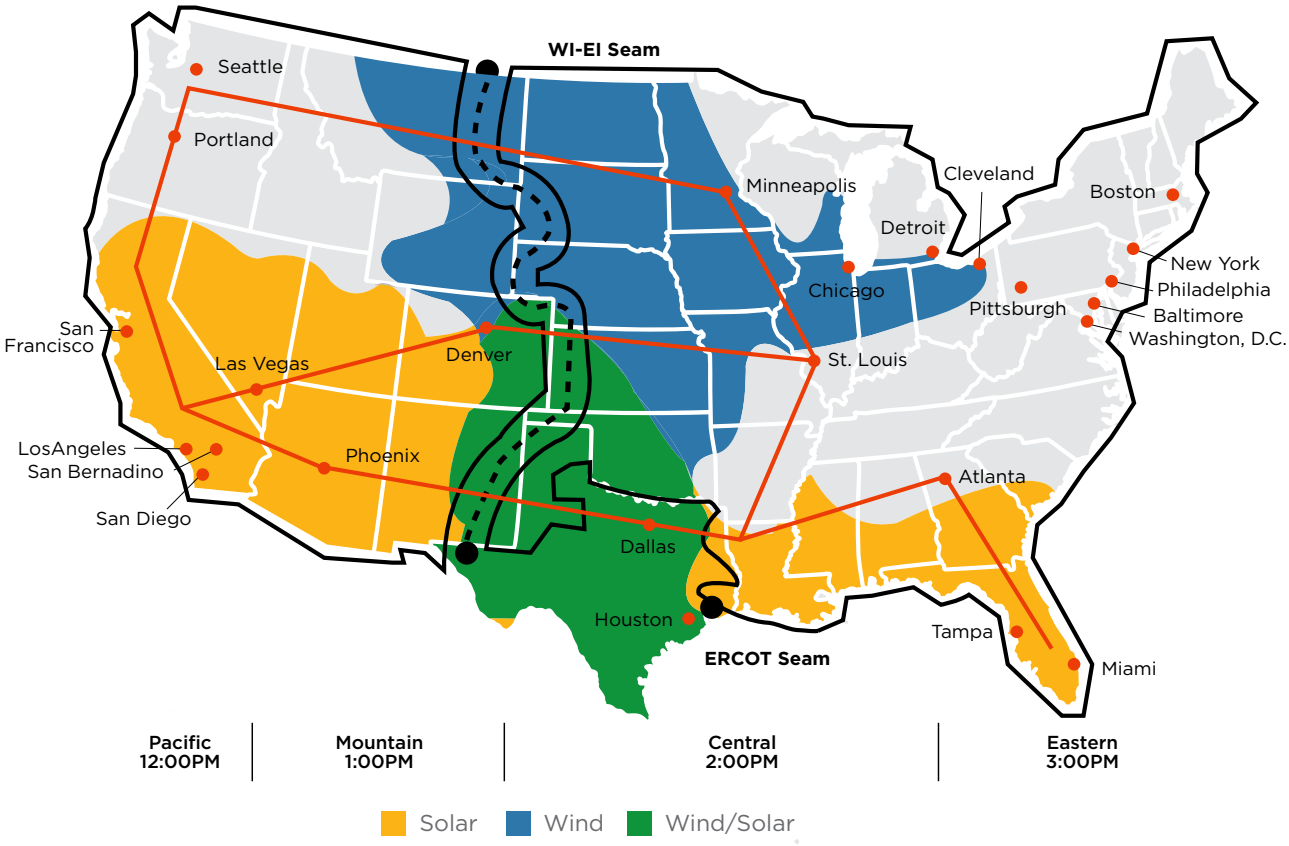
The addition of renewable energy to meet those decarbonization objectives will necessitate a significant build-out of the transmission system.[13] Doing so would support electricity decarbonization in several mutually reinforcing ways while providing additional cost and reliability benefits.[14] The most obvious of these is that transmission can connect areas of the country with high renewable energy potential—areas where the wind is most likely to blow or the sun is most likely to shine—to the homes and businesses that use electricity (called "load").[15] A corollary reason is that building transmission linkages to the remote locations where renewable energy potential tends to be highest can signal to investors and developers that they will be able to interconnect to the grid and participate in the electricity marketplace.[16] This is especially important at present because both the demand for renewable capacity and the volume of projects awaiting interconnection so greatly exceed the transmission system's capacity to absorb new generation.[17] Transmission is also a well-understood and often cost-effective source of grid flexibility, which is increasingly valuable as more variable renewable resources are added to the grid.[18] In particular, thanks to the "time diversity" of renewables' variability across different locations (i.e., the sun shines and the wind blows at different times in different places) and of electricity system demand, a more extensive transmission network is expected to be an increasingly important source of cost-effective reliability.[19] Or, to put the point in the opposite way, without an expanded transmission network, rising levels of renewable penetration would drive the cost of maintaining electricity reliability to troublesome heights while also pushing the marginal value of additional renewables in already-interconnected locations lower and lower (an effect know as renewable "value deflation").[20] Finally, a more robust transmission system can relieve congestion and help maintain grid stability as more renewable energy is integrated, thereby improving reliability.[21] In sum, more transmission is vital both to facilitate the deployment of renewables and to maintain the cost-effectiveness and reliability of electricity services as renewables' presence grows. Evidence of these points comes from rigorous modeling efforts[22] and also from experience in multiple jurisdictions, including Texas,[23] Germany,[24] and China.[25]

But this article is not concerned with *all* transmission projects. The vast majority of transmission investment over the past decade has been directed to intrastate and network upgrade projects that are not the focus here.[26] Rather, this article concerns projects that would contribute most to decarbonization but are, nonetheless, not getting built: high-voltage, long-distance transmission

projects that cross subnational jurisdictional boundaries. In addition to bringing more wind and solar resources within reach, these types of projects—which may rely on high-voltage direct current (HVDC) technology to transmit electricity long distances with minimal losses—would be uniquely able to deliver economic efficiencies.[27] Examples of projects that meet these criteria include the Grain Belt Express Clean Line (running through Kansas, Missouri, Illinois, and Indiana),[28] the New England Clean Energy Connect (connecting Quebec to Massachusetts by debottlenecking transmission capacity in Maine),[29] the SouthernCross project (running across Louisiana and Mississippi and into Alabama),[30] and the Transwest Express Transmission Project (running from Wyoming through Colorado and Utah to Nevada)[31]—to name just a few.[32]

A subset—projects that bridge existing transmission system interconnection areas and planning regions—would be particularly valuable in cost-effectively decarbonizing the US electricity grid.[33] One analysis from DOE's National Renewable Energy Laboratory has shown that transmission benefits could be maximized through creation of a "supergrid" that connects the transmission systems that currently operate independently (electrically and administratively) in the West and Mountain West; the Midwest, South, and eastern United States; and Texas.[34]

Figure 1: Potential "supergrid"



Source: Aaron Bloom, Design 3, Interconnections Seams Study, presentation to TransGrid-X 2030 Symposium, NREL (2018), pg. 45, https://iastate.app.box.com/s/vfgn9nikl1rz7r8x0vaoauzpm2210t35

To be sure, some recent analyses have concluded that new bulk transmission capacity is not as critical to achieving cost-effective electricity system decarbonization as some have claimed, suggesting instead that smaller, intrastate projects and substitute technologies like energy storage can satisfy many of the requirements of an electricity system that generates few or no emissions.[35] But even these studies indicate that cost-effective decarbonization will involve at least some amount of additional interstate transmission capacity.[36] And so, we adopt the basic premise that one or more additions to interstate transmission capacity in several renewables-rich regions would open up valuable opportunities to decarbonize cost-effectively in ways for which there are currently no substitutes.

2. STATE SITING REQUIREMENTS PREVENT DEVELOPMENT OF MANY NEEDED TRANSMISSION PROJECTS

Several factors make long-distance transmission projects fragile to opposition—and there is always opposition. Their long length means that these projects inevitably encounter numerous stakeholders, potentially including federal, state, tribal, and local government agencies from which they must seek authorization, as well as private property owners from whom they must acquire property rights. And like all linear projects, they are subject to holdups, meaning that a single stakeholder can prevent assembly of a complete right-of-way. Long-distance high-voltage transmission projects are also costly,[37] not only due to the expense of assembling the land, labor, and equipment needed for project planning and construction but also due to financing costs, which can balloon in response to uncertainty and delay.[38] Further, whether their interests are coordinated through private contracting or a regional transmission planning process, stakeholders must reach agreement about how the benefits of access and the costs of development and operation should be allocated.[39] Another important factor is the uncertainty that follows from transmission projects' dependence on generation resources in need of interconnection at one end of the line and purchasers of the power that would flow through the line at the other.[40] This uncertainty compounds the challenge of aligning stakeholders' various interests so that enough of the stakeholders support—and not too many of them oppose—development.

Opposition that makes use of state-level authority over facility siting is often what breaks long-distance high-voltage transmission projects or at least adds to the delay and uncertainty that drive up development costs and discourage investment.[41] Transmission project developers can mitigate the risk of state-level veto; these measures include maximizing the use of existing rights-of-way, repowering old transmission facilities, or undergrounding, among other things. None of these, however, would wrest ultimate authority over siting and eminent domain away from state regulators, and so none of them can avoid or undo the clearest and most concrete regulatory impediment to interstate transmission facility development.[42]

A. State Law Veto Points Can Be Used Effectively by Opponents to Obstruct Transmission Development

Broadly speaking, state law governs transmission facility siting.[43] In the 1935 Federal Power Act (FPA), Congress gave FERC authority over transmission rates and facilities but through its silence preserved state authority over siting.[44] As a result, interstate transmission lines must obtain approval from each state (and in some states, each county) they traverse.[45] State requirements vary,[46] but a proposed transmission project must generally be granted authority by the state public utility commission to own and operate transmission facilities as a public utility and also secure a certificate of public convenience and necessity (CPCN) from the state agency responsible for facility siting. Completing these steps is generally a prerequisite for the transmission developer to exercise eminent domain, on behalf of the state and in state

court, in order to secure needed rights-of-way.[47] In addition to requiring that a transmission developer be recognized as a utility and granted a CPCN, many states also require completion of some form of environmental impact review.[48]

The standard for issuance of a CPCN is generally whether the facility would be "in the public interest"—crucially, state law often directs state commissions to consider only the interests of *in-state* residents and businesses.[49] Frequently, overcoming these hurdles involves not just navigating administrative processes before public utility commissions as well as, in some states, municipal authorities and departments of environmental protection but also defeating litigation challenges to state and municipal agency approvals[50] and threats of legislative veto by the state legislature or through ballot measures. Multiplying these steps by however many states a project traverses yields a rough accounting of both the number of different procedural timelines that can govern a single project[51] and the number of formal opportunities opponents have to impede it. Because opposition by landowners and competing energy suppliers is endemic to transmission facility development,[52] transmission projects can take a decade or longer to develop[53] if they are not stymied by state-administered processes and related litigation.[54] Notably, the long and uncertain durations of the administrative and judicial processes can suspend projects while economic and commercial circumstances change, sometimes so substantially that they undermine project viability.[55]

It is useful to note that states have—and have retained—authority over transmission facilities for several reasons. As various analyses have observed, legitimate policy principles are part of the story but not all of it; the history of the electric grid's design and operation is important as well.[56] Policy reasons for states to retain authority include the following: For one, state commissions' expertise and familiarity with their jurisdictions afford them a uniquely well-informed vantage point for assessing proposals—and particularly the land use impacts of those proposals—within their territories. (Of course, given that the *benefits* of long-distance high-voltage transmission lines tend to be most evident when taking a multistate or national view, this implication of state authority over siting clearly cuts both ways.) Further, because state agencies are responsible for several policy areas related in one way or another to electricity system design and operation—such as setting retail electricity rates, enforcing reliability requirements, and mitigating environmental impacts—they have a thoroughgoing interest in sound planning.[57] Importantly, that interest is imbued with accountability to in-state stakeholders (but almost never to out-of-state stakeholders) that will be affected by transmission facility development.

When the FPA was enacted in 1935 (and for decades thereafter), generation resources were typically located near load centers such that long-distance transmission lines were rarely developed. New transmission facilities were typically planned by utilities that also owned the generation facilities to which that transmission would interconnect.[58] Until the 1990s, with the notable exception of publicly owned facilities,[59] nearly all generation, transmission, and distribution facilities were owned and operated by vertically integrated monopoly utilities regulated by state public utility commissions.[60] This long period allowed states' traditional jurisdiction over land use and environmental protection to become thoroughly entwined with their authority over the siting of electricity generation *and* transmission infrastructure.[61] Technological change and acts of Congress—the Public Utility Regulatory Policies Act in

1978[62] and the Energy Policy Acts of 1992[63] and 2005[64]—prompted and steered important changes to the bulk power system's operational features and regulatory context,[65] but Congress has not disturbed the FPA's basic allocation of authority between FERC and the states with respect to facility siting. Legislative proposals to do so have sputtered.[66] The sole exception, adopted as section 216 of the FPA, was enacted along with other provisions of the EPAct 2005 and is a focal point of parts 3 and 4 of this article.

Many examinations of electric transmission siting note the sharp contrast between the FPA's grant of limited federal authority to site electric transmission facilities and the Natural Gas Act's grant of expansive and exclusive authority to site interstate natural gas pipelines and use eminent domain to acquire rights-of-way for approved projects.[67] Congress granted the Federal Power Commission (FERC's predecessor agency) exclusive authority to site interstate natural gas pipelines (i.e., the power to issue CPCNs for pipelines) in 1938 and in 1947 granted pipelines with commission-approved certificates the right to exercise eminent domain.[68]

Natural gas pipeline developers benefit greatly from the consolidated federal approval process that has resulted.[69] Interstate natural gas pipeline developers must still overcome several permitting hurdles; the list can include permits to dredge and fill federally regulated waters issued by the Army Corps of Engineers pursuant to section 404 of the federal Clean Water Act and to disturb critical habitat issued by the Fish and Wildlife Service pursuant to the Endangered Species Act, as well as others required by federal law and the laws of states through which the project passes.[70] However, FERC coordinates the process as a whole,[71] has seldom rejected a pipeline proposal,[72] and has generally managed to overcome state efforts to prevent pipeline development.[73]

Several of the reasons that led Congress, in 1938, to vest the federal government with exclusive responsibility over the siting of pipelines and, in 1947, to delegate eminent domain authority to pipeline developers resonate today with respect to the siting of high-voltage electricity transmission lines—to name a few, location-constrained resources scattered far from consumers, integrated interstate development stymied by parochial interests, and the benefits of addressing oversupply in some places and unserved demand in others by building more transmission capacity between them.[74] Just as federal law recognized that building out the interstate pipeline system—and the natural gas resource development such build-out enabled—was critical to the national interest, a build-out of the interstate electric transmission system—and the renewable resource development such a system would enable—is critical to the national interest. And so, for both types of infrastructure, authority over whether and (at a broad level) where those interstate lines get built is appropriately placed with a federal government that will adopt a national perspective, rather than with every state and local government along a project's route.

B. New Technologies and Regulations Can Reduce but Not Eliminate the Need for New Transmission

Over the past 10 years, businesses and policy makers have advanced a number of solutions—some technological, others related to policy—to facilitate the development and increase the operational efficiency of transmission. As this section explores, these solutions can

ease the challenge described earlier by reducing the amount of new transmission siting and development needed to integrate renewable energy or by making transmission less objectionable to would-be opponents. Even with these solutions, however, at least some additional long-distance high-voltage transmission will be needed. As a result, federal action to limit the state law veto points over interstate transmission lines will be critical to achieving a clean energy transition.

1. Planning and Cost Allocation

The most proactive federal regulatory effort to increase the build-out of interstate and interregional transmission has been FERC's Order 1000, which sought to rationalize and encourage more robust transmission planning. The order requires, among other things, that every utility participate in a regional transmission planning process and that the costs of projects identified and selected through the regional planning process be allocated to all beneficiaries.[75] Regions are encouraged, though not required, to coordinate on interregional transmission plans. The mandatory planning process was intended to rationalize transmission development,[76] encourage projects that bring renewable energy to load,[77] and bring states into the process in order to encourage their acceptance of projects selected by the planning process.[78]

On those metrics, the success of Order 1000 has been mixed. Transmission investment has grown significantly (by $15–$20 billion annually) over the past five years.[79] But that investment has seldom funded the type of long-distance high-voltage regional transmission lines needed to significantly increase the penetration of renewable energy.[80] And there have been no interregional transmission lines selected by an Order 1000–mandated plan since 2011.[81]

Policy makers and advocates have recognized the limited effectiveness of Order 1000, and reform efforts are underway. The majority staff of the House of Representatives Select Committee on the Climate Crisis, for instance, included recommendations for changes to the transmission planning process in its recently issued report laying out a congressional action plan for building a clean energy economy.[82] FERC commissioners have also spoken of the need to reform transmission planning.[83] And a newly formed advocacy group will focus in part on precisely this issue.[84]

While these efforts can improve the transmission planning process so that it better prioritizes and pays for critical long-distance lines, more effective planning and cost allocation will neither remove landowner opposition to transmission lines passing through their property nor the responsiveness of state regulators and elected officials to the needs of their constituents. Siting will remain an obstacle, even with reform to the planning process at the regional level.

2. Efficiency-Enhancing Technologies

Technical improvements to existing transmission facilities can serve as partial and/or temporary substitutes—as well as complements—to system expansion for the purpose of supporting higher levels of variable renewable resource penetration. Examples of these technologies include the following:

- Dynamic and adaptive line rating (DLR) allows transmission system operators to adjust

carrying capacity upward under advantageous environmental conditions.[85] Several studies have found that DLR use reduces wind curtailment by up to 15%.[86]

- Power flow controllers reroute power along transmission system segments capable of accommodating power volumes that would otherwise be overwhelming.[87]
- Topology control (or optimization) software can perform functions similar to those performed by DLR and PFCs by modifying the operation of existing system hardware; it thus does not require new hardware to be installed.[88]

In addition to acting as partial or temporary substitutes for transmission system expansions, these technologies would complement the development of large new lines by effectively multiplying (instead of merely adding to) new system capacity and, in turn, enabling more cost-effective absorption of large volumes of renewable resources from regions previously inaccessible to the bulk power system.[89] On November 19, 2020, FERC issued a proposed rule to support a small subset of these technologies by requiring transmission providers and RTO/ISOs to take certain actions to implement ambient-adjusted ratings and to allow for hourly line ratings.[90]

But even if FERC were to finalize this rule or other policies intended to incentivize the deployment of new technology,[91] improvements to existing transmission facilities cannot substitute fully for transmission system expansion to remote wind- and sun-rich locations.

3. Undergrounding

Another approach that is sometimes presented as a way around state siting obstacles is the undergrounding of high-voltage transmission lines. Burying transmission lines underground can mitigate the vehemence of local opposition by reducing the extent to which transmission is perceived as unsightly or dangerous[92] and thereby reducing its potentially adverse impact on property values.[93] While selective undergrounding can reduce political opposition in critical areas, it is not a panacea for long-distance transmission development. Undergrounding significantly increases the cost of new transmission development.[94] Operation, maintenance, and replacement also become more expensive and more disruptive.[95]

As a result, the universal adoption of undergrounded transmission may not be feasible. However, as additional projects are developed, costs may decrease through learning. This already appears to be occurring.[96] Federal financial support for underground long-distance transmission projects may therefore be justified as a means to draw down the cost of additional development.

4. Preexisting Rights-of-Way

A number of businesses, commenters, and policy makers have proposed using existing rights-of-way—whether for highways, railways, or existing linear energy projects—for transmission development in order to minimize permitting risk. Developers hope that this would reduce or eliminate the need to exercise eminent domain over private land and, as a result, limit political opposition, permitting time, and litigation. The National Electrical Manufacturers Association recently established the Railroad Electrification Council to promote the use of underutilized

Class I and Class II railway rights-of-way for transmission.[97] The Biden campaign's clean energy plan identifies the potential to use existing rights-of-way to "promote faster and easier permitting" of transmission.[98]

Use of existing rights-of-way holds promise.[99] This approach was used successfully to support the build-out of a national fiber-optic network for high-speed internet service.[100] A 2008 Government Accountability Office report found that colocating transmission with existing highway and rail rights-of-way provides a number of economic, environmental, and visual advantages.[101] At least one such project is moving forward: the SOO Green Renewable Rail project would run a 349-mile, 2.1 GW HVDC line between Iowa wind farms and Chicago-area customers largely along existing rail rights-of-way.[102]

Using existing rights-of-way lessens the need for eminent domain. But permitting risk remains: project developers would still have to grapple with state public utility franchise requirements, obtain certificates of public convenience and necessity in most states through which the line passes, obtain federal and state land and water permits subject to environmental reviews, and obtain land for transmission facilities that fall outside the narrow linear right-of-way. Underground construction and maintenance may be even more costly along existing rail or highway rights-of-way than on private land due to additional safety and security concerns that those existing uses create.[103] Many existing rights-of-way have competing alternative uses such as for telecommunications services, recreational use, or transportation. States retain authority over highway rights-of-way and may impose onerous conditions or prohibitions.[104] Complications regarding residual property rights may prevent the granting of effective easements in existing rail rights-of-way.[105] And even if none of those difficulties was present, rail and other federal rights-of-way still may not be located or sized in ways that can fully address transmission needs for cost-effectively bringing renewable generation to load.[106]

Technologies and policies that increase use of the existing transmission system, minimize the extent of new transmission needs, reduce public opposition, and eliminate the need for state permitting should all be implemented to the greatest extent feasible. Even after these solutions are adopted, however, state siting may prove an important obstacle to developing an efficient, national transmission grid. As the next section explains, DOE and FERC have authorities to eliminate many of the remaining barriers.

3. EXISTING FEDERAL AUTHORITIES TO OVERCOME SITING-RELATED BARRIERS TO TRANSMISSION DEVELOPMENT

This section introduces the authorities available to federal agencies to get high-voltage, long-distance transmission lines sited. FPA section 216 provides "backstop" authority to federal agencies when siting long-distance transmission lines. Section 1222 of the Energy Policy Act empowers DOE to partner with third parties to develop, construct, and own new or upgraded transmission lines. And powers vested directly and by implication in federal PMAs established by Congress to market and deliver hydropower enable them to develop and own transmission—and to employ eminent domain for the purpose.

A fourth source of authority, not elaborated below but important to note here, roots in the Federal Lands Policy and Management Act (FLPMA),[107] which section 368 of the EPAct 2005 developed further.[108] FLPMA empowers the Bureau of Land Management and Forest Service to issue permits for rights-of-way on federal lands, including for linear energy projects,[109] and encourages the colocation of projects with compatible uses.[110] Section 368 directed several agencies, including DOE, to designate corridors on federal lands for energy projects and to conduct environmental reviews in anticipation of their use, even if no specific project was proposed.[111] As a result, final programmatic environmental impact statements have been developed for roughly 6,000 miles of energy corridors on federal lands,[112] and BLM and FS amended their land use and resource management plans accordingly.[113] Because this authority pertains solely to federal lands, it is not a solution per se to state siting obstacles. Nonetheless, by maximizing opportunities for siting transmission facilities on existing federal rights-of-way, this authority could ease the path to state approval, especially in western states.

