TRANSMISSION TROUBLES: SOLVING THE ROADBLOCKS TO RENEWABLE ENERGY

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Transmission is needed—fast—to build the grid of the future. As states race to expand renewable energy, a looming question remains: How do we get energy from where it's produced to where it's needed? Connecting new projects to the grid and interconnecting the country seems simple: just build more transmission. Regulatory barriers, however, have made building new transmission anything but simple. The old ways of transmission regulation and construction have not evolved to meet our current needs. Efforts by Congress and the Federal Energy Regulatory Commission (FERC) have fallen short. Rights of first refusal allow companies that already have transmission "first dibs," which favors local interests and raises costs. FERC eliminated the federal right of first refusal, but many states continue to use such rights to entrench incumbent utilities. The recent Eighth Circuit case LSP Transmission Holdings LLC v. Sieben *highlights the tensions between state and federal powers in this area, with no end in sight, as the court upheld state-level Rights of First Refusal. Despite these roadblocks to meeting the transmission needs for renewable energy, specifically the competing regulatory powers at the state and federal levels, this paper argues for a more holistic approach. Transmission can be a vehicle to help achieve a just transition to a renewable grid. Working with communities can help avoid the issues of "holdouts" that can lead to litigation and the death of projects while also ensuring more procedural justice and meeting the needs of local communities. This, combined with other strategies like National Interest Corridors and cost-allocation tools (both of which were changed by the recently passed Bipartisan Infrastructure Bill) may be a part of the solution.*

INTRODUCTION

The transition to renewable energy has been like navigating an obstacle course. Many of the obstacles seemed insurmountable at the outset but were addressed and overcome through innovation. Solar panels are ready to capture the energy of the sun, while wind turbines are geared up to harness the power of the wind. To green our grid, renewable energy had to become

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feasible, economical, and politically palatable. Tackling these roadblocks is necessary to address the global threat of climate change. Now, troubles with transmission stand in the way.

Climate change is a global problem. The world's reliance on fossil fuels has changed—and continues to change—our planet.[1] Burning oil, gas, and coal releases carbon dioxide and other greenhouse gasses that contribute to climate change and degrade the health of local communities.[2] Sea levels and temperatures will rise, weather patterns will change, and humanity will suffer if we continue on our current course.[3] Many countries, including the United States, have begun to recognize that an energy revolution must come quickly.[4] Altering current energy sources and consumption will require dramatic changes to how electricity is produced. The continued reliance on fossil fuels only makes the problems of climate change worse and shifts the burden to the next generation.

Luckily, there is a solution: renewable energy. After many decades of innovation, the technology now exists to shift a substantial amount of energy production in the United States to renewable sources.[5] Even more importantly, there is now political and public support to transition our electrical grid from traditional fossil fuels to renewable technologies.[6] The costs of renewable energy have plummeted in recent years, allowing production of sustainable energy to rival traditional sources economically.[7] These factors make renewable energy the most viable solution moving forward.

And yet, there is a major stumbling block hindering an energy grid transformation: energy transmission. Transmission is the highway of the

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[1] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2013 – THE PHYSICAL SCIENCE BASIS 13 (2013).

[2] *Id.*

[3] *Id.*

[4] Biden Administration, *Fact Sheet: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies*, WHITE HOUSE (Apr. 22, 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/ [https://perma.cc/D4JB-BUQ5].

[5] *Id.*

[6] *Id.*

[7] Cary Coglianese & Daniel E. Walters, *Whither the Regulatory "War on Coal"? Scapegoats, Saviors, and Stock Market Reactions*, 47 ECOLOGY L. Q. 1, 3 (2020).

electrical grid, moving electricity from where it is generated to where it is consumed.[8] Power lines are needed to connect new renewable projects to the existing grid and move energy around.[9] But dramatic changes are necessary to transition to a carbon-free grid using renewable energy. The United States' aging grid was built around fossil fuels, and thus location, planning, and design evolved within the framework of fossil fuel generation.[10] Transitioning to a cleaner grid will require more than simply swapping out coal-fired plants for solar panels.

Revolutionizing the electrical grid will require large-scale renewable projects.[11] Unlike traditional fossil fuel projects, the placement of these sites is decided by nature. The sun and wind cannot be moved or stored like traditional sources, which generate electricity near large population centers.[12] Coal may be mined in Wyoming, carried by train to New York, and burned at a coal-fired plant to power New York City. This is not the case with renewable energy, such as solar, wind, or even hydro-electric power, which is collected at the source and moved as electricity through the grid.[13] But the places in the United States best suited for large-scale renewable energy generation are not near large population centers.[14] Wind may blow most strongly in North Dakota, but electricity is needed a few states away in large population centers like Chicago.[15] This difference impacts how the grid must look going forward to rely on these place-based electricity sources.

Transmission can not only transport electricity to where it needs to go, but also mitigate some of the drawbacks associated with renewable energy. One of the biggest hurdles remaining for renewable energy is intermittency.[16] People need electricity even when the wind is not blowing, or the sun is not shining at a particular location. Building a more interconnected grid that links

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[8] Avi Zevin et al., *Building a New Grid Without New Legislation: A Path to Revitalizing Federal Transmission Authorities*, 48 ECOLOGY L. Q. 169, 178 (2021).

[9] *Id.* at 171.

[10] Shalini P. Vajjhala & Paul S. Fischbeck, *Quantifying Siting Difficulty: A Case Study of US Transmission Line Siting*, 35 ENERGY POL'Y 650, 653 (2007).

[11] Zevin et al., *supra* note 8.

[12] Bethany A. Frew et al., *Flexibility Mechanisms and Pathways to a Highly Renewable US Electricity Future*, 101 ENERGY 65, 65–66 (2016).

[13] *Id.*

[14] MATTHEW H. BROWN & RICHARD P. SEDANO, ELECTRICITY TRANSMISSION A PRIMER, NATIONAL COUNCIL ON ELECTRIC POLICY 8–9 (2004).

[15] *See* Patrick R. Brown & Audun Botterud, *The Value of Inter-Regional Coordination and Transmission in Decarbonizing the US Electricity System*, 5 JOULE 115, 117 (2020).

[16] BROWN & SEDANO, *supra* note 14, at 8–10.

geographic areas via a transmission "superhighway" increases the pool of resources from which to draw. For example, even when the sun is not shining in California, the wind may be blowing in the Midwest. Interconnection can make renewable energy more reliable and economical.[17] One recent study found "significant value to increasing the transmission capacity" between the Eastern and Western grids by maximizing the local resources of each region.[18]

If transmission is the solution, then what is the problem? Building transmission lines is a slow and expensive process.[19] State, federal, and local governments all regulate how and where transmission is built.[20] Further, many people and communities do not want transmission lines nearby. While the public supports renewable energy in the abstract, it is often more difficult for people to embrace the collective good when the threat of a transmission project running through their backyard exists. States that are merely "passed through" by transmission projects (not receiving energy, or traditional benefits like jobs) are particularly reluctant.[21] This tension between the collective good and individual goals has not been solved by laws and regulation.[22]

This paper aims to detail the current flawed system of energy transmission regulation and explores ways to improve the current system. Part I of this article begins by describing the history of energy and transmission regulation in the United States, and how this history has contributed to problems today, including a recent federal regulatory attempt to address this issue and the state-level response. Next, Part II focuses on a recent case out of the Eighth Circuit Court of Appeals backing the state-level response that demonstrates the problems that the decentralized nature of transmission regulation creates.

Part III expands the discussion of the barriers to building transmission, specifically the inherent tension between the need to work with communities

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[17] A. Bloom et al., *The Value of Increased HVDC Capacity Between Eastern and Western U.S. Grids: The Interconnections Seam Study*, NAT'L RENEWABLE ENERGY LAB. 1 (2020).

[18] *Id.*

[19] Midcontinent Independent System Operator, *Transmission Cost Estimation Guide* (2019) [https://perma.cc/A6EL-U6GK].

[20] BROWN & SEDANO, *supra* note 14, at 11–12.

[21] Alexandra B. Klass, *The Electric Grid at A Crossroads: A Regional Approach to Siting Transmission Lines*, 48 U.C. DAVIS L. REV. 1895, 1925 (2015).

[22] *Id.*

to build transmission projects with the need to have a centralized authority to overcome local reluctance. Finally, Part IV offers a variety of solutions to tackle the problems plaguing transmission development in an equitable way.

This article considers the impacts of the Eighth Circuit decision in *LSP Transmission Holdings* and evaluates the impacts of the recently passed Bipartisan Infrastructure Bill. Further, in light of those recent developments, this article discusses why community involvement remains the critical missing ingredient to developing more transmission. Reforming transmission offers a unique opportunity to come together and ensure a just transition to a renewable grid.

I. ENERGY REGULATION AND THE FRAMEWORK TO ADDRESS TRANSMISSION

Transmission, and the construction of new transmission projects, sits within the larger and more complex framework of longstanding energy law and regulation in the United States. These legal and regulatory frameworks were not built for today's technology. Rather, the frameworks have evolved over time to fit "traditional" fossil-fuel infrastructure and are now being stretched to regulate the transition to renewable sources. It is important to investigate the history of energy regulation in the United States to better understand the future.

A. History of Energy Regulation in the United States

The history of traditional energy regulation influences how renewables were integrated with the grid and help supply energy today.[23] Electricity is an infrastructure-heavy utility.[24] As electricity became more widely available, moving into more areas and homes during the dawn of the electrical era, electric utility companies began operating as a "natural monopoly," whereby the high cost of market entry and low marginal prices made competition in a given area unlikely.[25] State legislatures cemented utilities' monopoly power for the sake of economic efficiency, finding there was no need for dueling utilities to run lines down the same streets or into the same houses; but this artificially reduced competition.[26]

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[23] Alexandra B. Klass & Elizabeth J. Wilson, *Interstate Transmission Challenges for Renewable Energy: A Federalism Mismatch*, 65 VANDERBILT L. R. 1805, 1805–07 (2012).

[24] *Id.*

[25] *See* Melissa Powers, *Anticompetitive Transmission Development and the Risks for Decarbonization*, 49 ENV'T L. 885, 887–89, 898–99 (2019).

[26] *See id.* at 898–99.

The growth of the traditional utility grew out of this natural monopoly. Under the historical framework, utilities were vertically integrated, meaning they owned the power plants generating electricity and the transmission lines running electricity to consumers.[27] Traditional utilities thus became quasi-public companies that had to balance their need to charge reasonable rates to ratepayers against turning a profit.[28] This economic structure creates tension, especially now with the transition to renewable energy. While there are long-term economic benefits to switching to renewables, the upfront costs can be high, especially where transmission is concerned.[29]

1. Federalism and Cooperation in Energy Regulation

Federal, state, and local governments all work together to control and regulate energy and transmission within the country.[30] This cooperation, like most energy regulation, evolved from the history of electricity production in the United States. But as technology evolved and electricity expanded, more centralization was needed to oversee the energy grid.[31] Enter the Federal Energy Regulatory Commission (FERC), which regulates the energy grid at the national level.[32] Meanwhile, individual states have come together to create Independent Systems Operators (ISOs) and Regional Transmission Organizations (RTOs) connecting regional areas together on a single grid.[33] ISOs and RTOs oversee wholesale, interstate systems for energy production and regulation.[34] Today, ISOs and RTOs provide about two-thirds of the nation's electricity to more than half the country's population.[35]

Regional operations tend to undermine natural monopolies and allow greater competition. Interstate operators like ISOs and RTOs have more discretion, and are able to set up deregulated, competitive wholesale markets aimed at pushing prices down and technology forward.[36] Instead of a traditional energy market where there is heavy regulation to set fair prices, deregulated markets use competition to encourage energy providers to vie

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[27] BROWN & SEDANO, *supra* note 14, at 3.