A. Federal Permitting of Transmission within National Interest Electric Transmission Corridors

Notwithstanding increasing demand for electricity, investment in the transmission system has declined steadily since the 1970s.[114] While members of Congress introduced legislation to address concerns about transmission system investment through the early 2000s, the press to fix long delays in developing interstate transmission projects became urgent as a result of a 2003 blackout in the Northeast and Midwest that left 50 million people without electricity.[115] Congress identified "state regulatory approval [that] delays siting of new transmission lines by many years" as a major culprit.[116] New federal authority was needed to help overcome "[s]iting challenges, including lack of coordination among States, [that] impede the improvement of the electric system."[117]

As a result, Congress enacted section 1221 of the EPAct 2005, which added a new section 216 to the end of the FPA. Section 216 provides federal agencies the authority, under certain limited circumstances, to site transmission projects and displace states from that role.[118] One of the primary limits is that this authority may only be used when states have failed to act or have reviewed a project unfairly. As a result, it is often referred to as "backstop siting."[119]

Under section 216(b), FERC may issue "permits for the construction and modification of electric transmission facilities."[120] A federal permit grants the holder authority to acquire rights-of-way through the use of eminent domain.[121] As a result, transmission lines that receive a federal permit can sidestep requirements that they receive separate permitting approval from each state through which the line would pass.

Permits may only be issued for projects located within a "national interest electric transmission corridor" (transmission corridor), a geographic area facing adverse electric transmission capacity constraints or congestion. Section 216(a) establishes the process for designating such transmission corridors.[122]

Permits may also only be granted upon application by a transmission developer that FERC determines meets six defined criteria.[123] In evaluating whether an application meets these criteria, FERC must provide affected states, federal agencies, private property owners, and the public with an opportunity to present their views and recommendations regarding the proposed transmission project.[124]

The remainder of this section summarizes the process and requirements for designating transmission corridors and for issuing a federal permit. Unfortunately, since its passage in 2005, section 216 has failed to spur further investment in transmission projects as a result of adverse court decisions regarding the designation of transmission corridors and the criteria by which FERC can issue a federal permit.[125] Part 4 describes those obstacles and identifies regulatory pathways for overcoming them in order to breathe new life into section 216.

1. Transmission Corridor Designation

Federal permits may only be issued for a transmission project located within a transmission corridor.

DOE is granted the power to issue a report that designates "any geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers," and meets certain other criteria, to be a transmission corridor.[126] Those other criteria may include

1. whether economic vitality and development would be constrained by lack of adequate or reasonably priced electricity;[127]
2. whether economic growth would be jeopardized by reliance on limited sources of energy;[128]
3. whether a diversification of supply is warranted;[129]
4. a transmission corridor's contribution to energy independence;[130]
5. whether a designation would be in the interest of national energy policy;[131] and
6. whether the designation would enhance national defense and homeland security.[132]

Each report's findings regarding congestion must draw from a study of electric transmission congestion that DOE must conduct every three years.[133]

States and other stakeholders play an important role at each step in the process. Congestion studies must be conducted "in consultation with affected States"[134] and with regional reliability organizations.[135] And the conclusions and designations DOE makes in subsequent reports must take into account alternatives and recommendations from interested parties, including affected states and regional reliability organizations.[136]

As required by FPA section 216(a), DOE conducted its first congestion study in 2006.[137] In 2007, DOE issued its required report, which designated two large areas to be transmission corridors: the Mid-Atlantic Area National Corridor, which included counties in Delaware, District of Columbia, Maryland, New Jersey, New York, Ohio, Pennsylvania, Ohio, Virginia, and West Virginia; and the Southwest Area National Corridor, which included counties in California and Arizona.[138]

2. Criteria for Issuance of a "Backstop" Federal Permit

Section 216(b) provides FERC authority to grant transmission projects within transmission corridors a federal permit that enables construction and use of eminent domain, notwithstanding state permitting requirements. However, this authority is limited.

FERC must establish that the project meets five threshold criteria:

1. It will be used for transmission of energy in interstate commerce.
2. It is consistent with public interest.
3. It will reduce transmission congestion and benefit consumers.
4. It is consistent with energy policy and promotes energy independence.
5. If the project is a modification of an existing transmission line, it must maximize transmission capabilities of the existing infrastructure.[139]

In addition, FERC must determine that the project could not otherwise proceed under the traditional state siting process. This sixth "state-inaction" criterion may be satisfied based on one of five enumerated circumstances:

1. The state does not have authority to approve the siting of the project.[140]
2. The state does not have authority to consider *interstate* benefits created by the project.[141]
3. State law only allows permits for utilities that serve in-state customers, and the developer does not.[142]
4. The state has authority to approve the permit but has "withheld approval" for more than a year.[143]
5. The state has imposed conditions on a permit that limit the ability of the project to significantly reduce transmission congestion or that render the project economically infeasible.[144]

As directed by Congress,[145] FERC issued regulations in 2007 specifying the form of, required contents of, and process for submitting federal permit applications.[146] In the process, these regulations, issued in FERC Order 689, also established FERC's interpretation of the statutory criteria required to obtain a federal permit.[147] Most significantly, after considering the text, statutory context, and legislative history, FERC determined that if a state considers and ultimately rejects an application to site a transmission project within a transmission corridor located in the state, such rejection would be considered a form of "withholding approval" and so would open the door to a federal permit (assuming all other criteria were met).[148]

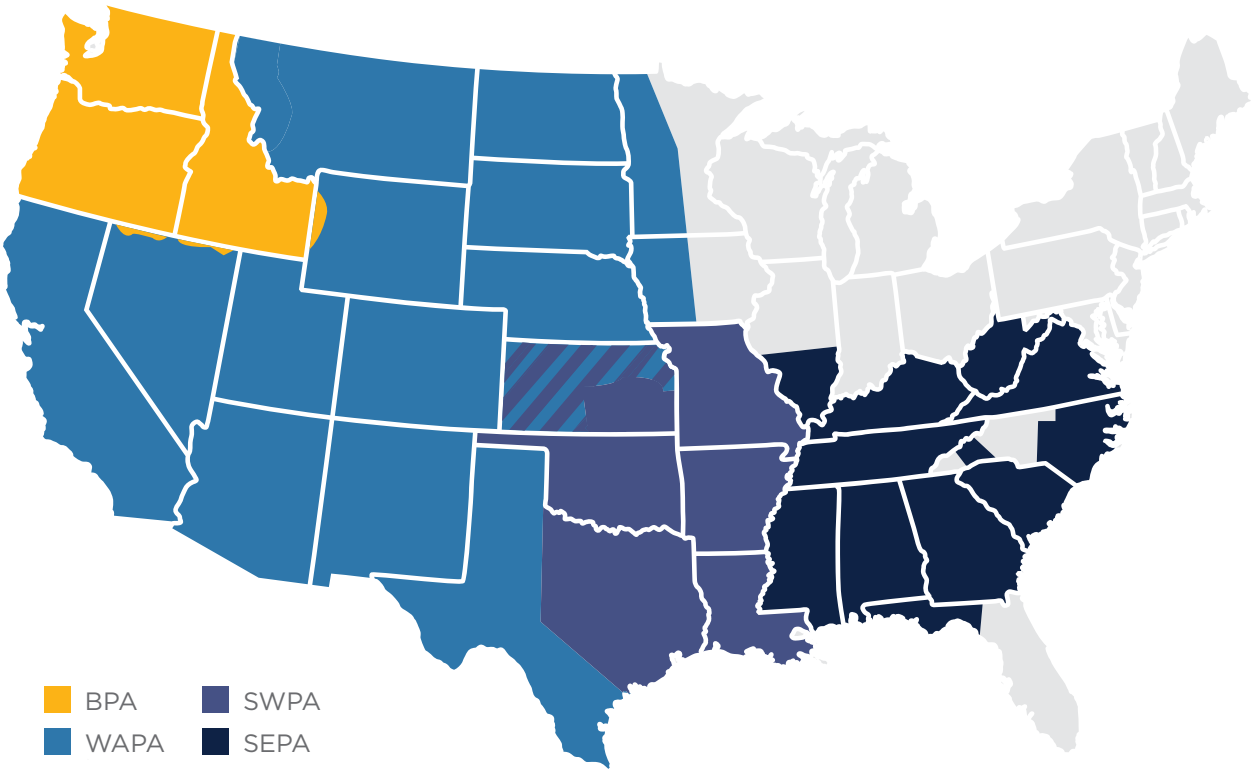
B. Section 1222 of EPAct 2005

Immediately alongside the backstop siting authority described earlier, Congress enacted section 1222 of EPAct 2005. Bearing the unassuming title "Third Party Finance," section 1222 is more than it first appears. Like its neighbor in EPAct 2005, section 1222 provides a pathway for overcoming state-level regulatory obstacles that might prevent new transmission projects from getting built. Section 1222 authorizes federal-private partnerships to develop transmission, which both frees the transmission project from the requirements of state siting and public utility laws and provides a basis for the exercise of federal eminent domain authority.

The backstory to section 1222 began years earlier when Congress, through several appropriations acts, authorized the Path 15 upgrade. The Path 15 upgrade was an 84-mile 500 kV line in California that had been in the works since the mid-1980s but became urgent after the 2001 energy crisis.[149] Pursuant to those appropriations acts and later implementing orders of the secretary of energy, the Path 15 upgrade employed a novel structure. It was owned, ultimately, by the Western Area Power Administration (WAPA), a PMA that is part of DOE. But the project was financed and constructed by two private companies, Trans-Elect, and Pacific Gas and Electric Company. Because it was federally owned, however, the Path 15 upgrade was held not to be subject to regulation by the California Public Utility Commission,[150] and thus its development proceeded quickly. The Path 15 upgrade was widely considered a success, and section 1222 of EPAct 2005 was understood by many as an attempt to expand upon its model.

Section 1222 empowers DOE, acting through either WAPA or the Southwestern Power Administration (SWPA) to accept contributed funds and to partner with third parties in owning, constructing, and developing new or upgraded transmission lines. While WAPA and SWPA have authority under their organic statutes to build transmission facilities for bringing federal hydropower to market,[151] section 1222 is not limited to projects that transmit federal hydropower; nor does it require that the constructed facilities interconnect with WAPA or SWPA's transmission systems. The only geographic limitation in section 1222 is that new projects be located within a state in which WAPA or SWPA operates[152]—an area that covers all continental states west of the Mississippi River, other than three states in the Pacific Northwest that are served exclusively by the Bonneville Power Administration.[153]

Figure 2: Map of power marketing administrations



Source: WAPA, Power Marketing Administrations Map, https://www.wapa.gov/regions/Pages/pma-map.aspx

To authorize participation, section 1222 requires DOE to make certain findings using the "best available data."[154] For one, DOE must find that the project is needed, either on the grounds that it is located in a transmission corridor designated under section 216(a) of the FPA or based on DOE's determination that the project "is necessary to accommodate an actual or projected increase in demand for electric transmission capacity."[155] Next, DOE must find that the project is "consistent with transmission needs identified, in a transmission expansion plan or otherwise, by the appropriate Transmission Organization . . . if any, or approved regional reliability organization."[156] As instrumentalities of the federal government, WAPA and SWPA are not subject to state public utility or siting laws. This means that they need not obtain certificates under state law to site, own, or operate transmission lines.[157] Section 1222 contains a savings clause that declares "[n]othing in this section affects any requirement of . . . any Federal or State law relating to the siting of energy facilities."[158] As DOE has explained, however, a statement that "nothing . . . affects" state siting laws is not a clear and unequivocal waiver of the federal government's sovereign immunity against state siting laws. Rather, it indicates that the statute is not intended to change the regulatory status quo.[159] Under that status quo, the federal PMAs are not subject to state siting laws, but private companies are.

In other words, so long as it is WAPA or SWPA that own and operate the transmission line, state utility laws do not apply. Private entities remain subject to those laws to the extent they undertake activities associated with a section 1222 project that implicate them—such as by owning transmission facilities within the state.

Section 1222 also enables the exercise of federal eminent domain authority. Under the Condemnation Act, when federal agencies have authority to acquire land for a public use, they also have authority to acquire that land by eminent domain.[160] Section 1222 does not expressly authorize DOE to acquire real property interests, but it does expressly authorize DOE to "develop, construct, operate, maintain, or own" transmission facilities, none of which would be possible without the power to acquire real property for the project. DOE has therefore taken the position that section 1222 necessarily implies the right to obtain real property.[161] DOE's conclusion finds support in the Ninth Circuit's decision in *United States v. 14.02 Acres of Land More or Less in Fresno County*, which upheld the Path 15 upgrade.[162] In that case, the Ninth Circuit considered whether the appropriations acts that had authorized WAPA to build and own the Path 15 upgrade also implicitly authorized it to obtain real property for that purpose. The Ninth Circuit explained that when "Congress mandates the construction of a new high-voltage transmission line and appropriates funds to carry it out, it implies, by necessity if not common sense, the authority on the part of the executing agency to acquire land on which the transmission line may be constructed."[163]

C. WAPA Borrowing Authority

The Department of Energy operates four PMAs created to market and deliver hydropower generated at federal dams. Of those, three own and operate transmission facilities. The Bonneville Power Administration plays a central role in the Pacific Northwest and operates approximately 75% of the high-voltage transmission facilities in the region.[164] WAPA owns and operates roughly the same amount of high-voltage transmission facilities as Bonneville (17,000 miles) but is spread over a vast 15-state area.[165] SWPA is the smallest of the three, operating 1,400 miles of high-voltage transmission lines.[166]

The PMAs' organic statutes authorize them to build transmission lines, for which they need not obtain state approval. Under the Northwest Power Act, Bonneville has broad authority to develop new transmission in the Pacific Northwest without a requirement that the facilities be for the purpose of delivering federal hydropower.[167] Historically, WAPA and SWPA's authorities largely limited them to the construction of transmission facilities needed to deliver federal hydropower.[168] As discussed earlier, that changed for both WAPA and SWPA with the enactment of section 1222 of EPAct of 2005. And it changed further for WAPA when section 402 of the American Recovery and Reinvestment Act of 2009 (Borrowing Authority Statute)[169] gave WAPA authority to borrow up to $3.25 billion from the Treasury on a revolving basis for the purposes of constructing and financing new or upgraded transmission facilities.[170] The transmission facilities that may be constructed under the provision must have at least one terminus within the area served by WAPA and must be for the purpose of delivering or facilitating the delivery of energy from renewable energy resources constructed after the date of the Recovery Act.

WAPA has created a Transmission Infrastructure Program (TIP) to implement this authority[171] and has used the authority for several projects still in the development stage[172] and two projects that are currently operational. The first project completed was the Montana-Alberta Tie Ltd. (MATL), a new 214-mile 230 kV merchant project built to deliver wind power from Montana to Alberta. The second, the 109-mile Electrical District 5 (ED5) to Palo Verde hub project, was developed by WAPA jointly with a group of its customers as an upgrade to WAPA's existing Parker-Davis transmission system. At a cost of only $79 million, the project adds 410 MW of bidirectional capacity between the Palo Verde hub and a solar-rich area south of Phoenix.

WAPA's Borrowing Authority Statute gives it authority to develop and own projects in its own name[173]—as it has done for the ED5 to Palo Verde project. The provision does not limit WAPA's ownership to facilities that are principally intended to deliver federal hydropower and indeed likely could not be used for that purpose given the statute's requirement that the funding be used for "the delivery of power generated by renewable energy resources constructed or reasonably expected to be constructed after February 17, 2009."[174] The Borrowing Authority Statute also lacks any waiver of federal sovereign immunity that would subject WAPA to state regulatory jurisdiction and likely confers upon WAPA the authority to exercise eminent domain. With regard to eminent domain, the analysis is similar to section 1222: the Borrowing Authority Statute confers WAPA the predicate authority to acquire land, which enables exercise of eminent domain under the Condemnation Act. Specifically, the Borrowing Authority Statute gives WAPA authority to construct, own, operate, and maintain new transmission lines and related facilities. These activities would be impossible without the right to acquire land. Therefore, as discussed in more detail in part 4(c) below, the statute necessarily implies that WAPA may acquire land for that purpose as well. Indeed, WAPA acquired land in connection with the MATL project, although the exercise of eminent domain was not required.

4. REVITALIZING FEDERAL TRANSMISSION AUTHORITIES

This section recommends steps that the federal government agencies could take now that would allow them to revitalize the provisions that Congress has already adopted in order to facilitate transmission system development. Contrary to conventional wisdom, EPAct 2005's provisions—transmission corridor designations, "backstop" federal permitting and eminent domain, and federal partnerships with transmission developers—are capable of being used to overcome opposition to interstate transmission development. To be sure, an administration interested in using these authorities to their full extent would have to overcome the obstacles placed in their way, in a context potentially supercharged by political polarization. This part describes those obstacles and identifies actions that DOE and FERC can take to breathe new life into the authorities they have been granted.

A. Section 216 of the Federal Power Act: Opportunities and Challenges for Future Use

Commentators routinely ask whether federal siting authority under section 216 is "still alive" after two circuit court decisions limited the power granted to DOE and FERC.[175] Although no transmission corridors have been designated (nor have any transmission lines been sited following these decisions), the authority to do so remains available. The following sections describe the decisions and explain why they do not preclude FPA section 216(a) and (b) from furthering transmission line development.

1. Revitalizing Transmission Corridor Designation

As explained, in 2007, DOE designated the Mid-Atlantic Area National Corridor and the Southwest Area National Corridor as the first—and, to date, only—transmission corridors.[176] However, in the 2011 case *California Wilderness Coalition v. DOE*, the Ninth Circuit vacated both transmission corridor designations.[177] In its split opinion, the court made it more difficult for DOE to designate transmission corridors and, as a result, for the federal government to exercise authority over the siting of critical interstate transmission lines. However, as explained in this section, those obstacles are surmountable.

a. California Wilderness Coalition v. DOE

After DOE issued its two transmission corridor designations, a collection of environmental organizations, property owners, energy companies, and states filed a collective thirteen petitions for review. These organizations were concerned that DOE-designated corridors risked enabling transmission that would connect to new coal-fired electricity generators or result in harm to local species. However, they limited their legal challenges to DOE's failure to meet certain statutory obligations. The *California Wilderness Coalition* court faulted DOE for failing to meet its statutory obligations in two ways.[178]

First, DOE had failed to sufficiently consult affected states when developing the mandated congestion study used to develop transmission corridor designations. Section 216(a) includes

requirements that DOE solicit feedback from states both when developing each congestion study and when designating transmission corridors based on the results of the study. However, while DOE need only provide "an opportunity to comment from affected states" when it designates a transmission corridor,[179] the Ninth Circuit held that the agency is required to more fully consult states when conducting the congestion study.[180] The court explained that "Congress intended consultation to be more than responding to comments."[181] It includes disclosure of the data and technical information DOE relied on to reach its conclusions.[182] And it requires engaging states with enough time in the study process to reasonably provide a "real opportunity for consultation."[183] The court held that by only inviting those states DOE determined were "potentially affected" to one of two large meetings regarding its 2006 study, DOE failed to meet the statutory consultation requirement.[184]

Second, over a pointed dissent, the court held that DOE failed to conduct an adequate environmental analysis of its designation decision as required by the National Environmental Policy Act (NEPA).[185] NEPA requires every agency to analyze the environmental effects of any major federal action.[186] That analysis can entail completion of an environmental assessment (EA), which examines environmental impacts for the purpose of determining whether the action will cause no significant impact or warrants a comprehensive environmental impact statement (EIS),[187] or completion of an EIS that examines impacts in greater depth and compares alternatives.[188] The court rejected DOE's argument that while siting decisions would have environmental impacts, the transmission corridor designation would not, and so DOE need not complete either an EIS or even a more limited EA.[189] The court found that transmission corridor designations still "influence the areas in which the transmission facilities will be located."[190] The Ninth Circuit majority acknowledged that the effects of a transmission corridor designation "may be uncertain and difficult to quantify" but held that "the potential consequences of such effects are significant enough to undermine DOE's conclusory determination that no EA need be prepared."[191] Accordingly, the court vacated the transmission corridor designations and directed DOE to take a "hard look" at the designations' environmental consequences by completing at least an EA, if not an EIS.[192]

California Wilderness Coalition clarified DOE's obligations under section 216. Yet, while neither holding serves as an impassible obstacle to issuing new designations, DOE has not designated a new transmission corridor since. In light of the critical need for transmission, the obstacles put in place by state siting requirements, and the fact that federal permits may only be issued in transmission corridors, DOE should make designation a priority. Moreover, it can take a number of regulatory and procedural steps to streamline the corridor designation process and make federal permitting more viable.

b. DOE Should Designate New Transmission Corridors

Since *California Wilderness Coalition*, DOE has not established any transmission corridors.[193] Because FERC's backstop authority under section 216(b) may only be exercised for projects within a corridor, the absence of new designations prevents the exercise of federal authority over transmission siting. In order to overcome the obstacles outlined in part 2, DOE should strive to expeditiously issue one or more new reports with transmission corridor designations. And to ensure that the resulting transmission facilitates the energy transition, DOE should

focus its designations on connecting areas of geographically constrained renewable energy to load. As explained further below, however, DOE also can designate corridors in a more targeted way, and our suggestion that DOE proceed to designate corridors does not mean it should immediately do so nationwide.

When making transmission corridor designations, DOE should use the authority provided by section 216(a) to consider how new transmission will benefit customers by connecting areas with geographically constrained high renewable potential to load. Corridors may be designated in any "area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers."[194] Recognizing that "there is no generally accepted understanding of what constitutes . . . 'constraints or congestion,'"[195] in its 2007 report, DOE interpreted section 216(a) to allow it to find "constraints" based on expectations of future congestion and based on the absence of a transmission line that "is demonstrably hindering the development of desirable generation."[196] Geographic areas with high renewable penetration but little access to customers due to a lack of transmission meet this standard. Similarly, areas facing overloaded generator interconnection queues as a result of insufficient transmission face a "constraint . . . that adversely affects consumers" by driving up the cost of obtaining clean energy for customers such as large corporate energy users.[197] DOE should reaffirm its long-standing interpretation of section 216(a) that the prospect of future congestion, including due to the need for additional renewable generation, is a "constraint . . . that adversely affects customers" and so can warrant designation.

A number of stakeholders have already identified relevant data and evidence for supporting the determination that insufficient interstate transmission connecting high-potential areas for renewable energy development with load is leading to congestion and other constraints that are adversely affecting consumers.[198] Moreover, the additional factors that Congress permits DOE to consider support a finding that insufficient transmission connecting high-renewable-potential areas with load centers warrants transmission corridor designation. Namely, bringing additional renewable energy to load will help diversify energy supply[199] and will be critical to achieving national energy policy under the administration of President-Elect Biden.[200]

Expeditious release of a report designating new transmission corridors would be both prudent and necessary for DOE to meet legal obligations. Congress specified that DOE "shall" issue a report based on each study.[201] Other than the 2007 report following the release of its initial congestion study,[202] DOE has only issued one other report: a September 2015 report, which concluded that its 2015 congestion study and public comments "do[] not provide a basis for the designation of a [Transmission] Corridor."[203]

In September 2020, DOE released a congestion study in which it preliminarily found no "transmission congestion conditions that would merit proposing the designation of [Transmission] Corridors."[204] DOE initiated a 60-day public comment period after which DOE intends to issue a report responding to comments and indicating whether to revise its preliminary finding and issue a report designating new transmission corridors.[205]

One element of DOE's approach undertaken in the 2020 study should be continued: the fulfillment of the agency's obligations to consult with states. DOE took care to meet the state consultation requirements as clarified in *California Wilderness Coalition*. DOE built upon

the progress it made when issuing its congestion 2015 study.[206] Specifically, DOE invited representatives from all states to attend a workshop or webinars on the study, to meet privately with DOE officials, and to review a consultation draft of the study.[207] These steps meet the definition of "consultation" as determined by the Ninth Circuit—"conferring with an entity before taking action"[208]—and match many of the examples of acceptable consultation that the court identified, including circulating a draft report to state officials and giving comments meaningful consideration as demonstrated by revising the study based on state official input.[209] DOE should continue to take state consultation seriously in any future or revised congestion study it undertakes.