[28] Powers, *supra* note 25, at 939.

[29] *Id.* at 939–40.

[30] Klass & Wilson, *supra* note 23.

[31] *Id.*

[32] BROWN & SEDANO, *supra* note 14, at 3.

[33] *Id.* at 61, 64.

[34] Joel B. Eisen, *FERC's Expansive Authority to Transform the Electric Grid*, 49 U.C. DAVIS L.R. 1783, 1793 (2016).

[35] *Id.*

[36] Powers, *supra* note 25, at 939.

against each other in the market.[37] Federal statutes such as the Public Utility Regulatory Policies Act (PURPA) helped spearhead this competition by showing the feasibility of competition, especially for emerging technologies.[38] PURPA allowed renewable technology to develop and become more economical while also highlighting the important role of transmission in competitive wholesale markets.[39]

In order to maintain fair competition, energy generators need open access to transmission lines.[40] If a single utility owns the transmission lines, they could discriminate against, or even forbid, other competing generators from accessing the transmission lines.[41] To avoid this and ultimately redundant and costly lines, ISOs and RTOs handle oversight of transmission lines themselves.[42] While transmission utilities own the lines, these regional organizations ensure that electricity generators have fair access to the lines.[43] Oversight by ISOs and RTOs also supports greater regional planning and interconnection between states, which allows the benefits of renewable energy to take place within the geographic boundaries of these regional entities.[44] By connecting the grids of different states, ISOs and RTOs open themselves to federal oversight by FERC.[45] Some states, like Texas, go to great lengths to isolate their grid from federal oversight.[46] States with ISOs and RTOs, on the other hand, welcome regional and federal regulation into their energy framework. This can create tension where one state within an ISO or RTO takes an action that has ripple effects across the grid and other states.

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[37] *Id.* at 898–99.

[38] William W. Berry, *Competition in the Electric Industry: The Influence of PURPA, PUHCA, and Transmission Acces*s, 6 NAT. RES. & ENV'T 32, 32 (1991).

[39] *Id.*

[40] Powers, *supra* note 25, at 901.

[41] Berry, *supra* note 38.

[42] Powers, *supra* note 25, at 901; BROWN & SEDANO, *supra* note 14, at 24.

[43] BROWN & SEDANO, *supra* note 14, at 24.

[44] *Id.*

[45] *Id.* This authority stems from the Commerce Clause, which I will not examine. For a greater exploration of the interaction between the Commerce Clause and ISOs/RTOs, see Steven Ferrey, *Sustainable Energy, Environmental Policy, and States' Rights: Discerning the Energy Future through the Eye of the Dormant Commerce Clause*, 12 N.Y.U. ENV'T L.J. 507 (2004).

[46] BROWN & SEDANO, *supra* note 14, at 26.

2. Statutory Framework Divides Power over Power

The Federal Power Act (FPA) governs how state, federal, and corporate actors operate within the energy space. The FPA delegates FERC the authority to regulate the transmission of energy between states and the sale of electricity in the wholesale market.[47] Wholesale markets involve the sale of electricity between electricity generators and resellers such as utilities, traders, and independent power producers—not to consumers.[48] FERC has had to adapt as electricity sources and generation changed over time, though there has been little in the way of statutory changes to keep up with the evolving world of electricity generation.[49] Under the FPA, states retain authority over the retail sale of electricity and intrastate transmission.[50]

Retail sales are those made directly to electricity consumers, like houses and businesses.[51] The once-simple division between wholesale and retail sales has become more complicated as traditional "consumers" have stepped across old boundaries into becoming "producers."[52] For example, it has become less clear when a retail sale has occurred in the face of rooftop solar, where a residential house both consumes electricity off the grid and contributes electricity to the grid, depending on whether the sun is shining.[53] Changes in technology like demand response, energy efficiency, energy storage, microgrids and large-scale transmission projects make the future of electricity and regulation far different than its past.[54] Despite these advances, the law has not adapted to keep pace with current technology.

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[47] Rich Glick & Matthew Christiansen, *FERC and Climate Change*, 40 ENERGY L.J. 1, 4–6 (2019).

[48] BROWN & SEDANO, *supra* note 14, at 66–67.

[49] FERC STAFF REPORT, *Energy Primer, A Handbook for Energy Market Basics* 35 (2020) [https://perma.cc/39UN-Q3VC].

[50] Glick & Christiansen, *supra* note 47, at 14.

[51] FERC STAFF REPORT, *supra* note 49, at 35.

[52] OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY, *Consumer vs. Prosumer: What's the Difference?* (May 11, 2017), https://www.energy.gov/eere/articles/consumer-vs-prosumer-whats-difference [https://perma.cc/5DG2-ELEW]; Stephen Lacey, *Rise of the Prosumer: Will Homeowners Ever Be More Important Than Power Plants?*, GREEN TECH MEDIA (June 28, 2014), https://www.greentechmedia.com/articles/read/rise-of-the-electricity-prosumer [https://perma.cc/T9XF-Q4BJ].

[53] *See* Powers, *supra* note 25, at 887; FERC v. Elec. Power Supply Assn., 577 U.S. 260, 281 (2016) ("It is a fact of economic life that the wholesale and retail markets in electricity, as in every other known product, are not hermetically sealed from each other.").

[54] Powers, *supra* note 25, at 887–88.

Finally, transmission connects the places that generate electricity with those that consume electricity. Like any form of transportation, there must be careful regulation to ensure that the flow of electricity does not encounter "traffic" and demand does not exceed supply.[55] This task has gotten more complex as the traditional role of electricity has changed, and new intermittent sources like renewables have gained traction.[56] Regulators must ensure they adequately manage this traffic as well as supply and demand.

As energy regulation transitioned from the natural monopoly framework to a competitive interstate market, FERC became the main regulatory body overseeing transmission. Shifting away from monopoly control of transmission was key to allowing renewables access to the grid.[57] New renewable technologies needed to get their foot in the door and could not have done so without getting access to already existing transmission.[58] FERC acted as the arbiter, shifting transmission development from the traditional vertical monopoly model to a common good approach open to all generators. Under sections 205 and 206 of the FPA, FERC must ensure that wholesale energy transmission rates are "just and reasonable" and do not "unduly discriminate" against certain generators, including renewable generators.[59] In doing so, FERC ensures that energy players have fair access to the grid to sell their electricity, allowing renewables to access transmission lines and sell the electricity they produce.

FERC as a regulatory body adapted to changing technologies through orders allowing greater grid access for small renewable generators. FERC Orders 888, 889, and 2000 aimed to address these issues and prevent transmission owners from using monopoly powers to stop others from using the lines.[60] These orders were aimed at allowing smaller renewable energy generators to find space in the market.[61] In particular, Order 888 addressed

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[55] FERC STAFF REPORT, *supra* note 49, at 41–44; Zevin et al., *supra* note 8, at 178.

[56] FERC STAFF REPORT, *supra* note 49, at 41–44.

[57] *Id.*

[58] Statutes such as the Public Utility Regulatory Policies Act (PURPA) also played a role here by requiring utilities to purchase renewable energy. By requiring utilities to buy power from these small "qualifying facilities," new technologies were able to become financially feasible and get access to the grid. Richard D. Cudahy, *PURPA: The Intersection of Competition and Regulatory Policy*, 16 ENERGY L.J. 419 (1995); Office of Electricity, *Public Utility Regulatory Policies Act of 1978 (PURPA)*, ENERGY.GOV, https://www.energy.gov/oe/services/electricity-policy-coordination-and-implementation/other-regulatory-efforts/public [https://perma.cc/R9GG-HXA5].

[59] Federal Power Act, 16 U.S.C. § 824(d).

[60] Eisen, *supra* note 34, at 1792.

[61] Berry, *supra* note 38, at 32.

FERC's jurisdictional reach for transmission of wholesale and unbundled retail electricity.[62] As energy moved away from a natural monopoly system to allow for competition between generators, economic efficiency and economies of scale continued to make it unnecessary and costly to allow competition in transmission. FERC opened access to transmission lines to all electricity generators, though utilities were allowed to retain ownership over the individual lines.[63] This shift allowed open access to transmission while still reaping the benefits of economies of scale.

B. Rights of First Refusal

A Right of First Refusal (ROFR) gives companies that have existing transmission infrastructure first "dibs" on new transmission projects. ROFRs have existed at the state and federal levels for transmission projects.[64] ROFRs also exist more generally as a right given to a party, often in the property context.[65] In transmission, ROFRs grant a benefit to those companies that have already invested in building infrastructure in the area. Traditionally, utilities invested in transmission that only they could access under a monopoly system.[66] In opening the grid to allow renewables a foot in the door and spur competition between generators, transmission became more complicated. It became less clear who should bear the costs of transmission for the good of the whole. Many utilities did not want to be first to invest in transmission lines that competitors would benefit from.[67] Thus, ROFRs can incentivize and benefit "first movers," who take on significant risk by making the initial investment in expensive infrastructure.

Having ROFRs, however, comes at a cost. The transition to renewable energy requires building transmission lines quickly, whether to allow greater interconnection across the country or to connect projects to the local grid. ROFRs can make this process more costly.[68] Under a ROFR construction

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[62] Powers, *supra* note 25, at 905.

[63] *Id.* at 905–06.

[64] Rishi Garg, *What's Best for the States: A Federally Imposed Competitive Solicitation Model or a Preference for the Incumbent? State Adoption of Right of First Refusal Statutes in Response to FERC Order 1000 and the Dormant Commerce Clause*, Briefing Paper No. 13–04, NAT'L REG. RSCH. INST. (Apr. 2013), https://pubs.naruc.org/pub/FA86B912-F8B8-74F6-AA34-4E7BCE42A234 [https://perma.cc/X7EC-6TKS].

[65] Bernard Daskal, *Right of First Refusal and the Package Deal*, 22 FORDHAM URBAN L.J. 461, 464 (1995). I will not explore ROFRs as a property right in this paper.

[66] BROWN & SEDANO, *supra* note 14, at 3.

[67] FERC ADVANCE NOTICE OF PROPOSED RULEMAKING 21-17 (July 15, 2021) https://www.ferc.gov/media/e-1-rm21-17-000 [https://perma.cc/R3SC-EBZR].

[68] Powers, *supra* note 25, at 903.

process, the company that already has existing infrastructure gets the project. This means the best-priced bid, new companies, and new technologies cannot as easily get their foot in the door.[69] Passing over lower cost projects and new technologies may stunt the evolution of transmission to lower costs and bring innovation. To restructure our grid, we may need to stop anchoring to past incumbents as ROFRs allow.

C. FERC Order 1000

The increased need for transmission and the challenges posed by the federal ROFR led FERC to act. FERC Order 1000 eliminated the federal ROFR and, therefore, took away the right for incumbent transmission owners to receive a project without a competitive bidding process.[70] Federal ROFRs only applied to interstate transmission lines, and mostly affected transmission under control of ISOs and RTOs.[71] This order was meant to facilitate and develop a more coordinated transmission system.[72] FERC was motivated to take these actions due to the transition to renewables and to motivate quick expansion of the grid.[73]

Elimination of the federal ROFR has many benefits beyond the building of transmission lines to adapt for renewable energy. One of the main benefits FERC sought to realize through Order 1000 was lowering the cost of transmission via a competitive bidding process.[74] Giving projects to incumbent transmission holders can result in rates that may not be "just and reasonable" as FERC requires under its statutory mandate.[75] Similarly, removing the federal ROFR allows for greater competition between those

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[69] *Id.*

[70] *Id.* at 911. While Order 1000 contained other provisions beyond eliminating the Federal ROFR, this paper will not address them. Also, in late April 2022, FERC entered a Notice of Proposed Rulemaking (NOPR) to reinstate the federal ROFR, which would roll back the change made in Order 1000. Since the rule is still in its proposal stage, this article comments only on the current rules. For the proposed rule, see Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, 87 Fed. Reg. 26,504 (May 4, 2022) (to be codified at 18 C.F.R. pt. 35); Miranda Willson, *'Get Rid of Competition'? FERC and the Push for Power Lines*, E&E NEWS (May 6, 2022), https://www.eenews.net/articles/get-rid-of-competition-ferc-and-the-push-for-power-lines/?utm_medium=email [https://perma.cc/GF29-Y9T8].