Notwithstanding DOE's adherence to the consultation process, its 2020 study contained at least three legal and analytical flaws that should be corrected. First, in an unexplained shift from its 2007 study and report, the 2020 study took a narrow and exclusively backward-looking view of transmission capacity constraints. Whereas in 2007 DOE interpreted "constraints" broadly, the 2020 study considered only whether existing transmission infrastructure is operating close to or above its rated capacity levels.[210] Applying this narrow definition, DOE's 2020 study pointed to declining numbers of hours where existing transmission lines operate near their maximum capacity and a paucity of violations of transmission-related mandatory reliability standards before concluding that "transmission constraints and congestion have abated."[211]

Second, the 2020 study asserts that the amount of congestion payments paid by customers in certain RTOs "have decreased over time" but presents data showing rises and plateaus as well as decreases in payments in some RTOs since 2005.[212] Moreover, DOE has failed to analyze congestion in one RTO—the Southwest Power Pool—or in non-RTO regions. And, blinkered by its backward-looking definition of transmission constraints, DOE's analysis says little about expected future congestion costs that customers are likely to face as the electric system transitions to cleaner sources of energy.

Third, the 2020 study misinterprets evidence about transmission investment. DOE points to increasing levels of transmission investment between 2005 and 2008 as evidence that there is sufficient development to alleviate any constraints or congestion.[213] However, as explained earlier regarding FERC's transmission planning requirements, though investment may have increased, it has not gone either to transmission projects that would connect areas of high renewable potential to load or to other regional and interregional long-distance transmission projects that would provide significant economic, reliability, and decarbonization benefits.[214]

In order to fulfill its statutory mandate, DOE should take a broader view of the capacious term *constraints*, one that includes whether sufficient transmission is being developed to meet present and foreseeable future generation development needs and customer demand. And DOE should reevaluate its preliminary conclusions regarding transmission constraints and congestion.

Compounding these substantive flaws in DOE's 2020 congestion study, are flaws in the process by which it proposed to designate transmission corridors.

First, DOE proposed to rely almost exclusively on its cramped analysis of constraints and congestion. Notably, while the study discussed the importance of additional transmission to

reliability and resilience as the electricity system undergoes a transition away from primarily fossil to renewable,[215] DOE failed to then make the connection between those changes and the constraints and congestion that will, without additional transmission, adversely affect consumers. Rather, DOE incorrectly asserted that it would require congressional approval to take such factors into account.[216] In making these claims, DOE entirely ignored the additional criteria that it is explicitly empowered to consider, such as the ability of additional transmission to provide economic growth, energy supply diversification, energy independence, and fulfillment of national energy policy.[217]

At the same time, the one additional criterion DOE proposed to consider is inconsistent with the very purpose of section 216. Namely, DOE proposed that advocates of new transmission corridors explain why "interven[tion] in a matter that is normally wholly under the jurisdiction of the affected state(s)" would be in the national interest.[218] This criterion runs counter to the entire purpose of section 216, which is to authorize federal siting of transmission lines because leaving the issue solely within the purview of affected states has led to unreasonable and harmful barriers to the development of needed transmission.

DOE under a President Biden should expeditiously revise its flawed reasoning. DOE should then propose new transmission corridor designations to address current and expected future congestion resulting from the lack of sufficient transmission capacity needed to connect remote renewable energy resources to load.

As part of the corridor designation process, DOE should be careful to develop an appropriately detailed environmental analysis of those proposed corridors. Importantly, the Ninth Circuit did not find that DOE necessarily needed to develop a full EIS; rather, the court faulted DOE for determining it need not develop even an EA.[219] If DOE's EA finds that the corridor designation (as compared to an actual federal permit) would not result in environmental harm, it can conclude its environmental review with a finding of no significant impact. Alternatively, if DOE expects that multiple transmission lines would likely be permitted within a single transmission corridor, it may be more efficient for DOE to, at its discretion,[220] conduct a programmatic environmental impact statement in which it evaluates potential environmental impacts of constructing transmission throughout the corridor.[221] While such an approach might extend the time for making corridor designations, it would reduce the extent of additional analysis, and therefore time, required for FERC to act on individual permit applications within a corridor.[222]

Moreover, DOE's coordination with states should go beyond merely accepting public comments. While the Ninth Circuit found that DOE's obligation to consult with states is less onerous when designating transmission corridors than it is when issuing a congestion study,[223] DOE should nonetheless engage deeply with states at the corridor designation stage as well. For example, states have previously objected to the geographic breadth of corridor designations,[224] which DOE could rectify by designating narrower corridors. Robust engagement can reduce (though likely not eliminate) political and legal challenges to the transmission corridors.[225] And it can lead to better policy making by giving states an opportunity to inform DOE's evaluation of a corridor's local costs and benefits, which DOE may not be as capable of considering.[226]

c. DOE and FERC Should Streamline and Consolidate Their Transmission Corridor Designation and Project Siting Decisions

Under the sequential two-step process where FERC will issue a permit only after DOE has completed its corridor designation, federal siting effectively requires two separate consultations, two separate NEPA reviews, and two separate agency processes before a new transmission project can be completed. This additional process can significantly increase the time it takes to develop critical transmission lines and, as a result, the cost of doing so. For example, NEPA reviews conducted by FERC have historically taken an average of 2.67 years to complete and reviews by DOE have taken an average of 3.27 years, not including prefiling or other preparatory activity taken before the agency issues a notice of information.[227] So, if DOE determines that corridor designations require a full or programmatic EIS, the additional NEPA requirements added by *California Wilderness Coalition* could more than double the time spent on environmental review.[228] Moreover, requiring both DOE and FERC to take sequential action and conduct separate environmental reviews doubles the opportunities that opponents have to fatally delay locally unpopular projects through litigation.[229]

In order for section 216 to be used most effectively, the sequential process should be streamlined and consolidated. This can involve two changes. First, rather than designating wide swaths of geographic area as transmission corridors, DOE can instead designate narrow corridors with specific projects in mind. Second, DOE and FERC can work simultaneously to designate project-specific transmission corridors and issue a federal permit for the project.

In addition to reducing the time and cost of transmission development that will eventually be undertaken pursuant to a federal permit, a streamlined process can also directly reduce the magnitude of political controversy associated with DOE's corridor designations. The risk of highly contentious transmission development anywhere within a corridor activates public opposition and, in turn, state concern. Because DOE's original 2009 corridor designations included large geographic areas—for example, virtually the entire state of Pennsylvania—those designations raised significant political concerns and litigation. A more circumspect and streamlined corridor designation process would reduce the number of landowners and communities *potentially* affected and so better align the political controversy with the individuals that may face costs as a result of new transmission development.[230]

Nothing in section 216 prohibits the agencies from conducting transmission corridor designation and federal permit consideration together. And although DOE and FERC would need to consider alternative routes in the review process, nothing requires that DOE designate corridors that are larger than the land needed to site the transmission facility.

Section 216 requires DOE to issue a report after each congestion study and permits that report to designate transmission corridors.[231] But DOE is not prohibited from issuing additional reports making transmission corridor designations at a later time. DOE has already acknowledged this. When it issued its 2015 report, DOE elected not to designate any transmission corridors but reserved the right to do so in the future:

> This determination, however, in no way precludes the possible designation of one or more future corridors, consistent with the provisions of the Federal Power

Act, and in situations where designation would serve the public interest.[232]

Section 216(a) permits DOE to make project-specific corridor designations. DOE may designate "*any* geographic area" as a transmission corridor if transmission constraints in that area harm consumers.[233] The use of the term "any" suggests that the corridor need not be any particular size.

Moreover, DOE's authority to take into account the effects of congestion and constraints outside a corridor suggest Congress contemplated corridors narrower than the congested area analyzed in the study process. Congress did not state that DOE must determine that the transmission constraints harm consumers *within* a designated area. Rather DOE must only determine that the constraints "adversely affect[] consumers." Similarly, DOE is explicitly permitted to consider not only the economic vitality or economic growth *within* a corridor but also "the end markets served by the corridor."[234] This leaves DOE free to support designation of a narrow corridor with a congestion study that covers a wider geographic area.[235]

When requesting comment on the 2019 congestion study, DOE also contemplated the possibility of a project-specific transmission corridor designation. DOE determined that it would continue to consider designating transmission corridors over a broad geographic region in its triennial study and report process.[236] However, DOE outlined a process by which a party could request designation of a project-specific transmission corridor.[237] This approach finds support in the terms of section 216(a), which states that corridor designation may be made "after considering . . . recommendations from interested parties."[238] The statute provides no bar on DOE acting on narrow or even project-specific recommended corridors, either as part of the triennial process or separate from it.

In designating a project-specific corridor, DOE would need to balance the political expediency of drawing the corridor as narrowly as possible with the need to preserve alternative routes that can be studied in the environmental review process and that would remain available to preserve flexibility for the project developer. In balancing these factors, DOE may find that the optimal width of a project-specific corridor would vary over the course of the corridor itself.

Finally, nothing in section 216 prohibits closer coordination between the corridor designation process and FERC's permitting process. In fact, the specific responsibilities given to DOE and FERC suggest Congress intended a harmonized process that would lead to additional transmission development. While transmission congestion and constraints affect consumers over a broad geographic area (impacts that DOE can evaluate in its congestion study process and take into account in its designation decision), DOE was not tasked with identifying the areas where additional transmission would provide benefits. It was tasked with designating "corridors"—"a usually narrow passageway or route."[239] That is, Congress tasked DOE with designating the passageway for transmission, which directly aligns DOE's responsibility with the linear projects that are the subject of FERC's permitting.

Congress also explicitly required DOE and FERC (as well as other federal agencies) to coordinate all authorizations required to site a transmission facility, including all environmental reviews.[240] And DOE has already taken this broad authorization a step further by establishing a "simplified Integrated Interagency Preapplication process to site electric transmission

facilities."[241] Moreover, the specific criteria that Congress identified for both designating corridors and granting permits are well aligned for a harmonized approach. For both decisions, the relevant agencies are explicitly authorized to consider how transmission can alleviate harm to consumers,[242] enhance energy independence,[243] and advance national energy policy.[244] And FERC's obligation to consider whether a federal permit would be "consistent with the public interest"[245] permits it to consider the additional factors DOE may evaluate when designating a corridor, including that the lack of transmission is harming economic vitality and development,[246] economic growth,[247] diversification of energy supply,[248] and national defense.[249] In other words, both DOE and FERC can explicitly prioritize coordinated transmission corridors and lines that connect renewable-rich areas to load.

In order to consolidate the transmission corridor designation process with the transmission siting process, FERC will have to update its regulations. Currently, those regulations permit prospective developers to submit an application for a federal permit only after DOE has completed a transmission corridor designation.[250] Instead, FERC should consider issuing joint regulations with DOE. These regulations would incorporate elements of the transmission corridor designation, including initiation of state consultation and corridor-related NEPA review, into the FERC prefiling process.[251] And the regulations could align the timing and content of the permit application and permitting decision with the filings, comment opportunities, and decision-making required for a project-specific corridor designation.

This process would retain an important role for states. As clarified by *California Wilderness*, DOE would continue to extensively consult with states as part of the triennial congestion study process. This process will inform DOE and FERC as to where congestion and other transmission constraints are harming consumers and will allow DOE and FERC to begin scoping key areas where a transmission corridor and federal permit may be appropriate. However, in light of their historic interest in transmission line permitting, the new joint regulations should include a specific formal role for states. The joint DOE and FERC process can build on the integrated interagency preapplication process that DOE established in 2016, which requires preapplication coordination with "non-federal entities," including state governments.[252] Early consultation can provide states an opportunity to raise concerns and make suggestions about the specific location of a project that receives a federal permit within the transmission corridor, as well as any appropriate mitigation measures. To that end, transmission corridors within this process should not be exactly coextensive with the eventual location of a proposed transmission line. This formal process would be consistent with section 216's requirements that both DOE and FERC solicit state input on the location of proposed transmission corridors, alternative locations, and the environmental consequence of constructing transmission within those corridors.[253] And additional state involvement in a coordinated corridor designation and permitting process "can reduce post-permitting vetoes or legal challenges."[254]

d. Corridor Decisions Can Be Further Streamlined if Delegated to FERC

Transmission development can be even further streamlined by consolidating the transmission corridor and federal permit processes under a single agency: FERC.

DOE has legal authority to delegate its transmission corridor designation responsibilities

to FERC. In 1977, Congress enacted the Department of Energy Organization Act, which established the Department of Energy and Federal Energy Regulatory Commission and divided the responsibilities of the previous Federal Power Commission between the two.[255] Section 642 of the act provides for delegation of authority granted to the secretary of the Department of Energy:

> Except as otherwise expressly prohibited by law, and except as otherwise provided in this chapter, the Secretary may delegate any of his functions to such officers and employees of the Department as he may designate, and may authorize such successive redelegations of such functions within the Department as he may deem to be necessary or appropriate.[256]

That is, delegation is permissible "except as otherwise *expressly* prohibited by law."

While section 216(a) directs the secretary of energy to conduct congestion studies and designate transmission corridors,[257] nothing in that section or any other provision expressly prohibits any delegation of that authority. Relevant judicial decisions support an interpretation that DOE is within its statutory authority to delegate the transmission corridor designation responsibilities to FERC, notwithstanding the fact that Congress provided that authority to DOE. In *Planning Research Corp. v. United States*, the Federal Court of Claims found that an express delegation to a DOE official did not constitute an express prohibition on delegation. There, plaintiffs claimed that because the statute at issue designated the secretary, deputy secretary, or undersecretary to make procurement decisions on contracts over $50 million, the statute effectively prohibited these officials from delegating the decision-making authority to any lower official.[258] In rejecting this claim, the court found that "[p]laintiff's argument of prohibition by implication cannot . . . overcome the plain meaning" of DOE's delegation statute, which limits delegation only where expressly prohibited by law.[259] Similar to the statutory designation at issue in *Planning Research Corp.*, section 216 grants the secretary the duty to designate transmission corridors but does not expressly prohibit the secretary's ability to delegate this task. Without an express prohibition, delegation is within DOE's authority.[260]

Delegation of the corridor designation process to FERC can provide a number of benefits. First, it would result in a single federal agency acting as the lead for the related environmental reviews for transmission corridor designation and transmission project permitting. This would provide a single forum—with more established procedural processes and precedents[261]—for states, landowners, and other stakeholders to engage.

Second, delegating the transmission corridor designation process to FERC would locate responsibility for transmission project development at an agency with a demonstrated track record of efficient linear project permitting. FERC already maintains an Office of Energy Projects, with approximately 500 full-time staff dedicated to project permitting.[262] Since 2015, FERC has issued certificates for 120 natural gas pipeline projects covering over 5,600 miles of pipe.[263] And FERC has a strong record of success defending these certificates in court, with only two of those project certificates vacated or remanded to the agency.[264] In the process of approving pipeline certificates as well as hydroelectric licenses, FERC staff regularly navigates state and Indian tribe consultation requirements,[265] manages Endangered Species Act requirements,[266] and conducts environmental reviews consistent with NEPA.[267]

FERC staff have already developed a straw proposal regarding how it would implement delegated authority over transmission corridor designations, which could form the basis for renewed FERC action.[268] FERC proposed to promulgate regulations establishing a process for issuing project-specific transmission corridors, including at the request of applicants;[269] harmonize that transmission corridor designation process with its federal permit prefiling process and application process;[270] and integrate those processes into the Order 1000 regional transmission planning process.[271] That proposal was developed in 2011, when DOE invited comments on whether it should delegate its authority over transmission corridor designations to FERC.[272] DOE ultimately chose not to delegate the authority to FERC.[273] It is now time for DOE to revisit this issue.

The political concerns that DOE faced when it rejected the delegation proposal are no longer as salient as they were in 2011. Senator Jeff Bingaman, a principal drafter of section 216, and ranking Democrat on the Senate Energy and Natural Resources Committee, had strongly opposed delegation by DOE, arguing that the statute was carefully drafted and that the bifurcation of DOE and FERC responsibilities was a hard-won compromise.[274] However, this no longer appears to be a prevailing view in Congress: in fact, key congressional committees have put forward proposals endorsing delegation of the transmission corridor designation process to FERC.[275]

Moreover, the benefits of delegation are more acute now in 2020 than they were in 2011. In place of delegation, DOE and FERC agreed that the agencies would work together on transmission congestion studies mandated by Congress; on supplements to those studies based on, among other things, Order 1000 transmission plans; and on environmental analyses for any proposed transmission corridors.[276] The fact that DOE has not designated a single new transmission corridor over the past nine years suggests that the current arrangement has not been successful. Moreover, the requirements of section 216 and the judicial decisions interpreting it will ensure that state authority will be respected even if FERC is given responsibility to issue both project-specific transmission corridor designations and to issue federal permits.

Balanced against these considerations is the possibility that, as an independent agency, FERC may not have a majority of commissioners that would support exercise of section 216 in a manner that aims at decarbonization and connecting renewables to load. In light of this possibility, DOE should move forward expeditiously with the corridor designation and streamlining processes outlined earlier in any case. DOE and FERC's chairman can also immediately begin coordinating on section 216 implementation, including on how delegated authority would work. Such coordination would ensure that delegation would only be undertaken if it seemed likely to streamline and not delay further transmission development.

2. Revitalizing Federal Permitting

In 2009, a divided panel in the Fourth Circuit ruled against FERC in *Piedmont Environmental Council v. FERC (Piedmont)*—the only court decision to analyze section 216(b).[277] When the Piedmont decision came down, commenters lamented how it curtailed FERC's federal permitting authority,[278] and no attempts to use federal siting authority under section 216(b) have followed the decision. An absent prerequisite also explains inaction under section 216(b): FERC may only grant federal siting permits for projects in areas designated as transmission

corridors,[279] and *California Wilderness Coalition* vacated the two corridors designated by DOE in 2007.[280] Accordingly, FERC has only ever received one application from a developer under section 216(b)—an application for a project in the Southwest Area National Corridor that was withdrawn in 2009.[281]

But if the federal government resumes designating transmission corridors, section 216(b)'s limited use should not dissuade private developers from requesting, and FERC from granting, federal permits. To encourage new applications and streamline decision-making, FERC should issue a new order refining the procedure for issuing federal permits and clarifying its interpretation of the criteria FERC will use to evaluate applications. This section outlines a number of features that the new order should contain. First, the order should clarify that transmission projects connecting renewable energy to population centers meet the section 216(b) threshold criteria. Second, the order should establish FERC's authority to grant permits under its preferred interpretation of "withheld authority" in section 216(b)(1)(C)(ii) outside the Fourth Circuit. Third, the order should permit prefiling to occur in parallel to state review of project applications. Finally, because Congress gave FERC jurisdiction over project siting in four additional scenarios under section 216(b) that have not yet received judicial review, the order should encourage developers to apply for federal siting permits when the requirements of those provisions are met. While not discussed in this section, the new FERC order would also provide an opportunity for FERC to revise its regulations to consolidate the transmission corridor designation and federal permitting processes as outlined in part 4(a)(1).

a. FERC Should Determine That Transmission Projects Connecting Renewable Energy Sources to Load Meet the Section 216(b) Threshold Criteria

Not all projects are eligible to receive a federal permit. The project must not only be sited in a transmission corridor, but it also must meet five statutory requirements. The following sections of this article discuss the state-inaction criterion in section 216(b)(1), which enumerates the limited scenarios under which the federal government may assert backstop siting authority. But the four threshold criteria that follow have not been interpreted by FERC or the courts. In Order 689, FERC declined to specify how a project might meet the threshold criteria in sections 216(b)(3)–(5). In response to stakeholder requests to further define the criteria, the commission said that it could not "adopt an exclusive list of factors or construct a bright-line test to determine whether a project meets all the statutory criteria."[282] While retaining flexibility in its analysis, FERC should explicitly state that projects designed to connect renewables to load are eligible to meet the threshold criteria in section 216(b)(3)–(5), which requires projects to serve the public interest, benefit customers, and be consistent with energy policy.

Although Order 689 did not specifically contemplate connection of renewables, FERC should eliminate uncertainty about whether transmission lines that connect renewable energy sources to consumers meet the threshold criteria. A lack of transmission capacity limits renewable energy development in many parts of the country.[283] Addressing these capacity constraints provides myriad public benefits that fulfill the threshold criteria of section 216(b)(3)–(5). First, transmission lines that connect customers to renewable energy sources serve the public interest by diversifying the energy mix[284] and reducing greenhouse emissions from

the energy sector.[285] Second, increasing access to renewables benefits customers otherwise unable to fulfill a preference for a low-emission fuel source and sometimes lowers electricity prices.[286] Third, growing consumer preference for renewable energy sources is also reflected in state and national energy policies, which frequently include goals for increasing the renewable sources in their energy mixes.[287]

Long-distance transmission lines increasingly connect renewable resources with energy-seeking consumers.[288] By issuing a new order on section 216(b) that clarifies that transmission projects intended to connect renewable energy sources with population centers meet the section 216(b) threshold criteria, FERC can reassure developers that such projects will be eligible to benefit from federal siting and condemnation powers.

b. FERC Should Issue a New Interpretation Allowing Applications to Be Filed in States That Deny Siting for a Transmission Project

In Order 689, FERC interpreted section 216(b) to find that "withheld approval" included the express denial of a permit, thereby granting FERC siting authority whenever a state rejected an application for a transmission line.[289] In *Piedmont*, the Fourth Circuit vacated this interpretation, deciding that state denial of an application within a year of submission does not grant FERC backstop authority to assert federal siting authority.[290]

Piedmont's decision to "reverse FERC's interpretation" that the phrase "withheld approval" included rejection prevents FERC from continuing to rely on its analysis in Order 689.[291] Instead, FERC should assert its commitment to exercising its federal backstop authority in a new order interpreting section 216(b). To limit the reach of *Piedmont*, the order should state FERC's authority to grant permits under its preferred interpretation of "withheld authority" outside the Fourth Circuit. *Piedmont* does not bind the commission's activities nationwide; nor does it bind the decisions of other circuit courts, permitting FERC to grant siting permits to transmission projects whose applications are denied by states outside the Fourth Circuit. If a petitioner challenges this order or any permit approvals reliant on its interpretation, FERC should relitigate its position to seek a favorable opinion in another circuit.