[71] Steven A. Weiler, *'Pomp and Unchanged Circumstance': FERC Attempts to Eliminate Federal Rights of First Refusal*, 26 ELECTRICITY J. 14, 15–16 (2013).

[72] Powers, *supra* note 25, at 911.

[73] *Id.*

[74] Weiler, *supra* note 71, at 16.

[75] *Id.*

trying to build transmission, in both cost and technology.[76] This development follows the general trend for the expansion of competition and innovation in the energy space, away from a more traditional model.[77]

Despite eliminating the federal ROFR, FERC Order 1000 did not remove barriers to building transmission. Even with the federal ROFR removed, projects and regulators still must comply with state laws, including state-level ROFRs.[78] The Order explicitly asserts that it does not affect or displace state-level ROFRs.[79] In response, many states created their own laws to enact state-level ROFRs.[80] As one scholar noted after the passage of Order 1000, utilities "immediately start[ed] to lobby the state legislatures to create the state rights of first refusal."[81] Many incumbent utilities championed this fight, especially those in states that have not yet unbundled their electricity systems.[82] Eliminating ROFRs could remove incumbent utilities' ability to secure new transmission contracts at the same higher price; instead they would have to win a price-competitive bid. The influx of state ROFRs effectively nullified the impact of Order 1000.[83] This again highlights the tension between state and federal authority over transmission, especially as non-incumbents took to the courts to challenge state ROFRs.

II. *LSP TRANSMISSION HOLDINGS*: JUDICIAL SUPPORT FOR STATE-LEVEL ROFRS

As states and FERC struggled to come to terms with ROFRs, the courts offered support for state-level ROFRs to continue. The Eighth Circuit dismissed LSP Transmission Holdings' claim that a Minnesota law discriminated against out-of-state entities when choosing who built transmission projects in the state.[84] The state-level ROFR allowed entities already operating transmission lines in the state of Minnesota first dibs to "construct, own, and maintain" new transmission lines in the state.[85]

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[76] Powers, *supra* note 25, at 912–13.

[77] *Id.*

[78] Weiler, *supra* note 71, at 16.

[79] *Id.*

[80] Garg, *supra* note 64, at 1–2.

[81] Jeffrey Tomich, *States Unwind FERC Plans for Grid Expansion*, E&E NEWS (Oct. 19, 2022), https://www.eenews.net/articles/states-unwind-ferc-plans-for-grid-expansion/ [https://perma.cc/Y636-89VV].

[82] Powers, *supra* note 25, at 889.

[83] Tomich, *supra* note 81.

[84] LSP Transmission Holdings LLC v. Sieben, 954 F.3d 1018 (8th Cir. 2020).

[85] *Id.* at 1023.

Minnesota enacted its ROFR statute directly in response to FERC Order 1000.[86] This transfer of power from federal to state authority also granted Minnesota more local control over the siting and development of transmission within the state. LSP Transmission Holdings ("LSP") did not have any transmission lines in Minnesota.[87] LSP challenged the ROFR provision as unconstitutionally discriminating against out-of-state companies.[88] Ultimately, the court found that the ROFR statute did not discriminate because some of the companies qualifying under the statute were not based in Minnesota, allowing the statute to remain in place.[89]

A. Case Background

This case grew from the tension described in Part I as states responded to FERC Order 1000 by instituting state ROFRs. The Midwest ISO (MISO) removed the federal ROFR but incorporated Minnesota's ROFR (along with several other similar state ROFRs) with approval from FERC.[90] Similar to the federal ROFR, the Minnesota version allows electric transmission owners an advantage if they were considered "incumbent."[91] An incumbent electric transmission owner is defined by the Minnesota statute as "any public utility that owns, operates, and maintains an electric transmission line in [Minnesota]."[92] The physical corporate location of a company was not considered to decide if it was eligible for a ROFR.[93] Sixteen companies were considered incumbent under the statute, though only eleven were headquartered in Minnesota.[94] LSP did not own transmission within Minnesota and did not qualify as an incumbent electric transmission owner with the ROFR.[95] LSP then challenged the state's ROFR for being discriminatory against entities outside Minnesota.

B. Resolution of the ROFR Problem Not Found in the Courts

The Eight Circuit found that the Minnesota ROFR law did not violate the Constitution by discriminating against out-of-state companies in violation of

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[86] *Id.* at 1024.
[87] *Id.*
[88] *Id.* at 1025.
[89] *Id.* at 1031.
[90] *Id.* at 1024.
[91] *Id.* at 1028.
[92] *Id.*
[93] *Id.*
[94] *Id.* at 1029.
[95] *Id.*

the so-called dormant Commerce Clause.[96] The dormant Commerce Clause, inferred though not explicitly stated in the Constitution, prevents any state from discriminating against companies outside their borders.[97] If a state discriminates against out-of-state companies in a way that affects interstate commerce, it violates the Commerce Clause. Courts ask whether a law challenged on these grounds "discriminates against or unduly burden[s] interstate commerce."[98]

The court first analyzed the dormant Commerce Clause issue to determine whether the Minnesota ROFR facially discriminated against interstate commerce.[99] A statute is considered overtly discriminatory against another state under the dormant commerce clause if its "discriminatory on its face, in its purpose, or through its effects."[100] LSP alleged that the Minnesota ROFR was facially discriminatory because the law expressly allowed only in-state entities to have a ROFR, giving them an unfair advantage over out-of-state entities to build MISO-approved transmission lines.[101]

On its face, the court found that the Minnesota ROFR statute drew a "neutral distinction between existing electric transmission owners . . . regardless of whether they are in-state or out-of-state."[102] Next, the court found the purpose of the statute did not discriminate against interstate commerce because the goal of the statute was to provide "[c]ost effective and reliable electricity transmission" to residents of the state.[103] Finally, the court found there was no discriminatory effect on out-of-state interests.[104] The court reasoned that an in-state company without existing transmission facilities would face the same hurdles as LSP when trying to secure a transmission contract.[105] Therefore, the Minnesota ROFR provision did not cause a discriminatory effect on interstate commerce. Since the factors of overt discrimination were not met, LSP's allegations of facial discrimination failed to convince the court.

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[96] *Id.* at 1031.
[97] *Id.* at 1026.
[98] *Id.*
[99] *Id.*
[100] *Id.* at 1027.
[101] *Id.*
[102] *Id.*
[103] *Id.* at 1029.
[104] *Id.* at 1030.
[105] *Id.*

Second, the court evaluated whether the Minnesota ROFR provision placed an undue burden on interstate commerce. The court considered whether the burden on interstate commerce by the state ROFR "'is clearly excessive in relation to the putative local benefits.'"[106] LSP argued that the Minnesota ROFR provision failed a balancing test weighing the burden on interstate commerce against local benefits because the ROFR created an "impermissible burden" on the out-of-state companies bidding.[107] LSP alleged that it and other out-of-state companies could not compete for MISO-approved transmission projects.[108]

The court was not persuaded. First, the court considered Minnesota's goal in creating the ROFR in response to FERC Order 1000.[109] When FERC removed the federal ROFR, Minnesota enacted their provision "to preserve the historically-proven status quo" of ensuring the low-cost construction and maintenance of transmission lines.[110] The court found this a legitimate state interest and within the state's purview under the framework of energy regulation.[111] Next, the court found the burden on interstate commerce negligible.[112] While acknowledging that the Minnesota ROFR could affect LSP's potential to build MISO-approved lines in the state, the court reasoned that the aggregate effects of the state ROFR provision would not harm the broader interstate market.[113] Therefore, the court concluded that it could not find that "the burden imposed by Minnesota's ROFR law is clearly excessive in relation to Minnesota's legitimate state interests in regulating its electric industry and maintaining the status quo."[114]

In failing to find either facial discrimination or an undue burden, the Eight Circuit affirmed the district court's dismissal of LSP's complaint. In doing so, the court made it clear that Minnesota's response to FERC Order 1000 did not violate the dormant Commerce Clause and was within the state's authority under the federalist framework of energy regulation.

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[106] *Id.* (citing Pike v. Bruce Church, Inc., 397 U.S. 137, 142 (1970)).
[107] *Id.*
[108] *Id.*
[109] *Id.* at 1031.
[110] *Id.*
[111] *Id.*
[112] *Id.*
[113] *Id.*
[114] *Id.*

III. ISSUES STILL FACING TRANSMISSION

To meet renewable energy goals and fight back against climate change, the United States must replace traditional fossil fuel generation sources with renewable sources. This will require more transmission and a revolution in how we build transmission across the country. FERC Order 1000 did not eliminate the barriers to transmission needed to build our grid for renewable energy. The emergence of state ROFRs is an example of this trend. Broadly, FERC and Congress have not done enough to remove barriers to building the transmission needed to restructure the grid. More action is needed to ensure equitable building of transmission to address the need for more renewable energy.

A. ROFR Issues Continue

Allowing state-level ROFRs to continue has undermined the very issues Order 1000 was meant to address. In many ways, this may be a longer, more persistent problem. While FERC had the authority to stop the federal ROFR, they are powerless to do the same at the state level.[115] Like the mythical Hydra, FERC cuts off one source of ROFRs only to have many more take its place. State ROFRs undermine FERC's ability to spur the competitive and accelerated transmission development necessary to fully transition to renewable energy.[116] The grid was designed for fossil fuels, and the differences in how fossil fuels and renewable generate energy must be accounted for moving forward.

B. FERC's Actions Do Not Address the Need for Rapid Transmission Development

Putting aside the need for long-range transmission lines to interconnect regions or build microgrids, the United States still needs more transmission, fast. Many miles of transmission must be built quickly just to bring renewable projects onto the grid. As a senior energy analyst at the Union of Concerned Scientists noted, "it's easier to build the wind farms than to build the transmission."[117] The lengthy process of completing transmission projects affects our ability to get more renewable generators on the grid.

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[115] Ari Peskoe, *To Catalyze Transmission Development, End Utility Protection Racket*, UTILITY DIVE (Feb. 25, 2021), https://www.utilitydive.com/news/to-catalyze-transmission-development-end-the-utility-protection-racket/595663/ [https://perma.cc/D7J5-T5KX].

[116] Powers, *supra* note 25, at 915.

[117] Ethan Howland, *Meeting State Offshore Wind, Renewable Goals Requires up to $3.2B in Transmission, PJM Says*, UTILITY DIVE (Oct. 21, 2021),

FERC's actions through Order 1000 have not addressed the roadblocks to speed up the process. Instead, the Order has created lengthy legal battles and led to the proliferation of state-level ROFRs.[118] As demonstrated in the *LSP Transmission Holdings* case, the courts have been reluctant to strike down state-level ROFRs.[119] This has meant that FERC's actions have failed to address the difficulties of holdout states.[120] Whenever transmission must cross state lines, there's a risk that a single state may delay or stop a project.[121] A line crossing many states can be stopped if just one state declines to allow passage, a situation which can occur when a state derives no benefit from the project.[122] This can delay transmission, which in turn reduces the security for investments.[123] Despite the need for a more centralized way to address these issues, Order 1000 allows for a resurgence of decentralized state-level ROFRs.[124] This has decentralized the ROFR process, and has not facilitated the construction of long transmission lines across states that have their own ROFR to protect incumbent interests.[125]

C. Siting Issues Will Continue Unaddressed

While transmission is largely recognized as essential to greening the grid, the question remains of where to place it. Transmission projects, especially large-scale, high-voltage lines, are not particularly desirable to have in a community. They are big and unsightly, divide communities, and may decrease property value.[126] Overlapping federal and state jurisdiction makes it difficult to determine the placement of these projects. Siting can be delayed

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https://www.utilitydive.com/news/state-offshore-renewable-goals-cost-transmission-pjm-planning/608643/ [https://perma.cc/K22T-NJSL].