1. Piedmont Environmental Council v. FERC

As discussed in part 3(a)(2), FERC can issue a construction permit if it finds that a state has "withheld approval for more than 1 year" after the filing of an application or the designation of a national corridor, whichever is later. In Order 689, FERC found that "withheld approval" included the express denial of a permit, an expansive assertion of FERC's siting authority.[292] A group of state utilities commissions and community interest organizations filed a petition for review of FERC Order 689.[293] Their primary argument was that FERC's interpretation of section 216(b) was unreasonable.[294] In 2009, the Fourth Circuit, in a two-to-one decision, vacated FERC's interpretation, finding that "withheld approval" does not include situations where a state commission explicitly denies a permit application.[295] Under *Piedmont*, rejection, as opposed to delay, does not grant backstop authority to FERC.[296]

The court defined "withheld approval" as requiring no action by a state in response to an application for more than one year and characterized FERC's interpretation as contrary to the

statute's plain meaning.[297] The court criticized FERC for using a "backward" approach in its plain meaning interpretation, finding that while "'deny' is broad enough to include 'withhold' in its definition[,] . . . the word 'withhold' is not broad enough to include 'deny' in its definition."[298]

The majority further analyzed the statutory context to decide that the phrase does not encompass express denial of a permit.[299] After determining that sections 216(b)(1)(A)(i)–(C)(ii) are all limited grants of jurisdiction to FERC, the court worried that FERC's interpretation would lead state commissions to "lose jurisdiction unless they approve a permit."[300] Instead, the court held that had Congress intended for FERC to preempt state jurisdiction each time it denied a permit, it would have said so explicitly.[301]

Finally, the court rejected FERC's argument that FERC's authority to preempt state siting jurisdiction when the state imposes unreasonable conditions under section 216(b)(1)(C)(ii) indicates that Congress also intended to allow for preemption based on express denial.[302] The court found that a state misuses its authority when it attaches project-killing conditions to a permit approval.[303] In contrast, a state transparently exercises a "legitimate use of its traditional powers" when it expressly denies an application.[304] Therefore, the court found "no logical inconsistency between authorizing FERC to assume jurisdiction in the case of permit approvals with overburdensome conditions but not in the case of outright denials."[305] The court explained that "in providing for this measured transfer of jurisdiction, Congress simply makes sure that there is a utility commission available—if not a state commission, then FERC—to make a timely and straightforward decision on every permit application in a national interest corridor."[306]

A dissent from Judge William Traxler rejected the majority's interpretation of the statute. Judge Traxler drew on the statute's purpose and other provisions to conclude that FERC's definition of "withheld authority" was the best reading of the statute.[307] Given the strength of Traxler's objections, relitigating the interpretation may produce a favorable ruling for FERC in another circuit, and as the following section discusses, current practices of FERC and the circuit courts permit a rehearing of this question in another forum.

2. Piedmont Is Not Binding on FERC's Review of Projects in Other Circuits or on Other Circuits

The Fourth Circuit's holding is not binding on FERC's activities in other circuits nor on other circuit courts. Following both FERC practice and the norm of intercircuit nonacquiescence by administrative agencies, the commission may decline to follow *Piedmont* outside the Fourth Circuit's jurisdiction of Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

FERC did not seek, and in fact opposed, review of the Fourth Circuit's decision in *Piedmont* by the Supreme Court.[308] But FERC did so not because it changed its position on the appropriateness of its interpretation of "withheld approval." Rather, it did so specifically because it intended to continue to apply that original interpretation outside of the Fourth Circuit.[309] As the solicitor general suggested in a brief on behalf of FERC to the Supreme Court opposing certiorari, this approach would yield a circuit split and create a better record for Supreme Court review.[310] But FERC did not ultimately follow that plan; it never granted a federal permit to a project rejected by a state outside the Fourth Circuit. But FERC can return to its original strategy by reaffirming its interpretation and accepting applications for federal permits for projects located outside the Fourth Circuit.

In doing so, FERC would practice intercircuit nonacquiescence, whereby an agency chooses not to follow a circuit decision in order to pursue a preferred national policy interpretation.[311] As Samuel Estreicher and Richard Revesz explain in their article "Nonacquiescence by Federal Administrative Agencies," the relationship between an agency and an appellate court is not akin to the hierarchical relationship between a district and appellate court.[312] On the contrary, "agencies have been delegated authority by Congress to develop coherent, nationally uniform policies under their statutes."[313] As such, a court of appeals decision "should not be able to unilaterally stymie the prospects for uniformity in administration of Federal law while an agency is reasonably attempting to obtain the nationwide validation of its position."[314] To this end, FERC has argued against following unfavorable circuit decisions in other circuits in the past.[315]

If a different circuit court considers the backstop authority provision, that court would not be bound by the Fourth Circuit's finding. In a recent DC Circuit case, the petitioner argued that the court could not adhere to the Environmental Protection Agency's construction of a statute because it created an intercircuit conflict.[316] The court disagreed, explaining that "[g]iven the lack of intercircuit stare decisis, and the reasons underlying our system of intercircuit dialogue, an agency's ability to engage in intercircuit nonacquiescence should not be constrained."[317] Administrative agencies and appellate courts may best be thought of as "participants in a process of national law development in which neither set of actors has the final say."[318]

Intercircuit nonacquiescence remains common even in response to consolidated decisions. *Piedmont* resolved challenges to Order 689 that were initially filed in the Second Circuit, the Fourth Circuit, and the DC Circuit.[319] While circuit courts are authorized to consolidate challenges,[320] the precedential effect of these decisions is disputed.[321] However, circuit courts have typically declined to apply rulings on consolidated cases outside their circuit as binding.[322] Accordingly, FERC is not bound by *Piedmont* outside the Fourth Circuit.

3. FERC Should Issue an Order with a Revised Legal Opinion That "Withheld Approval" Includes Express Denial

FERC should issue a new order revising its interpretation of section 216(b) and its procedure for issuing new federal permits. That order should find that section 216(b) transfers siting authority over a transmission project to FERC if, after one year, the state had denied or failed to approve it. FERC may support its opinion by relying on the statute's plain meaning, purpose, and structure, drawing on Judge William Traxler's extensive dissent in *Piedmont*.

First, FERC should assert that the plain meaning of "withheld approval" includes the denial of an application. As Judge Traxler explained, "[a]pplying the common meaning of the word 'withhold' yields a straightforward rule that a state has 'withheld approval for more than 1 year' when one year after approval has been sought, the state still has not granted it, regardless of the reason."[323] Because state denial is "merely one event" that can occur during the year, a state continues to withhold approval even after it denies a permit application.[324] Under this interpretation, FERC obtains jurisdiction over a permit application after the year is up, if the permit is not approved earlier. Additionally, as petitioners seeking Supreme Court review for *Piedmont* identified, Congress did not identify "withholding 'action' as the trigger for backstop authority."[325] Because Congress listed withholding *approval* as the trigger, "a proper reading of the actual words of the statute refutes the meaning that the Fourth Circuit gives

them."[326] Rejection withholds approval, meaning that a state's rejection of a permit application grants FERC jurisdiction under the plain language of section 216(b).

The order should also explain how the statute's purpose supports FERC's interpretation. Congress granted FERC backstop authority to site transmission lines, because the modern electric grid must transmit energy to consumers over long distances. DOE determined in a 2002 study that the grid was not meeting demand, leading to bottlenecks and higher consumer costs.[327] DOE called for federal backstop authority as a solution, arguing that "[] FERC should act if state and regional bodies are unsuccessful in siting and permitting national interest transmission lines."[328] A House report echoed these findings, explaining that EPAct 2005 was needed to "address issues of transmission capacity, operation, and reliability" in the grid infrastructure.[329] The House Report further identified how "state regulatory approval delays siting of new transmission lines by many years."[330] Interpreting "withheld approval" to include rejection aligns with the statute's purpose to create a federal pathway for efficient grid development.

Finally, because other provisions in section 216(b) allow FERC to overrule a state commission's decision when the state commission conditions approval in an economically unfeasible way,[331] it is reasonable to interpret the statute as authorizing FERC to act when a state rejects a permit application. Otherwise, a state could be overruled where it effectively blocked siting by imposing unreasonable conditions, but not when it expressly blocked a transmission project.[332] *Piedmont* characterizes rejection as "a legitimate use" of a state's traditional power, in contrast with a state "misus[ing] its authority" by imposing uneconomic conditions.[333] But the opinion imagines, without due explanation, that an outright rejection cannot be pretextual and that the imposition of onerous conditions cannot be legitimate.[334] Moreover, neither the imposition of conditions nor outright denial has any closer relationship to traditional state police powers, because the same types of policy considerations that would justify uneconomic conditions (i.e., land use and environmental concerns) could also be used to justify outright denial. Nonetheless, the court used this false dichotomy to distort the interpretation of section 216(b) from its most natural meaning, namely that the provision grants FERC jurisdiction over siting when a state refuses, whether outright or pretextually, to site a project in one of the listed ways.

FERC should issue a new order on the process and criteria for approving a federal permit under section 216(b). That order should outline FERC's preferred interpretation of "withheld approval" outside the Fourth Circuit, and if this order or a subsequent permit approval are challenged, the commission may receive an affirmation of its interpretation in another circuit.

c. FERC Should Allow Applicants to Begin the Prefiling Process in Parallel to State Review

In FERC's new order on section 216(b), the commission should also remove a delay to initiating the federal siting process. FERC should revise its policy of not allowing applicants to begin the prefiling process until after a state has had one year to consider the project under its own siting regulations. FERC can respect the state role in transmission line siting without delaying lawful assertions of federal siting authority.

In its notice of proposed rulemaking for Order 689, FERC did not prohibit federal prefiling and state siting applications from occurring in parallel during the year following a project

application when only the state may grant a siting permit.[335] Prefiling requires project developers to consult with impacted stakeholders and submit extensive documentation about their plans following these meetings.[336] According to FERC, the prefiling process is "designed to assist the applicant in compiling the information needed to prepare a complete application and to coordinate the review process for other Federal authorizations."[337] FERC ultimately prohibited parallel processing in Order 689 to provide states greater "respect" and to minimize federal intervention in the state review process.[338]

But requiring projects to wait for a state decision before commencing prefiling slows down the federal review without any tangible benefit to the state. In the notice of proposed rulemaking for Order 689, FERC recognizes that "the pre-filing process for extensive projects may take at least a year to complete,"[339] given the complexity of preparing an application for federal review. Under this timeline, a project might not be able to even *apply* for a federal permit until two years after applying for a state permit. Respecting state authority does not require this postponement of federal review. The state's powers are undiminished by commencement of parallel federal review, particularly because state agencies are key partners in the federal prefiling process. During the prefiling phase, applicants lay out their plans for the project during the scoping phase and begin to prepare resource reports.[340] Most interstate transmission lines undergo NEPA review, and during the prefiling stage, state agencies can help compile the information needed for an environmental assessment or environmental impact statement. The information collection during prefiling benefits from state involvement, and if this cooperation reduces a state's capacity to conduct its own independent review, the commission can take steps to harmonize its prefiling requirements with those of the state review. Removing the delays inherent in requiring successive state and federal application processes does not diminish state sovereignty to evaluate project applications.

In Order 689, FERC maintained that parallel processes are permitted by the statute.[341] Lawful use of parallel processing is necessary to allow developers to efficiently site projects under section 216(b) federal authority. If FERC consolidates transmission corridor designation and federal permitting into a single process as recommended by part 4(a)(1), states will already closely assist the commission in evaluating the suitability of project-specific corridor designations. Permitting FERC to begin prefiling during the state review process will simply expedite federal review while preserving state agencies' vital collaborative role.

d. FERC Should Make Clear That Other State-Imposed Obstacles to Transmission Project Development Meet the State-Inaction Criterion

As explained in part 3(a)(2), federal siting authority can only be triggered when state laws either constrain the ability of the relevant state commission to approve a transmission project or unduly burden a transmission project applicant. This state-inaction criterion can be satisfied by one of five enumerated scenarios. The scenario that has received the most attention, both here and more broadly, involves a state withholding approval of a siting application.

But section 216(b) includes four other scenarios triggering federal siting authority that are often ignored. In its new order on section 216, FERC should make clear to transmission developers that federal permits are available when it is able to find that the requirements of one of these four scenarios are met. To do so in the absence of interpretive case law, FERC's

new order should explain the specific circumstances in which the commission will assert federal siting authority under these provisions. This subpart discusses specific examples of state laws and analyzes why they may or may not meet the statutory requirements for asserting federal siting jurisdiction under these four additional scenarios.

1. The State Does Not Have Authority to Approve the Siting of the Project

FERC can issue a construction permit for a transmission project if it finds that "a State in which the transmission facilities are to be constructed or modified does not have authority to approve the siting of the facilities."[342] Most states have enacted statutes that explicitly grant transmission project approval authority to a state commission,[343] but this authority can be subject to limitations. For example, FERC jurisdiction may be triggered by state laws that only authorize commissions to approve transmission projects submitted by certain types of applicants. In Illinois, only public utilities may apply for the certificate of public convenience and necessity necessary to construct and operate a transmission line.[344] In 2017, the Supreme Court of Illinois determined that Rock Island Clean Line LLC, a company formed exclusively to build and operate transmission lines, did not qualify as a public utility eligible for a certificate of convenience and necessity.[345] Accordingly, because Illinois does not have authority to approve projects proposed by transmission line developers, FERC may assert siting jurisdiction under section 216(b)(1)(A)(i). Additionally, a state may lack authority to approve a project due to project-specific legislation. One example of this could have followed from a recent attempt to hold a referendum on the Maine Public Utility Commission's award of a certificate to the New England Clean Energy Connect.[346] Maine's Supreme Court rejected that attempt,[347] but it still serves to illustrate how a state might come to lack project-approval authority.

2. The State Does Not Have Authority to Consider Interstate Benefits Created by the Project

FERC can issue a construction permit for a transmission project if it finds that "a State in which the transmission facilities are to be constructed or modified does not have authority to consider the interstate benefits expected to be achieved by the proposed construction or modification of transmission facilities in the State."[348]

Several types of state laws could trigger FERC jurisdiction under this provision. The clearest example would be a state law that explicitly bars the state commission from considering the interstate benefits when deciding whether to approve a transmission project. Alternatively, a state law could limit the commission to considering only a few specific factors, not including interstate benefits, when deciding whether to approve a transmission project. In many instances, however, state statutes do not fit this mold neatly, identifying factors that the relevant state commission must consider but not specifying that those are the only factors such state commission can consider.[349]

State laws requiring that the state's commission identify a "need" as a required factor for approving a transmission project could trigger FERC jurisdiction under this provision, if "need" is defined or interpreted to require benefits to in-state energy consumers.[350] But a narrow interpretation of this provision would hold that while a state might require transmission projects to serve in-state customers, such a requirement does not preclude consideration of out-of-state benefits. If a state adopts that approach, FERC could potentially also assert

permitting authority on the ground that the state is discriminating against projects serving out-of-state customers under section 216(b)(1)(B), discussed below.

3. State Law Only Allows Permits for Utilities that Serve In-State Customers, but the Developer's Project Would Not Do So

FERC can issue a construction permit for a transmission project if it finds that the project applicant is "a transmitting utility under this chapter but does not qualify to apply for a permit or siting approval for the proposed project in a State because the applicant does not serve end-use customers in the State."[351]

A transmitting utility under the FPA is "an entity that owns, operates, or controls facilities used for the transmission of electric energy—(A) in interstate commerce; (B) for the sale of electric energy at wholesale."[352] Accordingly, a state statute would trigger FERC jurisdiction under this provision if a transmission project meets the statutory definition of a transmitting utility, but a state law prohibits development of transmission lines that would pass through the state without servicing in-state end users.

FERC jurisdiction may also be triggered in states that require a showing of "public need" for transmission projects, where this term is defined as relating only to the needs of in-state end users.[353] Thus, if a state denies applications from projects serving out-of-state users but is not *precluded* under state law from considering out-of-state benefits, FERC can still assert jurisdiction by pointing to the state's narrow definition of "public need."

In a related scenario, a state may be precluded from considering benefits to out-of-state consumers when evaluating whether or not to approve a taking subject to eminent domain.[354] While a project serving out-of-state consumers might "qualify for a permit or siting approval" as provided by the state commission, the project may nonetheless be nonviable without access to eminent domain to establish a right-of-way. Siting long-distance transmission lines traditionally requires the use, or at least the threat, of eminent domain. If projects serving out-of-state end users cannot access such condemnation authority, FERC may assert that such projects have not received "siting approval" as envisioned by section 216.

4. The State Has Imposed Conditions on a Permit that Limit the Ability of the Project to Significantly Reduce Transmission Congestion or that Render the Project Economically Infeasible

FERC can issue a construction permit if it finds that a "State commission or other entity that has authority to approve the siting of the facilities has conditioned its approval in such a manner that the proposed construction or modification will not significantly reduce transmission congestion in interstate commerce or is not economically feasible."[355]

Neither the provision nor its legislative history discuss when FERC can deem a state's conditional requirements to be unreasonable, and no case law addresses what would cause a project to "significantly reduce transmission congestion" or become "not economically feasible." Accordingly, FERC has discretion to determine when conditions imposed by the state trigger FERC siting jurisdiction. Several states' laws authorize the state commission to approve a transmission project subject to either any conditions they deem reasonable[356] or

any conditions related to specific goals, like environmental compatibility.[357] Application of such state-statutory conditions could trigger FERC jurisdiction under this provision if the resulting restrictions decrease the project's transmission capacity or economic viability.

B. Section 1222 of EPAct 2005: Initial Implementation and Opportunities for Future Use

1. Initial Implementation: Clean Line Plains and Eastern and *Downwind LLC*

DOE issued a request for proposals under section 1222 in June 2010.[358] Since then, the only project for which DOE exercised its authority was the Plains and Eastern project proposed by Clean Line Energy Partners LLC (Clean Line). Plains and Eastern was a proposed high-voltage direct current line running over 700 miles from the Oklahoma panhandle to a Tennessee Valley Authority (TVA) substation in western Tennessee. As a merchant transmission developer, Clean Line had been unable to obtain a certificate of public convenience and necessity from the Arkansas Public Service Commission,[359] which meant that it could neither own or operate transmission facilities within Arkansas nor exercise eminent domain power. Lacking any other path forward, Clean Line applied to DOE for participation with SWPA under section 1222.

DOE's decision-making process on Plains and Eastern brought together three elements. First, DOE began the NEPA review for the project in December 2012, which concluded with the publication of a final environmental impact statement in November 2015. Second, in parallel with the NEPA review, DOE invited public comment on Clean Line's application, whether the project met the requirements of section 1222 and whether it satisfied other evaluation factors that DOE had identified in the 2010 RFP. Those evaluation factors included whether the project was in the public interest, whether it facilitated development of renewable energy, the benefits and impacts of the transmission line on each state it traverses, including environmental and economic impacts, and the technical and financial viability of the project. And third, DOE negotiated an agreement with Clean Line that defined the terms of its participation.[360]

On March 25, 2016, DOE published its decision to partner with Clean Line. DOE explained the basis for its decision in a summary of findings that presented the secretarial findings required under section 1222, responded to public comments, and confronted several legal questions raised by the statute, including the applicability of state siting laws and the basis for eminent domain authority.[361] DOE also published the participation agreement it had negotiated and explained in some detail how the agreement protected DOE against financial liability arising from its participation.[362]

Two groups of Arkansas landowners filed suit in federal district court for the Eastern District of Arkansas seeking to stop the project. The landowners raised a number of legal claims. Most notably, they challenged DOE's conclusions that (1) SWPA was immune to the requirements of Arkansas public utility law and that (2) section 1222 provided the basis for exercising eminent domain under the Condemnation Act. In December 2017, the district court ruled in DOE's favor in *Downwind LLC v. United States Dep't of Energy*. The court held that section 1222 did not require SWPA to go through the Arkansas siting process. Mirroring DOE's explanation, the court explained that "the project is the United States' sovereign action"[363] and that section 1222's savings clause does no more than "preserve[] the regulatory status

quo."[364] The court also rejected the plaintiffs' record-based claims. The court concluded that DOE was owed deference in its technical judgments[365] and that it had adequately supported its conclusions that the project was needed and was consistent with needs identified by the appropriate transmission organization.[366] The court, however, did not reach the question of whether section 1222 authorizes acquiring real property through eminent domain. The court determined that this question was unripe because DOE had not yet sought to exercise that authority and because, should DOE do so, landowners would have an opportunity to raise the issue in the condemnation action.[367]

Despite DOE's decision to participate under section 1222 and the victory in Downwind LLC, the Plains and Eastern project did not go forward. Ultimately, the project foundered for reasons that were political and commercial, not legal. As described in Russell Gold's *Superpower*, the project was adamantly opposed by the Arkansas congressional delegation, which led several unsuccessful yet costly legislative attempts to subject the project to state authority.[368] The project was also vocally opposed by Tennessee senator Lamar Alexander, a long-standing opponent of wind power. Senator Alexander's opposition likely factored into TVA's decision not to buy power from the project despite being offered competitive pricing.[369] And finally, although lawyers from the Department of Justice defended the policy through the course of 2017, it became clear later in that year that the Trump administration had no intention of continuing with the project in the face of opposition from congressional Republicans.

2. Future Use of Section 1222

DOE should resuscitate section 1222. To do so, it should begin by issuing a new RFP that declares the agency's willingness to evaluate new projects and, under appropriate circumstances, commit itself to seeing those projects through. In addition to soliciting new projects, DOE leadership should urge WAPA and SWPA to determine whether private funding through section 1222 could be used to upgrade their existing transmission facilities in order to debottleneck their transmission systems in ways that enable increased capacity to interconnect new renewable generation.

To a large extent, the authority in section 1222 would be easier to use now than it was when DOE and Clean Line began the process. DOE has proven its willingness to use the statute, has interpreted its key provisions, and has prevailed in court on those interpretations. While the *Downwind LLC* decision would not bind future courts, it stands as a helpful affirmation of DOE's interpretation that should give confidence both to DOE and to applicants. Further, DOE and Clean Line negotiated a participation agreement, which is now in the public domain. Future projects need not adhere to those same terms, but having a preexisting agreement as a template for participation will significantly reduce the time and expense of reaching future participation agreements. It will also help transmission developers understand what DOE participation entails at the outset and allow them to make informed decisions regarding whether they would be willing to invest the financing necessary to go through the process.

Despite this promise, there remain political and legal challenges to using section 1222 in the future. Politically, using section 1222 may not be easy for DOE. By its nature, the statute thrusts the agency into the unaccustomed and uncomfortable role of overriding state regulators and condemning land. For developers, the risk that DOE gets cold feet

is compounded by the fact that timelines for transmission projects make them likely to carry over more than one presidential term while they are still in the development stage. Nevertheless, there are lessons learned from the Plains and Eastern experience that could make the process easier politically and more inviting to applicants.

First, DOE should make the beginning of the section 1222 review process automatic. DOE could include in a future RFP a pro forma advance funding agreement and declare that any proposal that meets certain basic criteria may begin the NEPA review process, funded by the developer (at its risk) in accordance with the agreement. Rendering the beginning of the process automatic would help avoid delay. When the Plains and Eastern project was first proposed at DOE, the agency struggled with the ramifications of linking itself to a project that was both potentially controversial and at such an early stage of development. And when DOE did begin the NEPA review process, it did so on terms that illustrated the risk it believed it was taking on.[370] By establishing rules that allow applicants to begin the process automatically, DOE could remove any perception that it was putting its imprimatur on a project before it was ready, while allowing developers to proceed on their chosen timelines.

Second, as compared to typical state certificate proceedings, section 1222 has the unusual feature of culminating in a contract between the developer and DOE. While this feature is burdensome in some ways, it also creates a vehicle for financial compromise that could help build political support.[371] For instance, the participation agreement between Clean Line and DOE included promises by Clean Line to make payments in lieu of taxes in each county the project traversed in Arkansas in Oklahoma (and provided dollar figures stating those amounts).[372] The participation agreement also required Clean Line to pay DOE 2% of project revenues, which would offset the costs of federal hydropower infrastructure improvements or other authorized purposes.[373] These provisions illustrate the principle that deals under section 1222 could be structured to provide material inducements that might aid in building support. In the context of a particular project, that might include access to low-cost renewable energy, local sourcing of components, labor standards, or any number of financial incentives to host communities and states.

Further, while DOE had no appropriated funds to back the section 1222 program when it went forward with Plains and Eastern, that may not always be the case. If it moves forward with future projects, DOE should consider whether existing appropriated funds might be available (or whether new appropriated funds should be requested) to support such projects. Funding could be made available to compensate host communities or for the deployment of novel transmission technologies. Or funding could be provided to bury HVDC facilities in sensitive areas, thereby helping to "buy down" the cost of that practice—that is, making future uses of it cheaper by enabling learning through deployment.

Although section 1222 generally stands on strong legal footing, not all aspects of DOE's interpretation have been tested in court. As noted, due to lack of ripeness, the district court in *Downwind LLC* did not reach the question of whether section 1222 gives DOE condemnation authority. In that case, however, all parties had agreed to the principle that where a statute gives a federal agency authority to acquire land, the Condemnation Act gives that agency authority to condemn land.[374] Thus, the question would not have been whether section 1222

authorizes eminent domain but whether it authorizes land acquisition at all. Put differently, the question was whether it is plausible to read section 1222 as authorizing WAPA and SWPA to develop, construct, own, and operate transmission lines and related facilities but not to acquire any real property interests that would be inevitably necessary to effectuate that purpose.

The government has the far stronger argument on this point. A fundamental principle of statutory construction is that a "statute which confers powers or duties in general terms includes by implication all powers and duties incidental and necessary to make the legislation effective."[375] The Ninth Circuit applied this principle to transmission development in *14.02 Acres of Land More or Less in Fresno County* and held that when "Congress mandates the construction of a new high-voltage transmission line and appropriates funds[376] to carry it out, it implies, by necessity if not common sense, the authority on the part of the executing agency to acquire land on which the transmission line may be constructed."[377]

The plaintiffs in *Downwind LLC* did not attempt to argue that section 1222 could be effectuated without the power to acquire real property; nor did they explain how the government might come to rightfully "own" new transmission lines and "related facilities" (which presumably include rights-of-way) without having acquired real property rights in the first place. Rather, they appeared to argue that, because section 1222 does not separately list the authority to "acquire" real property, the authority does not exist. In effect, the plaintiffs argued for a substantive canon of statutory construction that would deny an agency authority to acquire real property unless that authority is unmistakably expressed.

Although there is not a great deal of law on this topic, what cases there are point to the conclusion that authority to acquire land may be discerned by necessary implication, even when the land is acquired by eminent domain. In addition to *14.02 Acres of Land*, four other circuit courts of appeals have held that the authority to construct a project carries with it the authority to acquire land for the project, even if that authority is not separately stated.[378] In general guidance to the executive branch, the Government Accountability Office has taken the same view.[379] While the Supreme Court does not appear to have been presented with this question, two Supreme Court cases have stated clearly, albeit in dicta, that legislative authority for eminent domain may be discerned by necessary implication.[380] Leading commentators take the same view.[381] Further, in an analogous line of cases concerning whether land committed to a "prior public use" may be condemned, courts have held that the authority to condemn such land may be discerned by necessary implication.[382] In sum, the notion that an agency's authority to acquire land may only be expressly conferred has no basis in the case law and should not defeat DOE's authority to acquire land under section 1222.

C. DOE Power Marketing Administrations: Opportunities and Challenges for Future Use

Any comprehensive national policy to advance transmission must consider the role of the federal PMAs. This is true because the PMAs have a unique role as utilities that are instrumentalities of the federal government but also because of the simple fact that they own roughly 14% of our country's transmission lines. It is essential, however, that any focus on the PMAs begins with the guiding principle that the PMA customers should not bear the cost,

directly or indirectly, for any policy initiative that does not relate directly to the provision of federal hydropower.

With that guiding principle in mind, DOE, acting through its Office of Electricity, should consider providing appropriated taxpayer funds to study WAPA and SWPA's transmission systems and existing rights-of-way with the goal of identifying upgrades and system additions that could cost-effectively enable increased integration of renewable energy. The ED5-Palo Verde project is an example of how an upgrade to WAPA's existing system was able to cost-effectively integrate substantial quantities of new renewables in a way that also benefited WAPA's customers. A comprehensive, forward-looking analysis could identify other such opportunities. Once cost-effective upgrades or system additions are identified, project financing could be structured in a way that avoids any risk to WAPA's customers. For instance, both section 1222 and WAPA's Borrowing Authority Statute authorize acceptance of contributed funds,[383] which could enable participant funding by the renewable generators or their utility customers that make use of the incremental transfer capability. Should any such projects fail, WAPA's Borrowing Authority Statute is also clear that losses under the program will be forgiven by the Treasury and must be segregated financially from WAPA's other operations.[384]

A future administration should also continue to support WAPA's administration of its TIP program. The Trump administration appears not to have interfered with the TIP program's operation but has nonetheless called for repeal of WAPA's Borrowing Authority Statute in each of the president's budget proposals[385]—calls that Congress rightly ignored. A future administration should support the program both in Congress and through DOE headquarters' oversight of WAPA. DOE's Office of Electricity should ensure that the TIP program has the resources it needs, including through taxpayer-appropriated funds if necessary. DOE's Office of Electricity should also encourage WAPA to think ambitiously about how the program could be used to support partnerships between WAPA and private parties to develop new interstate or interregional projects. Not only would such projects have the potential to enable increased penetration of renewable energy in the Western Interconnection, but with the economy in recession and long-term interest rates on Treasury bonds at historic lows, the TIP program could once again play the economic recovery role that spurred its inclusion in the 2009 Recovery Act.

CONCLUSION

Deploying renewable energy at the scale and on the timeline necessary to address the climate crisis will require substantial investment in new high-voltage transmission facilities throughout the country. Congress has the power to make this happen through legislation addressing the regulatory and commercial barriers that have frustrated long-distance transmission development for the past decades. Congress should take up that challenge and should consider solutions rooted in cooperative federalism. For instance, one could imagine a compromise whereby states retain their traditional land use function to determine *where* interstate transmission lines are located within their borders, so long as they identify at least one viable route for any project determined to be in the national interest by the federal government.

But the next administration cannot afford to sit by and wait for Congress to act. As detailed, DOE and FERC have authorities, principally enacted by EPAct 2005, that are legally viable and that should be revitalized. The widely held assumption that *California Wilderness Coalition* and *Piedmont* destroyed the efficacy of section 216's backstop siting authority does not bear scrutiny and should not inhibit its use. DOE and FERC can adapt to the ruling in *California Wilderness Coalition* by, to the greatest extent possible, conducting coordinated and consolidated corridor designation and project siting, including through use of parallel environmental review. And FERC can adapt to the ruling in *Piedmont* by pressing its textually sound reading of section 216(b) outside the Fourth Circuit and by emphasizing the other grounds upon which the state-inaction criterion may be satisfied. At the same time, DOE should declare its political commitment to use section 1222 of EPAct 2005. Although the only project to have used the authority foundered, DOE's interpretation of the provision has been upheld, and a precedent has been set that would ease the way for using section 1222 in the future.

NOTES

1. *See, e.g.,* Paul L. Joskow, *Transmission Capacity Expansion Is Needed to Decarbonize the Electricity Sector Efficiently*, 4 Joule 1, 1–2 (Nov. 22, 2019); Alexandra B. Klass, *Transmission, Distribution, and Storage: Grid Integration*, *in Legal Pathways to Deep Decarbonization in the United States* 527, 529–31 (Michael B. Gerrard & John C. Dernbach eds., 2019); Alexander E. MacDonald, Christopher T.M. Clack, et al., *Future Cost-Competitive Electricity Systems and Their Impact on US CO_2 Emissions*, 6 Nature Climate Change 526 (Jan. 25, 2016).

2. *See* Staff of the Federal Energy Regulatory Commission, *Report on Barriers and Opportunities for High Voltage Transmission* 21–22 (2020), https://cleanenergygrid.org/wp-content/uploads/2020/08/Report-to-Congress-on-High-Voltage-Transmission_17June2020-002.pdf [hereinafter FERC HV Transmission Report] (identifying the requirement that interstate transmission projects obtain state siting permits as an important barrier to high-voltage transmission development).

3. *See, e.g.,* Adam Vann, Congressional Research Service, The Legal Framework of the Federal Power Act 2 (2020), https://crsreports.congress.gov/product/pdf/IF/IF11411 ("Two judicial decisions have hamstrung the exercise of the Section 216 authority granted to the agencies."); Justin H. Gillis (@JustinHGillis), Twitter (Apr. 22, 2020, 6:26 PM), https://twitter.com/JustinHGillis/status/1253087701324058630 ("Congress already tried once to make this easier—only to see the law they passed gutted by a court."); David Spence, *Energy Policy's Orphaned Good Idea*, Reg'y Rev. (Mar. 5, 2018) (discussing need for federal siting authority and not even mentioning existing sources of authority); Corina Rivera-Linares, *Former FERC Commish: Transmission Siting "Has a Long Way to Go,"* PowerGrid Int'l (Dec. 22, 2015) (quoting Commissioner Moeller: "the Fourth Circuit gutted that authority. . . . We would need a federal law changed to restore that kind of backstop authority at FERC.").

4. House Select Committee on the Climate Crisis, Majority Staff Report, 116th Cong., Solving the Climate Crisis 51–59 (2020), https://perma.cc/P6T4-QKME [hereinafter Select Committee Report].

5. *See, e.g.,* Climate Leadership and Environmental Action for our Nation's Future Act (Clean Act), H.R., Climate Leadership and Environmental Action for our Nation's Future Act (Clean Act), Discussion Draft § 211 (Jan. 27, 2020), https://perma.cc/ZZ5E-JPMF; Jay Inslee's 100% Clean Energy for America Plan 4–5 (2019), https://perma.cc/96L8-YSXK; Macro Grid Initiative—An ACORE Program: Vision, https://acore.org/macro-grid-initiative/ (accessed Aug. 2, 2020).

6. The four federal PMAs are Bonneville Power Administration, Southeastern Power Administration, Western Area Power Administration, and Southwestern Power Administration. The latter two are especially relevant here, and their potential role in developing new transmission capacity is discussed further in parts 3c and 4c.

7. Robert Lempert et al., C2ES, Pathways to 2050: Alternative Scenarios for Decarbonizing the U.S. Economy (2019); James H. Williams, Benjamin Haley & Ryan Jones, Policy Implications of Deep Decarbonization in the United States, U.S. 2050 Vol. 2 (2015).

8. U.S. Energy Info. Admin., *Frequently Asked Questions: How Much of U.S. Carbon Dioxide Emissions Are Associated with Electricity Generation?* (accessed June 24, 2020), https://www.eia.gov/tools/faqs/faq.php?id=77&t=e.

9. Several industrial operations might be decarbonized most cost-effectively by solutions that do not involve electrification. See Julio Friedmann, Zhiyuan Fan & Ke Tang, Center on Global Energy Policy, Low-Carbon Heat Solutions for Heavy Industry: Sources, Options, and Costs Today (2019). This does not reduce the importance of a clean electrical grid for those industrial operations that can be electrified cost-effectively.

10. *See* Nick Eyre et al., *Reaching a 1.5°C Target: Socio-technical Challenges for a Rapid Transition to Low-Carbon Electricity Systems*, 376 PHIL. Transactions Royal Soc'y: Math. Phys. & Eng'g Sci. 2119 (May 13, 2018).

11. Michael B. Gerrard, *Legal Pathways for a Massive Increase in Utility-Scale Renewable Generation Capacity*, 47 ENVTL. L. REP. 10591, 10592–93 (2017).

12. *See* U.S. Dep't Of Energy, Transforming The Nation's Electricity System: The Second Installment Of The Quadrennial Energy Review, at S-8, 1-20, 4-8 to 4-10 (2017) [hereinafter "DOE QER"] (discussing need for greater system flexibility amid higher levels of renewables penetration); *see also* Nestor A. Sepulveda et al., *The Role of Firm Low-Carbon Electricity Resources in Deep Decarbonization of Power Generation*, 2 JOULE 2403, 2404 (2018) (noting multiple modes of providing the grid flexibility required to decarbonize generation).

13. Jurgen Weiss, J. Michael Hagerty & Maria Castaner, The Brattle Group, The Coming Electrification of the North American Economy: Why We Need a Robust Transmission Grid at ii (2019) https://wiresgroup.com/wpcontent/uploads/2019/03/Electrification_BrattleReport_WIRES_FINAL_03062019.pdf (finding the United States will need $3–$7 billion per year in additional transmission investment through 2030).

14. *See* FERC HV Transmission Report, *supra* note 2, at 6–10 (cataloguing reliability and resilience benefits of high-voltage transmission related to better integration of variable renewable energy).

15. Joskow, *supra* note 1, at 1–2; Alexandra B. Klass & Elizabeth J. Wilson, *Interstate Transmission Challenges for Renewable Energy: A Federalism Mismatch*, 65 VAND. L. REV. 1801, 1873 (2012) ("Some states are rich in renewable resources and far exceed their population-based electricity demand, while others are poor in such resources and have significant population-based electricity demand.").

16. *See, e.g.*, Tim Sylvia, *MISO-West is Running Out of Room for Renewables*, PV MAG. (Nov. 13, 2019) (reporting that Midwest ISO recently culled 3.5 GW of renewables projects from its interconnection queue, blaming a lack of transmission capacity); John E.T. Bistline & David T. Young, *Economic Drivers of Wind and Solar Penetration in the US*, 14 ENVTL.

RES. LTRS. 124001, App'x at 27 fig.18 (Nov. 18, 2019) (finding that availability of additional transmission would boost deployment of renewables); *see also* MacDonald, Clack, et al., *supra* note 1, at 526 (finding that strategic and coordinated development of national transmission capacity can support cost-effective decarbonization).

17. David Gardiner & Assoc., Am. Wind Energy Association, Transmission Upgrades & Expansion: Keys to Meeting Large Customer Demand for Renewable Energy 22–24 (2018) (comparing expressed demand for renewable capacity and available and planned transmission); *Wind Solar Alliance, New U.S. Department of Energy Report Highlights Continued Growth Of Wind Industry* (Sept. 6, 2019), https://perma.cc/D23Z-JER7 (noting "record level of capacity awaiting interconnection").

18. See Jeffrey English et al., *Flexibility Requirements and Electricity System Planning: Assessing Interregional Coordination with Large Penetrations of Variable Renewable Supplies*, 145 RENEWABLE ENERGY 2770, 2771, 2780–81 (Jan. 2020) (discussing factors needed to support flexibility in British Columbia and Alberta and identifying interregional transmission capacity as critical); Bethany A. Frew et al., *Flexibility Mechanisms and Pathways to a Highly Renewable US Electricity Future*, 101 ENERGY 65, 76 (2016) (finding that additional transmission capacity would be the lowest-cost form of additional system flexibility needed to support decarbonization); Trieu Mai et al., *Envisioning a Renewable Electricity Future for the United States*, 65 ENERGY 374, 381 (2014) ("Transmission is an important source of system flexibility.").

19. Jesse D. Jenkins, Max Luke & Samuel Thernstrom, *Getting to Zero Carbon Emissions in the Electric Power Sector*, 2 JOULE 2498, 2506 (2018) ("[I]n order to smooth renewable energy variation across wider regions, high-VRE scenarios routinely entail a continent-scale expansion of long-distance transmission capacity."); *see also* ScottMadden, Inc., *Informing the Transmission Discussion: A Look at Renewables Integration and Resilience Issues for Power Transmission in Selected Regions of the United States*, WIRES 16–17, 251–54 (Jan. 2020), https://perma.cc/54GB-RSM5 (noting interactions among renewable deployment, interregional transmission development, and reliability); Southwest Power Pool, *The Value of Transmission* 20–21 (Jan. 26, 2016) ("Transmission is a multi-faceted asset in that it not only improves grid security and system reliability but also facilitates more efficient operations and maintenance of the network and power supply assets. This effectively integrates and enhances the value of renewable resources and provides optionality for the future grid, which faces a myriad of uncertainties.").

20. *See, e.g.*, Roger Lueken et al., The Brattle Grp., New York's Evolution to a Zero Emission Power System: Modeling Operations and Investment Through 2040 47–52 (June 22, 2020), https://perma.cc/DM8M-2HEP (finding that additional transmission markedly reduces need for "overbuilt" renewable capacity and thus levels of curtailment in 2040). For a discussion of the nature and causes of renewable value deflation, see Trieu Mai et al., *The Role of Input Assumptions and Model Structures in Projections of Variable Renewable Energy: A Multi-model Perspective of the US Electricity System*, 76 Energy Economics. 313, 317–19 (2018) (discussing value in terms of "capacity credit" and curtailment).

21. Y.V. Makarov et al., Models and Methods For Assessing the Value of HVDC and MVDC

Technologies in Modern Power Grids 47 (2017), https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-26640.pdf.

22. *See* ScottMadden, Inc., *supra* note 19, at 255–62 (collecting and summarizing regional and national studies); National Renewable Energy Laboratory, *Interconnections Seams Study* (accessed June 25, 2020), https://www.nrel.gov/analysis/seams.html.

23. Harrison Fell, Daniel T. Kaffine & Kevin Novan, *Emissions, Transmission, and the Environmental Value of Renewable Energy*, American Economic Journal: Economic Policy (forthcoming 2020) (identifying significant nonmarket benefits from effects of Texas's Competitive Renewable Energy Zones (CREZ) program on transmission system congestion); A.C. Orrell et al., Pacific Northwest National Laboratory, Energy Policy Case Study—Texas: Wind, Markets, and Grid Modernization (Sept. 2016), https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-25822.pdf; see also U.S. Energy Info. Admin, *Today in Energy: Fewer Wind Curtailments and Negative Power Prices Seen in Texas After Major Grid Expansion* (June 24, 2014), https://www.eia.gov/todayinenergy/detail.php?id=1683831# (attributing drop in curtailments and negative prices to transmission lines developed pursuant to CREZ program).

24. *See, e.g.*, German Federal Network Agency, *Approval of Scenario Plan 2021–2035* (Bundesnetzagentur, Genehmigung des Szenariorahmens 2021–2035), at 101–17 (June 26, 2020), https://perma.cc/Y8DM-JVW9 (describing integrated approach to regional planning for the development of transmission lines and on- and offshore wind).

25. *See* Peter Fairley, *China's Ambition to Build the World's Biggest Supergrid*, IEEE SPECTRUM (Feb. 21, 2019), https://spectrum.ieee.org/energy/the-smarter-grid/chinas-ambitious-plan-to-build-the-world-biggest-supergrid.

26. Johannes P. Pfeifenberger et al., The Brattle Group., *Cost Savings Offered by Competition in Electric Transmission: Experience to Date and the Potential for Additional Customer Value* 18 (2019), https://brattlefiles.blob.core.windows.net/files/15987_brattle_competitive_transmission_report_final_with_data_tables_04-09-2019.pdf.

27. Aaron Larson, *Benefits of High-Voltage Direct Current Transmission Systems*, POWER MAG. (July 31, 2018), https://www.powermag.com/benefits-of-high-voltage-direct-current-transmission-systems/; U.S. Energy Info. Admin., *Assessing HVDC Transmission for Impacts of Non-dispatchable Generation* 4–12 (June 2018), https://www.eia.gov/analysis/studies/electricity/hvdctransmission/pdf/transmission.pdf.

28. Grain Belt Express Route Overview, https://grainbeltexpress.com/overview.html.

29. New England Clean Energy Connect, *About the Project*, https://www.necleanenergyconnect.org/project-overview.

30. SOUTHERNCROSS ROUTE MAPS, https://southerncrosstransmission.com/documents-downloads/.

31. TransWest Express LLC, *Critical Grid Infrastructure to Connect to the West*, http://www.

transwestexpress.net/index.shtml.

32. This list is not meant to imply that projects not included here are somehow not characteristic of the criteria described. For instance, none of these projects crosses an interconnect or regional planning zone, but we do not mean to imply that such projects are uncharacteristic of our focus here.

33. Joskow, *supra* note 1, at 1–2; Armando L. Figueroa-Acevedo et al., *Design and Valuation of High-Capacity HVDC Macrogrid Transmission for the Continental US*, IEEE Transactions on Power Systems _ (2020) (finding that integration of eastern and western interconnections using HVDC lines would yield large net cost savings amid ongoing deployment of renewables); MacDonald, Clack, et al., *supra* note 1.

34. Aaron Bloom, *Interconnections Seams Study*, Presentation to TransGrid-X 2030 Symposium, NREL (2018), https://iastate.app.box.com/s/vfgn9nikl1rz7r8x0vaoauzpm2210t35.

35. *See, e.g.*, Goldman School of Public Policy, Univ. of Cal. Berkeley, *2035: The Report* 4–5 (2020), http://www.2035report.com/wp-content/uploads/2020/06/2035-Report.pdf [hereinafter 2035 REPORT] ("Pervasiveness of low-cost renewable energy and battery storage across the United States requires investment mainly in transmission spurs connecting renewable generation to existing high-capacity transmission lines or load centers."); Gopika Jayadev et al., *U.S. Electricity Infrastructure of the Future: Generation and Transmission Pathways Through 2050*, 260 Applied Energy 114267, at 2 (2020) ("Investments in long-distance transmission are very limited, while investments in battery storage are much greater, under a wide range of assumptions.").

36. *See* 2035 REPORT, *supra* note 38, at 23–24; Jayadev et al., *supra* note 38, at 13–14.

37. Robert H. Schulte & Fredric C. Fletcher, *Why the Vision of Interregional Electric Transmission Development in FERC Order 1000 Is Not Happening*, 33 Electricity J. 106773, at 3–4 (July 2020) ("A 600-mile, 4000 MW Power from the Prairie HVDC line could cost about $3 Billion.").

38. Transcript of FERC Technical Conference on Barriers to Transmission Entry, at 35:19–35:22 (Oct. 14, 2008) [hereinafter FERC 2008 Transcript] (Statement of Marc Lipschultz, Kohlberg Kravis Roberts & Company) ("[I]nvestors may be reluctant to back transmission projects, because the benefits of that kind of investment, really may be quite uncertain, and very many years in the future.").