[118] Weiler, *supra* note 71, at 20.

[119] *See* LSP Transmission Holdings LLC v. Sieben, 954 F.3d 1018 (8th Cir. 2020).

[120] Alexandra B. Klass & Jim Rossi, *When Do State Transmission Siting Laws Violate the Constitution?*, 28 ELECTRICITY J.6, 7 (2015).

[121] *Id.* at 7–8.

[122] *Id.*

[123] *Id.* at 8 ("These regulatory holdout problems appear to be occurring regularly in transmission line siting—at a minimum they lead to delays in the siting of new lines (and in developers obtaining financing); at the extreme they may lead proposals for new lines to be dropped altogether.").

[124] Weiler, *supra* note 71, at 20.

[125] Philip Killeen, *Swallowing the Rule: Why FERC's "Immediate Need Exemption" Frustrates Competitive and Climate-Smart Electricity Sector Transmission Planning under Order No. 1000*, 21 SUSTAINABLE DEV. L. & POL'Y 9, 10 (2020).

[126] Jim Rossi & Ashley C. Brown, *Siting Transmission Lines in a Changed Milieu: Evolving Notions of the "Public Interest" In Balancing State and Regional Considerations*, 81 U. COLO. L.R. 705, 717–18 (2010).

at the state, local, or even regional level. This in turn makes the entire process of creating new transmission lines last longer, cost more, and be seen as a risky investment.[127] These concerns must be addressed to meet the need for renewable energy. In examining these barriers, this section will only discuss the siting issues at the state and site-specific levels.

1. State-Level Siting Issues Linger

In order to connect areas where power is produced to places where power will be consumed, there must be transmission lines that pass through some states that do not get any energy from the line.[128] This creates what are known as "pass-over" lines that do not benefit the state they cross, but bring all the downsides of transmission lines.[129] This creates a classic "not in my backyard" (NIMBY) issue where experts and the public recognize the need for high-voltage transmission but do not want it in their community,[130] especially for the large projects needed to bring more renewables on the grid. While many states support increasing renewable energy in their own state, and across the United States,[131] there must be more interstate projects to connect areas to each other and address issues like intermittency.[132] In these interstate projects, each state has their own siting authority per the FPA.[133] However, there has been no move to correct this tension or the reluctance of some states to accept the downsides of transmission projects for the good of other states and ultimately to decarbonize the grid.

The decentralization of state siting authority further complicates interstate projects—while state siting authority has the advantage of states' superior knowledge of where to place lines, there is the unfortunate consequence of holdout states.[134] In large interstate projects, a single state can reject approval or permitting for the project, which may cause enough of

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[127] *Id.* at 718.

[128] *Id.* at 711–12.

[129] *Id.*

[130] Klass & Rossi, *supra* note 120, at 7.

[131] Allison Schumacher et al., *Moving Beyond Paralysis: How States and Regions Are Creating Innovative Transmission Policies for Renewable Energy Projects*, 22 ELECTRICITY J. 27, 28 (2009).

[132] Aaron Bloom et. al., Nat'l Renewable Energy Lab., *The Value of Increased HVDC Capacity Between Eastern and Western U.S. Grids: The Interconnections Seam Study* (2020).

[133] Jim Rossi, *The Trojan Horse of Electric Power Transmission Line Siting Authority*, 39 ENV'T L. 1015, 1019–22 (2009); 16 U.S.C. § 824p.

[134] Klass & Rossi, *supra* note 120, at 7.

a financial burden to stop the entire line from being constructed.[135] This issue is even more pronounced in states where the transmission lines need to only pass through the state.[136] For example, one transmission line meant to carry renewable energy from Kansas to Indiana was blocked by the Missouri's Public Utility Commission.[137] Some states' public utilities commissions are restricted by law to only consider the public interest of its own citizens when considering whether to issue permits for a project.[138] Therefore, permitting authorities in that scenario may not be able to consider benefits to other states and the wider need for renewables. The very structure of state electricity control may not allow for consideration of the greater good at the individual state level.[139] Further, a state may reject the project due to a state ROFR.[140]

All these barriers stand in the way of a streamlined process to build more large interstate transmission, with little recourse. Due to the delegation of power in the FPA, states generally have siting authority for transmission projects.[141] Even for interstate projects, FERC hasn't been able to exercise authority to override these reluctant states to move projects forward.[142] In Maine, voters recently held a referendum to halt an interstate transmission project to connect a hydropower project to the grid.[143] Massachusetts aimed to connect to a large Canadian hydropower project to meet their state-level

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[135] *Id.* at 7–9.

[136] Rossi & Brown, *supra* note 126, at 711–12.

[137] Robert Bryce, *Maine Voters' Rejection of Transmission Line Shows Again How Land-Use Conflicts Are Halting Renewable Expansion*, FORBES (Nov. 5, 2021), https://www.forbes.com/sites/robertbryce/2021/11/05/maine-voters-rejection-of-transmission-line-shows-again-how--land-use-conflicts-are-halting--renewable-expansion/ [https://perma.cc/6NA2-KBPX] ("[T]he $2.3 billion, 780-mile Grain Belt Express[ ] has been delayed for years by opposition from rural residents in Missouri. First proposed in 2010, the 4,000-megawatt project is designed to move electricity from Kansas to Indiana and other states. But in 2015, the Missouri Public Service Commission blocked the project after concluding the cost to the state's landowners exceeded its benefits. That project still hasn't been built.").