39. The evident need to overcome difficulties with coordinating stakeholders across a region led FERC to adopt Order 890 in 2007 and Order 1000 in 2011. *See* S.C. Pub. Serv. Auth. v. FERC, 762 F.3d 41, 52 (D.C. Cir. 2014) (describing adoption of Order 890, which required regional transmission planning, and Order 1000, which imposed further coordination and cost allocation requirements because "deficiencies in existing transmission planning and cost allocation processes [] would inhibit the construction of new transmission facilities and adversely affect rates if left unremedied." (citation omitted)). The consensus view is

that the orders ameliorated but by no means resolved these difficulties. *See, e.g.*, Herman K. Trabish, *Has FERC's Landmark Transmission Planning Effort Made Transmission Building Harder?*, Utility Dive (June 17, 2018) ("The order was intended to drive a transmission building renaissance. . . . Order 1000 has been 'a mixed success, with less change-making than we hoped for,' Commissioner LaFleur said.").

40. *See, e.g.*, Phil Taylor, *Conservation Concerns, Landowner Opposition Stifle Montana Project*, E&E NEWS (Aug. 15, 2011) (describing financial interdependency of wind farms and proposed transmission line); FERC 2008 Transcript, *supra* note 41, at 29:6–30:9 (Statement of Paul McCoy, President, Trans-Elect) (describing factors specific to development of merchant transmission lines).

41. See Joseph H. Eto, Lawrence Berkeley National Laboratory, *Building Electric Transmission Lines: A Review of Recent Transmission Projects* (2016), http://eta-publications.lbl.gov/sites/default/files/lbnl-1006330.pdf (noting multiple failed projects and the hurdles they failed to clear); *see also* Russell Gold, *Superpower: One Man's Quest to Transform American Energy* (2019) (describing multiple hurdles faced by the Clean Line's Grain Belt Express proposal and that project's ultimate failure); John Noor, *Recent Development: Herding Cats: What to Do When States Get in the Way of National Energy Policy*, 11 N.C. J.L. & TECH. 145, 158 (2009); FERC 2008 Transcript, *supra* note 41, at 53:13–53:25 (emphasizing that "siting regulations" present a high hurdle).

42. We acknowledge that "most states have *not* erected barriers to, for instance, the development of regional projects or the development of new transmission by transcos." James J. Hoecker & Douglas W. Smith, *Regulatory Federalism and Development of Electric Transmission*, 35 ENERGY L.J. 71, 85–86 (May 13, 2014). Even so, obstruction by even a very small number of states can prove highly effective at both directly impeding transmission facility development and indirectly chilling it by highlighting its risks to would-be developers and investors. For a usefully thorough description of hurdles made available in several western states, and the veto power (direct or indirect) made available by those hurdles, see Ashley C. Brown & Jim Rossi, *Siting Transmission Lines in A Changed Milieu: Evolving Notions of the "Public Interest" in Balancing State and Regional Considerations*, 81 University of Colorado Law Review 705, 719–27 (2010).

43. *See, e.g.*, Piedmont Environmental Council v. FERC, 558 F.3d 304, 310 (4th Cir. 2009) ("[S]tates have traditionally assumed all jurisdiction to approve or deny permits for the siting and construction of electric transmission facilities."); *PacifiCorp, the California Municipal Utilities Association, and the Independent Energy Producers (on Behalf of Western Regional Transmission Association)*, 69 FERC ¶ 61,099, at 61,382 (1994) ("Moreover, the siting of new transmission facilities is a state matter in which we are not involved, and [Intervenor] should direct its comments on siting matters to the relevant state authorities."), *order on reh'g*, 69 FERC ¶ 61,352 (1994); see also Alexandra B. Klass, *The Electric Grid at a Crossroads: A Regional Approach to Siting Transmission Lines*, 48 U.C. DAVIS L. REV. 1895, 1897 (2015) ("Despite the interstate nature of the electric grid and electricity markets, the states have virtually complete authority over the siting and permitting of interstate transmission lines.").

44. 16 U.S.C. § 824a; New York v. FERC, 535 U.S. 1, 18–20 (2002) (discussing FERC's authority over transmission); *see also* DOE QER, *supra* note 12, at A-15 fig.A-5 (depicting jurisdiction of federal, state, local, and tribal entities over different aspects of electric grid development and operation).

45. Alexandra B. Klass, *Future-Proofing Energy Transport Law*, 94 Washington University Law Review 827, 866–67, 872 (2017); Alexandra B. Klass & Jim Rossi, *Reconstituting the Federalism Battle in Energy Transportation*, 41 Harvard Environmental Law Review 423, 435 (2017).

46. *See* Edison Elec. Inst., *State Generation & Transmission Siting Directory: Agencies, Contacts and Regulations* (2013) (compiling legal requirements for siting in each state); *see also* Jim Lazar, Reg'y Assistance Project, *Electricity Regulation in the US: A Guide* 96 (2d ed. 2016) ("In some states, authority for approving new transmission lines has been vested in a single agency to expedite the evaluation process and reflect the general value to all of a network system. In other areas, separate approval must be obtained from each city and county through which a line passes, plus each governmental territory the lines pass through.").

47. *See* Alexandra Klass, *Takings and Transmission*, 91 N.C. L. REV. 1079, 1102 (2013).

48. ETO, *supra* note 45, at 3; *see also* Jim Rossi, *The Trojan Horse of Electric Power Transmission Line Siting Authority*, 39 Envtl. L. 1015, 1018–23 (2009) (describing differences across states).

49. *See* Hoecker & Smith, *supra* note 46, at 82; John Lucas, Joseph Hartsoe & Ann Vogel, Bipartisan Policy Center, Capitalizing on the Evolving Power Sector: Policies for a Modern and Reliable U.S. Electric Grid 28 (2013), https://bipartisanpolicy.org/wp-content/uploads/2019/03/Energy_Grid_Report1.pdf ("[I]ndividual state authorities may be bound by state statutes to accept or reject the project on the basis of their in-state transmission needs, or the in-state benefits that the project offers.").

50. ETO, *supra* note 45, at 5; Klass, *The Electric Grid at a Crossroads*, *supra* note 47, at 1916; *see also* Rossi, *The Trojan Horse*, supra note 52, at 1021–22 ("As with the determination of need, the assessment of environmental impacts has been primarily focused on the in state benefits of a project, rather than on a broader assessment of its benefits and costs.").

51. *See* Liza Reed et al., *Expanding Transmission Capacity: Examples of Regulatory Paths for Five Alternative Strategies*, 33 ELEC. J. 106770, at 8 (2020) (noting examples of interstate projects that were developed piecemeal due to different regulatory processes in different jurisdictions).

52. *See* Suedeen G. Kelly & J. Porter Wiseman, *No Easy Transmission Fixes*, N. AM. WINDPOWER (Dec. 2016), https://issues.nawindpower.com/article/169 (listing transmission project proposals and describing that "infrastructure projects needed to support renewable power development are increasingly met with a growing and general bipartisan distrust of both corporations and the government, paired with the power of social media in expanding opposition."); *see also*, e.g., Kevin Robinson-Avila, *Wind Energy*

Stranded Without Transmission, Albuquerque J. (Feb. 17, 2020) (noting that two county commissions voted unanimously to oppose transmission line development even though "only a minority of landowners and local officials oppose the line . . . developers have reached agreements with about 91% of affected landowners").

53. *See, e.g.*, Klass, *The Electric Grid at a Crossroads*, *supra* note 47, at 1928–29 ("Projects of this magnitude can take more than a decade to plan, propose, and obtain regulatory approval from multiple states prior to the actual construction process."); *see also* Brief for Kelliher, et al. at 14, *Edison Elec. Inst. v. Piedmont Envtl. Council*, 130 S.Ct. 1138 (2010) (No. 09-343), 2009 WL 3420493 (discussing Jackson Ferry transmission project); *Application for Presidential Permit; Champlain Hudson Power Express, Inc.,* 75 Fed. Reg. 10,229 (Mar. 5, 2010) (seeking permit from US Department of Energy for project that is still, 10 years later, planned but not yet under construction).

54. *See* Alexandra B. Klass & Jim Rossi, *Revitalizing Dormant Commerce Clause Review for Interstate Coordination*, 100 MINN. L. REV. 129, 190–94 (2015) (surveying states and highlighting illustrative examples of impediments made available to project opponents under state law); Hoecker & Smith, *supra* note 46, at 86–88 (describing examples of state law acting as a barrier to transmission facility development).

55. ETO, *supra* note 45, at 6; FERC 2008 Transcript, *supra* note 41, at 22:15–22:20 (Oct. 14, 2008) (Statement of Robert van Beers, CEO, Tonbridge Power) ("Development costs are particularly hard to meet, in the face of regulatory uncertainty. Equity investors demand high returns, and every regulatory regime punishes the investor for having taken a risk, and increases the systemic risk for transmission. This is particularly the case when the delays are unanticipated.").

56. *See* Klass, *The Electric Grid at a Crossroads*, *supra* note 47, at 1913–16 (summarizing phases of electric grid's physical development).

57. *See* Hoecker & Smith, *supra* note 46, at 81 (describing how bundled retail rates incorporate a transmission component that is regulated by states); *see also* Nat'l Ass'n Reg'y Util. Comm'rs, *Resolution Regarding Possible Federal Legislation Amending the Federal Power Act Addressing Expansion of Transmission Facilities* 1 (2009), https://perma.cc/BW42-WT4C ("Whereas it is in the States' interests to ensure that adequate electric transmission facilities are constructed to meet the needs for economic and reliable utility service . . . . retail ratemaking, the mitigation of local environmental impacts under State authority, the interconnection to distribution facilities, the siting of generation, or the participation by affected stakeholders in state and/or regional planning processes.").

58. Klass, *The Electric Grid at a Crossroads*, *supra* note 47, at 1915–16 ("Electricity began as a localized resource and, unlike natural gas, which has always required interstate pipelines to transport the energy resource to customers, traditional electricity resources such as coal, natural gas, and uranium did not need transmission lines for long-distance transportation. Instead, utilities could transport these energy resources by train, truck, or pipeline to local or regional power plants, which could then convert these energy resources into electricity, and deliver that electricity to customers on local transmission lines."); Hoecker & Smith,

supra note 46, at 80–81.

59. The four federal PMAs own and operate generation and/or transmission facilities but do not all distribute the power those facilities make available. The western and southwestern power administrations, WAPA and SWPA, are especially relevant here, and their potential role in developing new transmission capacity is discussed further in parts 3c and 4c.

60. *See* Jim Rossi, *Transmission Siting in Deregulated Wholesale Power Markets: Re-imagining the Role of Courts In Resolving Federal-State Siting Impasses*, 15 Duke Envtl. L. & Pol'y. F. 315, 315 (2005) ("During most of the twentieth century, state and local regulatory bodies coordinated the siting of power plants and transmission lines." (footnote omitted)).

61. *See*, e.g., Hoecker & Smith, *supra* note 46, at 80 ("The practice of transmission planning has historically occurred at the state level, often as a component of integrated resource planning.").

62. Public Utility Regulatory Policies Act, Pub. L. No. 95-617, 92 Stat. 3117 (1978), *codified as amended* at 16 U.S.C. §§ 2601–45.

63. Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776 (1992), *codified in relevant part at 15* U.S.C. §§ 2821–24, 15 U.S.C. § 3203; 16 U.S.C. § 2621; 42 U.S.C. §§ 6201–02; 42 U.S.C. § 6291 et seq.; 42 U.S.C. § 13232.

64. Energy Policy Act of 2005, Pub. L. No. 109-58-, 119 Stat. 594 (2005), *codified as amended at* 16 U.S.C. § 2601 et seq.; and 42 U.S.C. § 13201 et seq., § 15801 et seq.

65. *See* FERC v. EPSA, 136 S.Ct. 760 (2016) (describing interplay of changing technologies and jurisdictional boundaries and noting congressional encouragement to employ demand response resources in EPAct05); New York v. FERC, 535 U.S. 1, 8–14 (2002) (describing how new technologies and passage of PURPA and EPAct92 led up to FERC's mid-1990s wholesale market reforms); *see also* Klass & Wilson, *supra* note 15, at 1806–08 (summarizing partial transformation); Richard F. Hirsh, Power Loss chs. 4–6 (1999) (describing context of PURPA's formulation, implementation of its directives regarding generation resources not owned by utilities and interplay with subsequent technological changes).

66. *See, e.g.*, Robert Walton, *Senate Bill Would Allow FERC to Overrule State Siting Decisions on Power Lines*, UTILITY DIVE (Apr. 24, 2015), https://www.utilitydive.com/news/senate-bill-would-allow-ferc-to-overrule-state-siting-decisions-on-power-li/390253/ (reporting S. 1017, which was never voted out of the Senate's Energy & Natural Resources Committee); Rossi, *The Trojan Horse*, *supra* note 52, at 1037–39 (noting multiple legislative proposals to grant FERC greater authority over siting that failed to pass the 111th Congress); Debbie Swanstrom & Meredith M. Jolivert, *DOE Transmission Corridor Designations & FERC Backstop Siting Authority: Has the Energy Policy Act of 2005 Succeeded in Stimulating the Development of New Transmission Facilities*, 30 Energy L.J. 415, 454–55 (2009) (listing legislative proposals—all of which failed—that would confine or expand FERC's siting authority).

67. *See, e.g.*, Klass & Rossi, Reconstituting, *supra* note 49, at 430–43; Hoecker & Smith, *supra* note 46, at 82; Swanstrom & Jolivert, *supra* note 70, at 418, 452 ; *see also* Minisink

Residents for Envtl. Pres. Safety v. FERC, 762 F.3d 97 (D.C. Cir. 2014) (describing FERC's siting and eminent domain authority in relation to interstate natural gas pipelines); Schneidewind v. ANR Pipeline Co., 485 U.S. 293, 306–08 (1988) (holding that Natural Gas Act preempts law requiring natural gas utilities in Michigan to seek authorization from the Michigan Public Service Commission to issue securities).

68. Pub. L. No. 80-245, 61 Stat. 459 (1947), *codified at* 15 U.S.C. 5 §§ 717–717w; *see also* Alexandra B. Klass & Danielle Meinhardt, *Transporting Oil and Gas: U.S. Infrastructure Challenges*, 100 IOWA L. REV. 947, 994–99 (2015) (describing reasons for legislative amendment).

69. A Government Accountability Office report documented the efficiency of the approval process for interstate natural gas pipelines, noting that the average time from application to project certification was 225 days; for projects whose sponsor used FERC's prefiling process step, the duration was 558 days. U.S. Gov't Accountability Office, GAO-13-221, Interstate and *Intrastate Natural Gas Permitting Processes Include Multiple Steps, and Time Frames Vary* 26 (2013).

70. *See id.* at 17–22 (discussing types of permits required for pipeline development and FERC's coordinating role among the federal and state agencies that issue them). The full list of federal statutes includes the following: Federal Land Policy and Management Act, Pub. L. No. 94-579, §§ 501–511, 90 Stat. 2743, 2776–2782 (1976) (codified as amended at 43 U.S.C. §§ 1761–1771); Endangered Species Act, Pub. L. No. 93-205, §§ 2–17, 87 Stat. 884, 884–903 (1973) (codified as amended at 16 U.S.C. §§ 1531–1543); Clean Water Act of 1972 §§ 401–402, 404, 33 U.S.C. §§ 1341–1342, 1344 (2012); Federal Aviation Administration Act, Pub. L. No. 97-449, § l(b), 96 Stat. 2413 (1983) (codified as amended at 49 U.S.C. § 106); National Historic Preservation Act of 1966, Pub. L. No. 89-665, 80 Stat. 915 (1966) (codified as amended at 16 U.S.C. § 470); Archaeological Resources Protection Act of 1979, Pub. L. No. 96-95, 93 Stat. 721 (1979) (codified as amended at 16 U.S.C. §§ 470aa–mm); National Environmental Policy Act, Pub. L. No. 91-190, § 2, 83 Stat. 852, 852 (1970) (codified as amended at 42 U.S.C. §§ 4321–4347).

71. This was true informally even before the Energy Policy Act of 2005 formally designated FERC as the coordinating agency for this purpose and empowered it to specify the schedule for other agencies involved. See Regulations Implementing the Energy Policy Act of 2005; Coordinating the Processing of Federal Authorizations for Applications Under Sections 3 and 7 of the Natural Gas Act and Maintaining a Complete Consolidated Record, Order No. 687, FERC Stats & Regs. 31,232, 71 Fed. Reg. 62,912 at P 1 (2006).

72. Susan Tierney, Analysis Grp., *Natural Gas Pipeline Certification: Policy Considerations for a Changing Industry* 2, 12 (2017), https://www.analysisgroup.com/uploadedfiles/content/insights/publishing/ag_ferc_natural_gas_pipeline_certification.pdf (reporting that from 1999 to 2017, FERC approved more than 400 pipeline proposals and rejected two).

73. *See* Christine Tezak, *A Policy Analyst's View on Litigation Risk Facing Natural Gas Pipelines*, 40 ENERGY L.J. 209 (2019) (concluding that hasty and incomplete environmental review by FERC's sister agencies during the Trump administration—and not failures by FERC itself—account for the uptick in effective legal challenges to pipeline approvals); Sierra

Club v. FERC (*Sabal Trail*), 867 F.3d 1357, 1379 (D.C. Cir. 2017) (holding that environmental impact analysis undergirding approval of three pipelines was deficient).

74. *See* Klass & Meinhardt, *supra* note 72, at 994–98 (describing circumstances and arguments that informed adoption of 1938 and 1947 laws).

75. *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, Order No. 1000, 136 FERC ¶ 61,051, at PP 1–2 (2011) [hereinafter Order No. 1000].

76. *Id.* at P 42.

77. *Id.* at P 81; Klass, *The Electric Grid at a Crossroads*, *supra* note 47, at 1939.

78. *See* Steve Isser, *Electricity Restructuring in the United States: Markets and Policy from the 1978 Energy Act to the Present* 365 (2015) (explaining that cost allocation rules that allocate costs to local utilities while benefits are extrajurisdictional are an impediment to state siting).

79. Pfeifenberger et al., *supra* note 26, at 2–3.

80. *Id.* Rather, because Order 1000 requires competitive solicitation for projects selected through regional transmission plans, utilities have had a "perverse incentive" to channel transmission investment into local reliability projects exempt from competition. See Kelly Andrejasich, *Pointing to 'Perverse Incentive' Under Order 1000, FERC's Glick Calls for Changes*, S&P Global Platts (Oct. 11, 2019), https://www.spglobal.com/platts/en/market-insights/latest-news/electric-power/101119-pointing-to-perverse-incentive-under-order-1000-fercs-glick-calls-for-changes.

81. Pfeifenberger et al., *supra* note 26, at 2–3.

82. Select Committee Report, *supra* note 4, at 55.

83. Kelly Andrejasich, *Pointing to "Perverse Incentive" Under Order 1000, FERC's Glick Calls for Changes*, S&P Global Platts (Oct. 11, 2019), https://www.spglobal.com/platts/en/market-insights/latest-news/electric-power/101119-pointing-to-perverse-incentive-under-order-1000-fercs-glick-calls-for-changes; Herman K. Trabish, *With New Transmission Urgently Needed, FERC Chair Hints at a New Order 1000 Proceeding*, Utility Dive (May 31, 2019), https://www.utilitydive.com/news/with-new-transmission-urgently-needed-ferc-chair-hints-at-a-new-order-1000/555586/.

84. *See* American Council on Renewable Energy & Americans for a Clean Energy Grid, *Macro Grid Initiative Launches to Expand and Upgrade America's Transmission Network* (June 17, 2020), https://acore.org/macro-grid-initiative-launches-to-expand-and-upgrade-americas-transmission-network/.

85. U.S. Department of Energy, Report to Congress: Dynamic Line Rating 11–12 (2019) [hereinafter DLR REPORT].

86. T. Bruce Tsuchida & Rob Gramlich, The Brattle Group, *Improving Transmission Operation*

with Advanced Technologies: A Review of Deployment Experience and Analysis of Incentives 15–16 (2019) (describing siting studies).

87. EPRI, *Benefits and Value of New Power Flow Controllers* (May 29, 2018).

88. Pablo A. Ruiz & Jay Caspary, *SPP Transmission Topology Optimization Pilot: Efficient Congestion Management and Overload Mitigation Through System Reconfigurations*, ESIG Spring Tech. Workshop (Mar. 20, 2019); *see also* Tsuchida & Gramlich, *supra* note 90, at 12–13.

89. *See* DLR Report, *supra* note 89, at 28 ("In general, advanced technologies that reduce transmission constraints will produce a freer and more open market. Generators with a lower marginal cost of producing electricity, such as variable renewable resources and natural gas turbines, will tend to benefit more from increases in transmission capacity.").

90. FERC, Notice of Proposed Rulemaking, Managing Transmission Line Ratings, 173 FERC ¶ 61,165.

91. *See* 16 U.S.C. § 824s(b)(3) (requiring FERC to provide incentive-based rate treatment of "transmission technologies and other measures to increase the capacity and efficiency of existing transmission facilities"); *see* Comments of WATT Coalition and AEE, *Electric Transmission Incentives Policy Under Section 219 of the Federal Power Act*, Docket No. RM20-10-000 (July 1, 2020), https://watttransmission.files.wordpress.com/2020/08/watt-coalition-aee-filing-to-ferc-in-incentives-nopr.pdf (explaining and advocating for use of "shared savings" approach to incentives for efficiency-enhancing technologies).

92. Justin Gerdes, *Political Breakthroughs Brighten Outlook for Germany's Grid Expansion*, GREENTECH MEDIA (June 13, 2019), https://www.greentechmedia.com/articles/read/political-breakthroughs-brighten-outlook-for-germanys-grid-expansion (explaining that expanded use of underground lines led to a "decisive breakthrough" in transmission development in southern Germany); Kenneth L. Hall, Edison Electric Institute, Out of Sight, Out of Mind 2012: An Updated Study on the Undergrounding of Overhead Power Lines 25–26 (2013), https://www.eei.org/issuesandpolicy/electricreliability/undergrounding/Documents/UndergroundReport.pdf (identifying customer benefits to undergrounding transmission).

93. *See* Peter H. Larsen, *A Method to Estimate the Costs and Benefits of Undergrounding Electricity Transmission and Distribution Lines*, 60 Energy Econ. 47, 55–56 (2016) (incorporating 5%–20% reduction to property value into analysis of aesthetic impacts of new overhead transmission lines).

94. Hall, *supra* note 98, at 30 (surveying additional cost for undergrounding transmission); Janet Wilson, *Why Not Bury California's Fire-Prone Power Lines Underground? The Reason Is Sky High*, DESERT SUN (Oct. 11, 2019), https://www.desertsun.com/story/news/environment/2019/10/11/cost-to-bury-california-fire-prone-power-lines-why-not/3937653002/.

95. Hall, *supra* note 98, at 26–27.

96. Alexander MacDonald, *Save the Climate and Protect America: Build An "Underground Energy Interstate" Now, The Washington Post* (June 2, 2016), https://www.washingtonpost.com/news/capital-weather-gang/wp/2016/06/02/save-the-climate-and-protect-america-build-an-underground-energy-interstate-now/.

97. NEMA, *NEMA Launches Railroad Electrification Council* (Feb. 11, 2020), https://www.nema.org/news-trends/view/NEMA-Launches-Railroad-Electrification-Council#:~:text=The%20National%20Electrical%20Manufacturers%20Association,relies%20heavily%20on%20fossil%20fuels.

98. *The Biden Plan to Build a Modern, Sustainable Infrastructure and an Equitable Clean Energy Future*, https://joebiden.com/clean-energy/ [hereinafter Biden Energy Plan] ("To build the next generation of electric grid transmission and distribution, Biden will . . . take advantage of existing rights-of-way—along roads and railways—and cut red-tape to promote faster and easier permitting").

99. ERC HV Transmission Report, *supra* note 2, at 17 ("the co-location of transmission in transportation corridors could reduce both the negative effects caused by a project and the cost of project development").

100. *See* Jeffery M. Heftman, *Railroad Right-of-Way Easements, Utility Apportionments, and Shifting Technological Realities*, 2002 ILL. L. REV. 1401, 1410–11 (2002).

101. U.S. Gov't Accountability Office, GAO-08-374R, *Transmission Lines: Issues Associated with High-Voltage Direct-Current Transmission Lines Along Transportation Rights of Way* 27 (2008), https://www.gao.gov/assets/100/95342.pdf.

102. Iulia Gheorghiu, *Independent Developer Proposes $2.5B Underground Transmission Line, to Bring Iowa Wind to PJM, MISO*, Utility Dive (Mar. 13, 2019), https://www.utilitydive.com/news/independent-developer-proposes-25b-underground-transmission-line-adding/550399/.

103. GAO-08-374R, *supra* note 108, at 27 (identifying cost and safety implications of colocation); FERC HV Transmission Report, *supra* note 2, at 31–33 (discussing operational and safety risk related to electrical interference, accident or failure, and constructing or maintenance activities of colocated use).

104. *Id.* at 30–31 (discussing state and federal prohibitions on colocating transmission with highway use). Note that the Department of Transportation may be able to use its existing but underutilized regulatory authority regarding colocation of utility facilities with highway projects that receive federal funding. *See* 23 C.F.R. § 625.215(e) (requiring the Federal Highway Administration to periodically review state policies on colocation).

105. Justin G. Cook, *How the Supreme Court Jeopardized Thousands of Miles of Abandoned Railroad Tracks with a Single Opinion (Brandt Revocable Trust v. United States*, 134 S. Ct. 1257 (2014)), 54 Washburn L.J. 227, 250–51 (2014) (describing Supreme Court decision that creates uncertainty and increases costs for utility easements along rail rights-of-way).

106. FERC HV Transmission Report, *supra* note 2, at 31 ("transportation corridors may not run in directions that are compatible with the purpose of proposed transmission. Co-locating transmission in such transportation corridors would likely be inefficient, resulting in longer, more costly infrastructure").

107. 43 U.S.C. §§ 1701 et seq.

108. *See generally* J. Krummel et al., Argonne National Laboratory, *Energy Transport Corridors: The Potential Role of Federal Lands in States Identified by the Energy Policy Act of 2005*, Section 368(b) (2011).

109. 43 U.S.C. § 1761.

110. § 1763.

111. *Codified at* 42 U.S.C. § 15926.

112. Notice of Availability, 73 Fed. Reg. 72,521 (Nov. 28, 2008).

113. U.S. Forest Service Record of Decision, 74 Fed. Reg. 12306 (March 24, 2009).

114. Swanstrom & Jolivert, *supra* note 70, at 421.

115. *Id.* at 423 (citing representatives who called for legislation that could help prevent future blackouts and create a more reliable electricity grid).

116. H.R. Rep. No. 109-215 at 171 (2005).

117. S. Rep. No. 109-78, at 8 (2005) (statement of Sen. Pete Domenici, Chairman of the Senate Committee on Energy and Natural Resources). In another statement, Domenici said that the act would "streamline the permitting of siting for transmission lines to assure [sic] adequate transmission." 150 CONG. REC. S3732 (daily ed. Apr. 5, 2004) (statement of Sen. Domenici).

118. 16 U.S.C. § 824p. Section 216(i) also gives states authority to create interstate compacts to create regional agencies to site transmission lines. § 824p(i). Doing so will short-circuit FERC's backstop authority "unless the members of the compact are in disagreement" and DOE finds, after notice and an opportunity for a hearing, that the compact has withheld approval for more than one year or imposed unreasonable conditions. § 824p(i)(4). However, this provision has never been used and is unlikely to solve problems related to state vetoes of needed interstate transmission infrastructure.

119. Swanstrom & Jolivert, *supra* note 70, at 422.

120. 16 U.S.C. § 824p(b).

121. § 824p(e). Permit holders must first attempt to acquire rights-of-way through private negotiations. Id. Permit holders can exercise the right of eminent domain in either state or federal court. *Id.*

122. § 824p(a).

123. § 824p(b)(1)–(6).

124. § 824p(d).

125. Klass & Rossi, *Reconstituting*, *supra* note 49, at 466.

126. 16 U.S.C. § 824p(a)(2).

127. § 824p(a)(4)(A).

128. § 824p(a)(4)(B)(i).

129. § 824p(a)(4)(B)(ii).

130. § 824p(a)(4)(C).

131. § 824p(a)(4)(D).

132. § 824p(a)(4)(E).

133. § 824p(a)(1) (directing DOE to conduct a transmission congestion study every three years); § 824p(a)(2) (stating that DOE "shall issue a report[] *based on the study*" (emphasis added)).

134. § 824p(a)(1).

135. § 824p(a)(3). Regional reliability organizations are entities that have been delegated reliability responsibilities by the North American Electric Reliability Corporation. See NERC, Key Players, https://www.nerc.com/AboutNERC/keyplayers/Pages/default.aspx.

136. 16 U.S.C. § 824p (a)(2) & (3).

137. U.S. Dep't of Energy, National Electric Transmission Congestion Study (2006), https://www.energy.gov/oe/downloads/2006-national-electric-transmission-congestion-study-and-related-materials.

138. *Id.*; National Electric Transmission Congestion Report, 72 Fed. Reg. 56,992 (Oct. 5, 2007). *See also* Draft National Interest Electric Transmission Corridor Designations, 72 Fed. Reg. 25,838, 25,840 (May 7, 2007) (proposing corridor designations).

139. 16 U.S.C. §§ 824p(b)(2)–(6).

140. § 824p(b)(1)(A)(i).

141. § 824p(b)(1)(A)(ii).

142. § 824p(b)(1)(B).

143. § 824p(b)(1)(C)(i).

144. § 824p(b)(1)(C)(ii). There is no case law that discusses when FERC can consider a state's conditional requirements unreasonable. Moreover, there are no factors provided in the plain text of the statute or in the legislative history. Similarly, what benefits interstate commerce is not explicitly defined. Rather, FERC appears to have discretion to define either determination when reviewing a permit.

145. § 824p(c)(2).

146. Regulations for Filing Applications for Permits to Site Interstate Electric Transmission Facilities, Order No. 689, 71 Fed. Reg. 69,440 (Dec. 1, 2006) [hereinafter Order No. 689].

147. *See id.* at PP 37–44 (discussing some interpretations of general criteria and leaving others for case-specific consideration)

148. *Id.* at PP 26–31.

149. *See* United States v. 14.02 Acres of Land More or Less in Fresno County, 547 F.3d 943, 948 (9th Cir. 2008); see also Department of Energy, Los Banos–Gates Transmission Project: Record of Decision, 66 Fed. Reg. 65,699, 65,699 (Dec. 20, 2001).

150. *Id.* at 953.

151. *See*, e.g., Flood Control Act of 1944 § 5, 16 U.S.C. § 825s; Reclamation Project Act of 1939 § 15, 43 U.S.C. § 485i.

152. 42 U.S.C. § 16421(b).

153. WAPA operates in California, Nevada, Arizona, Utah, Colorado, Wyoming, Iowa, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Kansas, New Mexico, and Texas. SWPA operates in Arkansas, Kansas, Louisiana, Missouri, Oklahoma, and Texas.

154. 42 U.S.C. § 16421(f).

155. § 16421(a) & (b).

156. *Id.*

157. *See* U.S. Dep't of Energy, *Summary of Findings In re Application of Clean Line Energy Partners LLC Pursuant to Section 1222 of the Energy Policy Act of 2005* at 21 & n.111 (2016) [hereinafter Summary of Findings] (citing Citizens & Landowners Against the Miles City/ Underwood Powerline v. Dep't of Energy, 683 F.2d 1171, 1178–82 (8th Cir. 1982)); Montana v. Johnson, 738 F.2d 1074 (9th Cir. 1984); Columbia Basin Land Prot. Ass'n v. Schlesinger, 643 F.2d 585, 605 (9th Cir. 1981).

158. 42 U.S.C. § 16421(d).

159. Summary of Findings, *supra* note 166, at 20–21.

160. 40 U.S.C. § 3113 ("An officer of the Federal Government authorized to acquire real estate for the erection of a public building or for other public uses may acquire the real

estate for the Government by condemnation, under judicial process, when the officer believes that it is necessary or advantageous to the Government to do so."); Albert Hanson Lumber Co. v. United States, 261 U.S. 581, 587 (1923) ("The authority to condemn conferred by the [Condemnation Act] extends to every case in which an officer of the government is authorized to procure real estate for public uses." (citation omitted)).

161. Summary of Findings, *supra* note 166, at 15–17.

162. 547 F.3d 943 (9th Cir. 2008).

163. *Id.* at 951.

164. Richard J. Campbell, Cong. Res. Serv., The Power Marketing Administrations: Background and Current Issues (2019), https://fas.org/sgp/crs/misc/R45548.pdf.

165. *Id.* at 2.

166. *Id.* at 6.

167. *See, e.g.*, 16 U.S.C. § 838b (authorizing Bonneville, *inter alia*, to construct facilities for transmission both from federal and nonfederal generation facilities and to construct "interregional transmission facilities."); § 838e (authorizing land acquisition).

168. *See, e.g.*, 16 U.S.C. § 825s; 43 U.S.C. § 617.

169. Pub. L. No. 111-5, 123 Stat. 115 (2009).

170. 42 U.S.C. § 16421a.

171. *See generally* Transmission Infrastructure Program, 79 Fed. Reg. 19,065 (Apr. 7, 2014).

172. *See* WAPA, *Projects and Impacts*, https://www.wapa.gov/transmission/TIP/Pages/projects.aspx.

173. *See* 42 U.S.C. § 16421a(b)(4) (establishing ownership by WAPA as the default by authorizing the administrator to "permit other entities to participate in the financing, construction and *ownership* [sic] projects financed under this section." (emphasis added)).

174. § 16421(b)(1)(B)(ii).

175. Brian Gish, *Is Federal Backstop Authority Still Alive?*, POWER Magazine (Apr. 30, 2011), https://www.powermag.com/is-ferc-backstop-siting-authority-still-alive/ (questioning "whether [FPA section 216] ever will be used"); see also Jason Johns & Sarah Johnson Phillips, *Energy Law Alert: Ninth Circuit Decision Further Dismantles an Already Weakened Federal Transmission Siting Authority*, Stoel Rives LLP (Feb. 2, 2011), https://www.stoel.com/energy-law-alert-ninth-circuit-decision-further-dismantles.

176. *Id.*; National Electric Transmission Congestion Report, 72 Fed. Reg. 56,992 (Oct. 5, 2007). *See also* Draft National Interest Electric Transmission Corridor Designations, 72 Fed. Reg.

25,838, 25,840 (May 7, 2007) (proposing corridor designations).

177. 631 F.3d 1072 (9th Cir. 2011).

178. The court left open two additional legal questions that remain unresolved: Must DOE's corridor designation comply with the requirements of the Endangered Species Act (ESA) or the National Historic Preservation Act (NHPA)? *Id.* at 1106.

179. *See id.* at 1085 (discussing § 824p (a)(1)–(2)).

180. *Id.* (internal citation omitted).

181. *Id.* at 1087.

182. *Id.* at 1089–90.

183. *Id.* at 1086 & n.9.

184. *Id.* at 1085.

185. *Id.* at 1096.

186. NSA Monterey, NEPA Primer (2013), https://nps.edu/documents/111291366/111353788/NEPA_411_trifold_jan13.pdf/67d56d8a-c949-4a10-8d48-e69a0be657c6?t=1450201989000.

187. An environmental assessment is conducted "to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact." 40 C.F.R. § 1508.9(a)(1). A finding of no significant impact is "a document by a Federal agency briefly presenting the reasons why an action . . . will not have a significant effect on the human environment and for which an environmental impact statement therefore will not be prepared." 40 CFR § 1508.13.

188. 40 CFR § 1501.4.

189. *Cal. Wilderness Coal.*, 631 F. 3d. at 1097.

190. *Id.* at 1098.

191. *Id.*

192. *Id.* at 1106. An agency must prepare an environmental assessment for major federal actions without significant environmental impacts or a more detailed environmental impact statement for those with significant environmental impacts. *See* National Environmental Policy Act of 1969, § 102(C), 42 U.S.C. § 4332(C); *see also* EPA, *National Environmental Policy Act Review* (Jan. 24, 2017), https://www.epa.gov/nepa/national-environmental-policy-act-review-process.

193. Order No. 689, *supra* note 154, at n.145.

194. 16 U.S.C. § 824p(a)(2).

195. National Electric Transmission Congestion Report, 72 Fed. Reg. 56,992, 57,000 (Oct. 5, 2007).

196. 72 Fed. Reg. 56,992 at 57,000. Notably, however, DOE did not rely on these aspects of its authority when designating the Mid-Atlantic Area National Corridor or the Southwest Area National Corridor. *Id.*

197. David Gardiner and Associates, *Transmission Upgrades & Expansion: Keys to Meeting Large Customer Demand for Renewable Energy* (2018), https://windsolaralliance.org/wp-content/uploads/2018/01/WEF-Corporate-Demand-and-Transmission-January-2018.pdf.

198. *See* American Wind Energy Association, Comments on Procedures for Conducting Electric Transmission Congestion Studies, App. A (2018), https://www.energy.gov/sites/prod/files/2018/11/f57/AWEA%20Comments%20on%20DOE%20Congestion%20Study.pdf; Americans for a Clean Energy Grid, Comments on Procedures for Conducting Electric Transmission Congestion Studies 5–6 (2018), https://www.energy.gov/sites/prod/files/2018/10/f57/ACEG%20Comments%20on%20DOE%20Notice%20of%20Triennial%20Congestion%20Study.pdf.

199. 16 U.S.C. § 824p(a)(4)(B)(ii).

200. § 824p(a)(4)(D). See Biden Energy Plan, *supra* note 105 (establishing a plan to achieve a 100% clean energy economy and reach net-zero emissions by 2050).

201. 16 U.S.C. § 824p(a)(2).

202. *See* U.S. Dep't of Energy, *National Electric Transmission Congestion Study* (2006), https://www.energy.gov/oe/downloads/2006-national-electric-transmission-congestion-study-and-related-materials.

203. U.S. Dep't of Energy, Report Concerning Designation of National Electric Transmission Corridors at 4 (2015); U.S. Dep't of Energy, National Electric Transmission Congestion Study (2015), https://www.energy.gov/sites/prod/files/2015/09/f26/2015%20National%20Electric%20Transmission%20Congestion%20Study_0.pdf [hereafter 2015 Congestion Study]. DOE did not release a report after its 2009 study. U.S. Dep't of Energy, National Electric Transmission Congestion Study (2009), https://www.energy.gov/oe/downloads/2009-electric-transmission-congestion-study.

204. U.S. Dep't of Energy, *National Electric Transmission Congestion Study* 2 (2020), https://www.energy.gov/sites/prod/files/2020/09/f79/2020%20Congestion%20Study%20FINAL%2022Sept2020.pdf [hereafter 2020 Congestion Study].

205. Request for Public Comment on the 2020 National Electric Transmission Congestion Study, 85 Fed. Reg. 60,151 (Sept. 24, 2020).

206. 2015 Congestion Study, *supra* note 205, at 7.

207. 2020 Congestion Study, *supra* note 206, at 28.

208. *Cal. Wilderness Coal.*, 631 F.3d at 1087.

209. *Id.* at 1088–89.

210. 2020 CONGESTION STUDY, *supra* note 206, at 11 ("Transmission constraints arise when the use of a group of transmission facilities or pathway cannot be increased without violating a limit that has been set to ensure that the facilities or pathway are operated in compliance with mandatory reliability rules").

211. *Id.* at 11–13, 21.

212. *Id.* at 15–18, figs.4-6 to 4-8.

213. *Id.* at 9–14 (finding that transmission investment has reduced the number of transmission loading relief actions) between 2005 and 2018).

214. *See supra* p. 19.

215. 2020 Congestion Study, *supra note* 206, at 24–26.

216. *Id.* at 26.

217. 16 U.S.C. § 824p(a)(4). See Promoting Energy Independence and Economic Growth § 1(a), Executive Order No. 13,783, 82 Fed Reg. 31,396 (July 6, 2017) ("It is in the national interest to promote clean and safe development of our Nation's vast energy resources, while at the same time avoiding regulatory burdens that unnecessarily encumber energy production, constrain economic growth, and prevent job creation. Moreover, the prudent development of these natural resources is essential to ensuring the Nation's geopolitical security.").

218. 2020 Congestion Study, *supra* note 206, at 2.

219. *Cal. Wilderness Coal.*, 631 F.3d at 1102–03 ("There may be merit to some of DOE's arguments in terms of limiting the scope of an EIS or in explaining why an EA and not an EIS should be prepared, but they fail both as a matter of law and fact to justify DOE's failure to undertake any study of the potential environmental impacts").

220. *See* Final Guidance for Effective Use of Programmatic NEPA Reviews, 79 Fed. Reg. 76,986, 7,687 (Dec. 23, 2014) ("[A]gencies are given the discretion to determine whether programmatic NEPA review will be an effective and efficient way to address environmental impacts").

221. *See e.g.*, U.S. Department of Energy et al., *Programmatic Environmental Impact Statement, Designation of Energy Corridors on Federal Land in the 11 Western States* (DOE/EIS–0386) (2007).

222. See 40 C.F.R. § 1502.20 (providing that, after a programmatic EIS has been prepared, "the subsequent statement or environmental assessment need only summarize the issues discussed in the broader statement and incorporate discussions from the

broader statement by reference and shall concentrate on the issues specific to the subsequent action").

223. *Cal. Wilderness Coal.*, 631 F.3d at 1085 ("DOE should have greater interaction with the States in preparing the Congestion Study than it need have when preparing a [Transmission Corridor] report").

224. National Electric Transmission Congestion Report, 72 Fed. Reg. at 57,005, 57,016 (identifying state objections to breadth of corridor designation).

225. *See* Klass & Rossi, *Reconstituting*, *supra* note 49, at 474 ("By recognizing the significance of state interests in approving new interstate energy transportation processes, such as economic growth and new jobs, DOE has taken an approach that no longer risks leaving state and local governments sitting on the sideline in federal siting processes. Such an approach by federal regulators has significant promise in overcoming jurisdictional impasses over the siting for new electric transmission infrastructure").

226. *Id.* at 474–75.

227. Council on Environmental Quality, *Environmental Impact Statement Timelines* (2010–2017) at 8, 10 (2018), https://www.whitehouse.gov/wp-content/uploads/2017/11/CEQ-EIS-Timelines-Report.pdf.

228. The additional DOE analysis may be significantly shorter if DOE concludes it can issue a finding of no significant impact after issuing an EA.

229. *But see* John Ruple & Kayla Race, *Measuring the NEPA Litigation Burden: A Review of 1,499 Federal Court Cases*, 50 ENVTL. L. __ (forthcoming 2020) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3433437. (finding that, on average, only one in 450 NEPA decisions are litigated).

230. *See* NextEra, Comment on Procedures for Conducting Electric Transmission Congestion Studies at 2–3 (2018), https://www.energy.gov/sites/prod/files/2018/10/f57/DOE%20Trans%20Siting%20NEE%20Comments%20on%20FR%20Notice%20JTK2.pdf. This is not to say that transmission corridors should be merely coextensive with the land needed to permit a line. The corridor should be wide enough to support analysis of alternative specific transmission routes. This will provide states with an opportunity to provide input into the specific location of permitted projects. The width of the corridor may vary along the route depending on the geography and the need to provide alternatives across various choke points.

231. 16 U.S.C. § 824p(a)(2).

232. U.S. Dep't of Energy, Report Concerning Designation of National Electric Transmission Corridors at 4 (2015).

233. 16 U.S.C. § 824p(a)(2) (emphasis added).

234. § 824p(a)(4)(A)–(B)(i).

235. This dichotomy is consistent with the fact that national corridors are intended to support *linear* projects, which produce a narrow range of harms but broad social benefits that accrue outside the corridor itself. *See* Americans for a Clean Energy Grid, Comments on Procedures for Conducting Electric Transmission Congestion Studies 2–3 (2018), https://www.energy.gov/sites/prod/files/2018/10/f57/ACEG%20Comments%20on%20DOE%20Notice%20of%20Triennial%20Congestion%20Study.pdf.

236. Procedures for Conducting Electric Transmission Congestion Studies, 83 Fed. Reg. 42,647, 42,648 (Aug. 23, 2018) (finding that the process for designating project-specific corridors "might not mesh well (in terms of both timing and appropriate granularity) with the triennial large-geographic-scale congestion studies envisioned in FPA section 216(a)(1)").

237. *Id.* at 42,648.

238. 16 U.S.C. § 824p(a)(2).

239. Merriam-Webster Dictionary, CORRIDOR, https://www.merriam-webster.com/dictionary/corridor.

240. 16 U.S.C. § 824p(h). DOE is designated as the lead agency to coordinate these federal actions and prepare a single environmental impact statement that encompasses all federal actions regarding a transmission project. § 824p(h)(2), (h)(5)(A). DOE has delegated its coordinating responsibility to FERC pursuant to Sections 542 and 402(e) of the Department of Energy Organization Act. *See* Department of Energy Delegation Order No. 00-004.00A, Paragraph 1.22, available at https://www.directives.doe.gov/delegations-documents/004.000A/@@images/file.

241. DOE Coordination of Federal Authorizations for Electric Transmission Facilities, 81 Fed. Reg. 66,500 (Sept. 28, 2016); Klass & Rossi, *Reconstituting*, *supra* note 49, at 475–76 (describing DOE's rulemaking).

242. *Compare* 16 U.S.C. § 824p(a)(2) with § 824p(b)(4).

243. *Compare* 16 U.S.C. § 824p(a)(4)(C) with § 824p(b)(5).

244. Compare 16 U.S.C. § 824p(a)(4)(D) with § 824p(b)(5).

245. 16 U.S.C. § 824p(b)(3).

246. § 824p(a)(4)(A).

247. § 824p(a)(4)(B)(i).

248. § 824p(a)(4)(B)(ii).

249. § 824p(a)(4)(E).

250. 18 C.F.R. § 50.6(d) (requiring applicants verify that the proposed route lies within a national interest electric transmission corridor).

251. *See* Order No. 689, *supra* note 154, at PP 90–117 (describing the prefiling process).

252. DOE Coordination of Federal Authorizations for Electric Transmission Facilities, 81 Fed. Reg. 66,500, 66,507 (Sept. 28, 2016).

253. 16 U.S.C. § 824p(a)(3)(requiring DOE to solicit alternative locations and input from stakeholders "including an opportunity for comment from affected States"); § 824p(d) (requiring FERC to "afford each state in which a [transmission] facility covered by [a] permit . . . will be located . . . a reasonable opportunity to resent their views and recommendations").

254. Klass & Rossi, *Reconstituting*, *supra* note 49, at 476.

255. Pub. L. 95–91 title VI, § 642, Aug. 4, 1977, 91 Stat. 599, codified at 42 U.S.C. § 7252.

256. 42 U.S.C. § 7252.

257. 16 U.S.C. §§ 824p(a)(1)–(2).

258. *See* Planning Research Corp. v. United States, 4 Cl. Ct. 283, 292 (1983).

259. *Id.* at 293–94. ("No abstract web of logic nor repeated reference to how courts have construed other statutes will create an *express* prohibition when the words themselves are missing.").

260. The Federal Court of Claims also upheld a DOE delegation in *Yankee Atomic Electric Company v. United States*, 54 Fed. Cl. 306, 312 (2002). There, the court rejected a challenge to DOE's delegation of the power to invoke the deliberative process privilege to shield review of agency documents. The court relied on the fact that under circuit precedent, there was no blanket legal requirement that deliberative process be invoked by the head of the agency in question and that no other DOE-specific statutory provision imposes such legal obligation. No court precedent has established any legal obligation for DOE to conduct the corridor designation.

261. *See* 18 C.F.R. pt. 385 (establishing rules of practice and procedure for FERC actions).

262. FERC, Office of Energy Projects, https://www.ferc.gov/about/offices/office-energy-projects-oep; FERC, *FY 2021 Congressional Justification* 41 (2020), https://www.ferc.gov/sites/default/files/2020-06/FY21-Budget-Request.pdf.

263. FERC, *Approved Major Pipeline Projects (2015–Present)*, https://www.ferc.gov/industries-data/natural-gas/approved-major-pipeline-projects-2015-present.

264. City of Oberlin v. FERC, 937 F.3d 599 (2019); *Sabal Trail*, 867 F.3d 1357 (2017).

265. *See, e.g., Policy Statement on Consultation with Indian Tribes in Commission Proceedings*, Order No. 635, 104 FERC ¶ 61,108 (2003); 18 C.F.R. § 4.41 (1976).

266. FERC provides applicants prefiling assistance in order to comply with the Endangered Species Act. FERC, *Hydro powering Licensing And Endangered Species: A Guide*

For Applicants, Contractors, And Staff 14 (2001), https://www.ferc.gov/industries/hydropower/gen-info/guidelines/esa_guide.pdf.

267. *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999), *clarified*, 90 FERC ¶ 61,128 (1999), *further clarified*, 92 FERC ¶ 61,094 (2000). FERC's NEPA reviews of pipeline certificates is not without fault. *See Susan F. Tierney, FERC's Certification of New Interstate Natural Gas Facilities: Revising the 1999 Policy Statement for 21st Century Conditions* (2019), https://www.analysisgroup.com/globalassets/content/insights/publishing/revising_ferc_1999_pipeline_certification.pdf. It has refused to fully consider downstream greenhouse gas emissions in its environmental reviews of natural gas pipeline projects, which has led to a loss and a near loss in court. *See Sabal Trail*, 867 F.3d 1357 (2017) (vacating pipeline certificate due to FERC's failure to consider downstream greenhouse gas emissions); Birkhead v. FERC, 925 F.3d 510, 520 (2019) (calling into question FERC's analysis but refusing to grant a petition for review because petitioners failed to raise the appropriate arguments before FERC). However, this narrow issue need not be extended to a future approach to transmission siting.

268. *FERC Staff Preliminary and Conceptual Transmission Siting Proposal* (2011), https://web.archive.org/web/20130218153917/, http://congestion09.anl.gov/documents/docs/Transmission%20Siting%20Narrative%20Draft%20(Clean%208%2026%2011).pdf.

269. *Id.* at 4–6.

270. *Id.* at 6–7.

271. *Id.* at 8.

272. Office of Electricity Delivery & Energy Reliability, *Electric Transmission Congestion Studies and Designation of National Interest Electric Transmission Corridors*, INTERNET ARCHIVE, https://web.archive.org/web/20130218133030/http://congestion09.anl.gov/index.cfm.

273. *DOE and FERC Joint Public Statement on Back Stop Siting*, DEP'T OF ENERGY (Oct. 11. 2011), https://www.energy.gov/articles/doe-and-ferc-joint-public-statement-back-stop-siting.

274. Letter from Sen. Jeff Bingaman, Chairman, U.S. Senate Comm. on Energy & Nat. Res., to Steven Chu, Secretary, Dep't of Energy (Sept. 12, 2011), https://perma.cc/QR86-8NRT. However, even Senator Bingaman acknowledged in his letter to DOE that delegation would be legally permissible. *Id.* at 2 ("I do not question your legal authority to delegate the functions Congress assigned to you in section 216").

275. Select Committee Report, *supra* note 4, at 52 (recommending FERC, not DOE, designate Transmission Corridors), https://climatecrisis.house.gov/sites/climatecrisis.house.gov/files/Climate%20Crisis%20Action%20Plan.pdf.

276. *DOE and FERC Joint Public Statement on Back Stop Siting*, DEP'T OF ENERGY (Oct. 11. 2011), https://www.energy.gov/articles/doe-and-ferc-joint-public-statement-back-stop-

siting.

277. *Piedmont Envtl. Council v. FERC*, 558 F.3d 304 (4th Cir. 2009).

278. *See, e.g.*, Drew Thornley, *The Federal Government's Authority to Site Interstate Electric Transmission Lines: How the Meaning of "Withheld" is Withholding Clarity for Transmission Development*, 6 Tex. J. Oil Gas & Energy L. 385 (2010–2011).

279. 16 U.S.C. § 824p(b).

280. *Cal. Wilderness Coal.*, 631 F.3d at 1079.

281. *Edison drops Arizona line*, L.A. TIMES (May 16, 2009), https://www.latimes.com/archives/la-xpm-2009-may-16-fi-edison16-story.html.

282. Order No. 689, *supra* note 154, at P 41.

283. ScottMadden, Inc., *supra* note 19.

284. Wind Energy Association, *Transmission Upgrades & Expansion: Keys to Meeting Large Customer Demand for Renewable Energy* 26 (2018), https://windsolaralliance.org/wp-content/uploads/2018/01/WEF-Corporate-Demand-and-Transmission-January-2018.pdf.

285. Alexander E. MacDonald, *Future Cost-Competitive Electricity Systems and Their Impact on US CO_2 Emissions*, Nature Climate Change (Jan. 25, 2016), https://www.vibrantcleanenergy.com/wp-content/uploads/2016/09/Future_cost-competitive_electricity_syst.pdf.

286. Wind Energy Foundation, Transmission Upgrades & Expansion: Keys to Meeting Large Customer Demand for Renewable Energy 23–26 (2018), https://windsolaralliance.org/wp-content/uploads/2018/01/WEF-Corporate-Demand-and-Transmission-January-2018.pdf.

287. *See* National Conference of State Legislatures, *State Renewable Portfolio Standards and Goals* (Apr. 17, 2020), https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx (summarizing state renewable portfolio standards); Exec. Order 13,868, 84 Fed. Reg. 15,495 (Apr. 15, 2019) (prioritizing domestic energy production); Biden Energy Plan, *supra* note 105 (announcing Biden's campaign promise to reach 100% clean electricity by 2035).

288. Klass, *The Electric Grid at a Crossroads*, *supra* note 47.

289. Order No. 689, *supra* note 154, at PP 24–31.

290. Piedmont Envtl. Council v. FERC, 558 F.3d 304, 312 (4th Cir. 2009).

291. *Id.* at 320.

292. Order No. 689, *supra* note 154, at P 26.

293. *See Piedmont*, 558 F.3d at 309.

294. *Id.* at 311–12.

295. *Id.* at 312.

296. *Id.*

297. *Id.* at 313.

298. *Id.* The court also declined to interpret the words as interchangeable merely because *Roger's International Thesaurus* lists the words as synonyms. *Id.*

299. *Id.*

300. *Id.* at 314.

301. *Id.*

302. *Id.* at 314–15.

303. *Id.* at 314.

304. *Id.*

305. *Id.* at 315.

306. *Id.* at 314.

307. *Id.* at 321 (Traxler J., dissenting).

308. *See* Brief for the Federal Energy Regulatory Commission in Opposition, *Edison Elec. Inst. v. Piedmont Envtl. Council*, 130 S.Ct. 1138 (2010) (No. 09-343), 2009 WL 4862143.

309. Brief for the Federal Energy Regulatory Commission in Opposition at 14–15, *Edison Elec. Inst. v. Piedmont Envtl. Council*, 130 S. Ct. 1138 (2010) (No. 09-343), 2009 WL 4862143 ("[T]here will be opportunities for other courts to examine the issue. If a party seeking to build a transmission facility in a national interest corridor outside the Fourth Circuit were to seek a permit from FERC after having been denied a permit by a State, FERC's decision—whether or not it was consistent with the decision in this case—would be subject to review in another court of appeals.") (citing 16 U.S.C. 825l(b)).

310. *Id.* at 14–15 (discussing the potential for review in another circuit and the risk that Piedmont was not ripe).

311. Samuel Estreicher & Richard L. Revesz, *The Uneasy Case Against Intracircuit Nonacquiesence: A Reply*, 99 YALE L.J. 831, 831 (1990); see also Allan D. Vestal, *Relitigation by Federal Agencies: Conflict, Concurrence and Synthesis of Judicial Policies*, 55 N.C. L. REV. 123, 123 (1977) (noting federal agencies' "general policy" of nonacquiescence).

312. Samuel Estreicher & Richard L. Revesz, *Nonacquiescence by Federal Administrative Agencies*, 98 YALE L.J. 679 (1989).

313. Estreicher & Revesz, *The Uneasy Case Against Intracircuit Nonacquiesence: A Reply*, *supra* note 321, at 840.

314. *Id.* at 842; *see also* New York v. Pruitt, No. 18-CV-1030 (JPO), 2018 WL 2411595, at *4 (S.D.N.Y. May 29, 2018) ("It is a bedrock principle of our federal court system that the adjudication of novel and difficult issues of law is best served by letting questions percolate among the lower federal courts, even at the cost of short-term disuniformity.").

315. *See, e.g.*, FERC Appellant Brief at 33–34, *In re: FirstEnergy Solutions Corp.*, 945 F.3d 431 (6th Cir. 2019) (asserting jurisdiction contrary to Fifth Circuit precedent).

316. Nat'l Envtl. Dev. Association's Clean Air Project v. EPA, 891 F.3d 1041, 1049 (D.C. Cir. 2018).

317. *Id.* (quoting Estreicher & Revesz, *Nonacquiescence by Federal Administrative Agencies*, *supra* note 322, at 735–36).

318. Estreicher & Revesz, *The Uneasy Case Against Intracircuit Nonacquiesence: A Reply*, supra note 321, at 831.

319. Piedmont Envtl. Council v. FERC, 558 F.3d 304, 312 (4th Cir. 2009).

320. 28 U.S.C. § 2112(a)(5).

321. *See* Jeffrey Dobbins, *Structure and Precedent*, 108 MICHIGAN L. REV. 1453, 1468–70 (2010).

322. *See id.* at 1475 n.68 (citing three cases that treated decisions of consolidated cases as persuasive, rather than binding, authority). Dobbins suggests that jurisprudential dialogue on administrative law issues justifies intercircuit nonacquiescence, even for consolidated cases. *Id.* at 1471. Dobbins also notes that determining whether or not a consolidated decision resolves a case initially filed in another circuit can be difficult; decisions on consolidated cases often do not cite the circuits in which petitions were initially filed. *Id.* at 1472.

323. *Piedmont*, 558 F.3d at 323 (Traxler J., dissenting).

324. *Id.*

325. Petition for Writ of Certiorari at 16, *Edison Elec. Inst. v. Piedmont Envtl. Council*, 130 S.Ct. 1138 (2010) (No. 09-343), 2009 WL 3022142.

326. *Id.*

327. U.S. Dep't of Energy, *National Transmission Grid* Study iii (2002) [hereinafter NAT'L TRANSMISSION GRID STUDY].

328. *Piedmont*, 558 F.3d at 321 (Traxler J., dissenting) (citing NAT'L TRANSMISSION GRID STUDY, *supra* note 337, at xi, 5–6, http://www.ferc.gov/industries/electric/gen-info/transmissiongrid.pdf).

329. H.R. REP. 109–215, at 171 (2005).

330. *Id.*

331. 16 U.S.C. § 824p(b)(1)(C)(ii); *see also* Order No. 689, *supra* note 154, at P 28.

332. *See id.*

333. *Piedmont*, 558 F.3d at 314–15.

334. For example, a rejection of a politically unpopular project could be pretextually justified using unsubstantiated concerns about property values, while a state could legitimately impose conditions rendering the project financially infeasible to mitigate adverse environmental impacts.

335. Regulations for Filing Applications for Permits to Site Interstate Electric Transmission Corridors, 71 Fed. Reg. 36,258 (June 26, 2006) [hereinafter Proposed Siting Regulations] (containing no prohibition on parallel processing of state applications and federal prefiling requirements).

336. *See* 18 C.F.R. § 50.5.

337. Proposed Siting Regulations, 71 Fed. Reg. at 36,261, P 22.

338. *See* Order No. 689, *supra* note 154, at P 20.

339. Proposed Siting Regulations, 71 Fed. Reg. at 36,261, P 21.

340. *See* Order No. 689, *supra* note 154, at PP 91, 103–104.

341. *See id.* at P 19.

342. 16 U.S.C. § 824p(b)(1)(A)(i).

343. James W. Moeller, *Interstate Electric Transmission Lines and States' Rights in the Mid-Atlantic Region*, 40 B.C. ENVTL. AFF. L. REV. 77, 85 (2013).

344. *See* 220 Ill. Comp. Stat. 5/8-406; *see also* 220 Ill. Comp. Stat. 5/3-105 (defining public utility).

345. Ill. Landowners All., NFP v. Ill. Commerce Comm'n, 90 N.E.3d 448, 462 (Ill. 2017); *see also In the Matter of the Application of Plains and Eastern Clean Line LLC For a Certificate of Public Convenience and Necessity to Construct, Own and Operate as an Electric Transmission Public Utility in the State of Arkansas*, Docket No. 10-041-U, Order at 11 (Jan. 11, 2011) (denying Plains and Eastern Line LLC a certificate of public convenience and necessity for a transmission line after finding that the company was not a public utility under Arkansas law).

346. *See* David Iaconangelo, *$1B Power Line Fight Could Thwart Northeast CO_2 Plans*, E&E NEWS (Aug. 11, 2020), https://www.eenews.net/energywire/2020/08/11/stories/1063706915.

347. Avangrid Networks, Inc. v. Sec'y of State, 2020 ME 109, 2020 WL 4692295 (2020).

348. 16 U.S.C. § 824p(b)(1)(A)(ii).

349. *See*, e.g., A.R.S. § 40-360.06; 35-A M.R.S. §§ 3132(5)–(6); S.D. Codified Laws § 49-41B-4.2.

350. *See, e.g., In the matter of the Application of Southern California Edison Company et al.*, Order Denying CEC, Decision No. 69638 (Ariz. Corp. Comm'n, June 6, 2007), https://images.edocket.azcc.gov/docketpdf/0000073735.pdf (finding project did not meet Arizona's statutory "need" requirement because it would only service out-of-state ratepayers); *see also* Klass, *Future-Proofing*, *supra* note 49, at 870–72.

351. 16 U.S.C. § 824p(b)(1)(B).

352. § 796(23).

353. *See, e.g., In the matter of the Application of Southern California Edison Company et al.*, Order Denying CEC, Decision No. 69638 (Ariz. Corp. Comm'n, June 6, 2007), https://images.edocket.azcc.gov/docketpdf/0000073735.pdf.

354. *See, e.g.*, Clark v. Gulf Power Co., 198 So.2d 368, 371 (Fla. Dist. Ct. App. 1967) (finding taking improper for construction of transmission line to serve out-of-state customers, because "property in one state cannot be condemned for the sole purpose of serving a public use in another state."); Miss. Power & Light Co. v. Conerly, 460 So.2d 107, 113 (Miss. 1984) (dismissing condemnation action by power company for transmission line serving out-of-state customers, because "'public necessity' and 'public use' . . . contemplate use by the citizens of this state."); *see also* Steven J. Eagle, *Securing a Reliable Electricity Grid: A New Era in Transmission Siting Regulation?*, 73 TENN. L. REV. 1, 17–24 (2005).

355. 16 U.S.C. § 824p(b)(1)(C)(ii).

356. *See, e.g.*, A.C.A. § 23-3-205; S.D. Codified Laws § 49-41B-24; Utah Code Ann. § 54-4-25(4)(d); Wyo. Stat. § 37-2-205(c); Iowa Code § 478.4.

357. *See* A.R.S. § 40-360.06; N.H. Admin. Rules: Chapter Site 301.17.

358. Request for Proposals for New or Upgraded Transmission Line Projects Under Section 1222 of the Energy Policy Act of 2005, 75 Fed. Reg. 32,940 (June 10, 2010).

359. *See In the Matter of the Application of Plains and Eastern Clean Line LLC For a Certificate of Public Convenience and Necessity to Construct, Own and Operate as an Electric Transmission Public Utility in the State of Arkansas*, Docket No. 10-041-U, Order at 11 (Jan. 11, 2011).

360. *See* Participation Agreement among The United States Department of Energy and Plains and Eastern Clean Line Holdings LLC et al. (Mar. 25, 2016), https://www.energy.gov/sites/prod/files/2016/03/f30/Clean%20Lines%20-%20Participation%20Agreement%20%20-%20EXECUTED%20VERSION%20%28dated%20March%2025....pdf [hereinafter Participation Agreement].

361. Summary of Findings, *supra* note 166, at 15–21.

362. *Id.* at 10–12.

363. *Downwind LLC v. United States Dep't of Energy*, No. 3:16-CV-207-DPM, 2017 WL 6542747, at *2 (E.D. Ark. Dec. 21, 2017), *vacated and remanded*, No. 18-1399, 2018 WL 3648283 (8th Cir. Apr. 18, 2018), *and vacated*, No. 3:16-CV-207-DPM, 2018 WL 3641027 (E.D. Ark. Apr. 19, 2018).

364. *Id*. at *2.

365. *Id.* at *5.

366. *Id.* at *4.

367. *Id.*

368. Gold, Superpower, *supra* note 45, at 231–32, 245.

369. Dave Flessner, *Alexander Urges TVA to Avoid Clean Line Wind Generation*, CHATTANOOGA TIMES FREE PRESS (Mar. 24, 2017), https://www.timesfreepress.com/news/business/aroundregion/story/2017/mar/24/alexander-says-winds-change-blowing-against-c/419318/.

370. Letter of Daniel B. Poneman, Deputy Secretary, Department of Energy, to Michael Skelly, President, Clean Line Energy Partners LLC (Apr. 5, 2012), https://www.energy.gov/sites/prod/files/Poneman_Letter_April_5%2C_2012.pdf.

371. Participation Agreement, *supra* note 370, at Schedule 4.

372. *Id.* at § 11.2.

373. *Id.* at § 11.2.

374. *Downwind LLC*, 2017 WL 6542747 at *3.

375. 2B Sutherland Statutory Construction § 55:4 (7th ed.) (collecting cases); *see also* United States v. Threlkeld, 72 F.2d 464, 466 (10th Cir. 1934) ("when legislative authority to do a specified thing is conferred, power to do all things reasonably necessary to its achievement is impliedly granted.").

376. There is no material difference between the appropriation of funds in the Path 15 case and under section 1222. In each case funds for construction of transmission lines were to be received from third parties. Section 1222 specifically notes that funds contributed from third parties should be treated "as if the funds had been appropriated specifically for that Project." 42 U.S.C. § 16421(c)(2)(B).

377. 547 F.3d 943, 951 (9th Cir. 2008) (internal footnote added) (citation omitted).

378. *See Threlkeld*, 72 F.2d at 466 ("We think the broad authority to construct and maintain roads and other improvements includes the power to acquire land for that purpose if it is

necessary because, when legislative authority to do a specified thing is conferred, power to do all things reasonably necessary to its achievement is impliedly granted."); Polson Logging Co. v. United States, 160 F.2d 712, 713 (9th Cir. 1947); United States v. W. Va. Power Co., 91 F.2d 611, 613 (4th Cir. 1937) (holding that when Congressional authorization to "acquire land by condemnation proceedings . . . has been given, at least by necessary implication . . . this is sufficient."); Burns v. United States, 160 F. 631, 634 (2d Cir. 1908) (explaining that if a certain piece of land "was necessary to or proper for the protection of the sea wall we think that the act impliedly authorized the purchase. The power to build a sea wall implies the power to do whatever is necessary to that end.").

379. *See* 13 GAO-RB pt. B, s. 3, 2008 WL 6969315 at *4 (2008) (explaining that although authority to acquire land is often express, it need not be and quoting the comptroller general, "[W]hile each individual case must of necessity be determined on the basis of the specific facts and circumstances pertaining thereto, an authorization for construction may be deemed to imply authority to acquire land therefor when such land is so necessary and essential for that construction that the acquisition thereof must have been contemplated by the Congress.").

380. Hooe v. United States, 218 U.S. 322, 336 (1910) ("The taking of private property by an officer of the United States for public use, without being authorized, expressly *or by necessary implication*, to do so by some act of Congress, is not the act of the government.") (emphasis added); W. Union Tel. Co. v. Pa. R.R. Co., 195 U.S. 540, 569 (1904) (stating that authority for eminent domain must "be given in express terms or by necessary implication.").

381. *See, e.g.*, Julius L. Sackman, 1A Nichols on Eminent Domain § 3.03(3)(d) (Matthew Bender ed., 3d ed. 2020) ("The right to exercise the power of eminent domain must be conferred either in express terms or by necessary implication.").

382. *See e.g.*, City of Syracuse v. Onondaga Cnty., 464 F.3d 297, 317 (2d Cir.); Kern River Gas Transmission Co. v. Clark Cnty., Nev., 757 F. Supp. 1110, 1117 (D. Nev. 1990) ("[T]he general rule is that where the proposed use will either destroy such existing use or interfere with it to such an extent as is tantamount to destruction, the exercise of the power will be denied unless the legislature has authorized the acquisition either expressly or by necessary implication." (emphasis omitted) (quoting 1 Nichols on Eminent Domain § 2.2 (3d ed. 1990))).

383. 42 U.S.C. § 16421a(b)(4); § 16421(c).

384. § 16421a(c) & (d)(2).

385. *See* Office of Mgmt. & Budget, *Budget of the U.S. Government: Fiscal Year 2021* at 44, https://www.whitehouse.gov/wp-content/uploads/2020/02/budget_fy21.pdf; *Budget of the U.S. Government: Fiscal Year 2020* at 135, https://www.govinfo.gov/content/pkg/BUDGET-2020-MSV/pdf/BUDGET-2020-MSV.pdf; *Budget of the U.S. Government: Fiscal Year 2019* at 136, https://www.govinfo.gov/content/pkg/BUDGET-2019-MSV/pdf/BUDGET-2019-MSV.pdf; *Budget of the U.S. Government: Fiscal Year 2018* at 132, https://www.govinfo.gov/content/pkg/BUDGET-2018-MSV/pdf/BUDGET-2018-MSV.pdf.

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