[138] Zevin et al., *supra* note 8, at 183–84; Samantha Gross, *Renewables, Land Use, and Local Opposition in the United States*, BROOKINGS INST. 10 (Jan. 2020), *available at* https://perma.cc/8J4P-RZKM.

[139] Zevin et al., *supra* note 8, at 183–84.

[140] Klass & Rossi, *supra* note 120, at 7–9.

[141] STAFF OF THE FED. ENERGY REG. COMM'N, REPORT ON BARRIERS AND OPPORTUNITIES FOR HIGH VOLTAGE TRANSMISSION 21–22 (2020); Zevin et al., *supra* note 8, at 171–72.

[142] Klass & Rossi, *supra* note 120, at 7.

[143] David Sharp, *Maine Power Line Vote Challenged in Court; No Halt to Construction*, WBUR (Nov. 4, 2021), https://www.wbur.org/news/2021/11/04/maine-power-transmission-line-rreferendum-challenged [https://perma.cc/678X-W66Z].

clean energy goals.[144] The project, which has the potential to power about one million homes with 1,200 megawatts (MW) of power, ran into issues in the fifty-three miles needed to connect the existing transmission corridor to the Canadian border.[145] The utilities backing the project had spent more than $90 million to counter the initiative by Maine citizens seeking to halt the $1 billion project.[146] The people of Maine voted by narrow margins in a statewide referendum to halt the project, expressing concerns over the forest area that would be lost and altered.[147] This highlights the tensions between the need for interstate cooperation and the difficulties facing renewable energy coming onto the grid.

2. FERC Has Not Addressed Individual and Local Siting Issues

While many people support renewable energy in the abstract, they often oppose transmission in their immediate area.[148] This has played out with resistance to renewable projects themselves as well as transmission projects. Going forward, regulators and the public will have to address both issues. Renewable energy may need more land than traditional fossil fuel sources, creating "energy sprawl."[149] In the short term, policymakers must grapple with individual siting issues during the transition to a renewable energy-powered grid.

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[144] *Id.*

[145] David Sharp, *Mainers Vote to Halt $1B Electric Transmission Line*, ASSOCIATED PRESS (Nov. 2, 2021), https://apnews.com/article/election-2021-maine-hydropower-line-54dea1a948e9fc 57a667280707cddeb7 [https://perma.cc/D3CX-HNS4].

[146] *Id.* In spending $90 million, this is the most expensive referendum in Maine history. *Id.*

[147] *Id.* As of writing this article, the utilities have challenged the constitutionality of the referendum and are waiting to go before the Maine Supreme Judicial Court. David Sharp, *$1B Hydropower Project's Fate Rests with Maine Supreme Court*, U.S. NEWS & WORLD (May 10, 2022), https://www.usnews.com/news/best-states/maine/articles/2022-05-10/1b-hydropower-projects-fate-rests-with-maine-supreme-court [https://perma.cc/U8HH-P96U].

[148] Gross, *supra* note 138, at 9.

[149] *Id.* at 2; *but see* Bill Nussey, *When It Comes to Land Impact, Does Solar, Wind, Nuclear, Coal, or Natural Gas Have the Smallest Footprint?*, FREEING ENERGY PROJECT (Apr. 11, 2020), https://www.freeingenergy.com/land-usage-comparison-solar-wind-hydro-coal-nuclear/ [https://perma.cc/6KQ9-Z4NC] ("It is worth noting that this estimate may be misguided, as it does not provide the full picture of land-use issues associated with renewables in comparison with fossil fuels. For example, unlike fracking sites or coal mines, renewable projects can be "dual-use:" Onshore wind can coexist on the same parcel with ranchers and farmers, and solar panels can be installed on top of existing structures, such as parking garages and factories.").

More people must become used to the idea that energy projects will affect them personally. Energy sprawl and the distance between renewable projects and population will require infrastructure in new areas. The different land use needs of renewable infrastructure means that areas not affected by traditional energy infrastructure may be affected in new ways.[150] Areas not affected by the placement of traditional fossil-fuel based infrastructure are often occupied by people with political power and access to decision-makers, though that may be changing.[151] Local opposition can feed into state opposition, especially for transmission projects. Further complicating matters, transmission projects do not create long-term jobs, in contrast to solar and other renewable generation projects.[152] Pass-over states therefore have little incentive to consider the "needs of the many" argument to break through NIMBY-ism.[153]

3. Environmental Justice Concerns

One of the greatest difficulties with transmission is figuring out where it should be located. Infrastructure projects of all kinds, including energy-related, have a long history of disproportionately affecting minority and socioeconomically disadvantaged communities.[154] The expansion of transmission for greening the grid with renewables presents an opportunity to not repeat the mistakes of the past.

Building and siting transmission lines will cause land use conflicts. New and upgraded grid infrastructure sites will affect host communities.[155] Some of these areas present additional factors that will need to be addressed, such as endangered species habitats, sensitive ecosystems, and cultural and historic resources.[156] Again, this may complicate achieving a balance

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[150] Gross, *supra* note 138, at 9.

[151] Uma Outka, *Environmental Justice Issues in Sustainable Development: Environmental Justice in the Renewable Energy Transition*, 19 J. ENV'T & SUSTAINABILITY L. 60, 62 (2012).

[152] Laura Keir et al., *Environmental Justice and Citizen Perceptions of a Proposed Electric Transmission Line*, 45 CMTY. DEV. 108, 117–18 (2014); INTERNATIONAL FINANCE CORP., REVIEW OF THE GROWTH & EMPLOYMENT IMPACTS OF POWER PROJECTS 29–30 (June 2015).

[153] Keir et al., *supra* note 152.

[154] Outka, *supra* note 151.

[155] Gross, *supra* note 138, at 4; Wartenberg et al., *Environmental Justice: A Contrary Finding for the Case of High-Voltage Electric Power Transmission Lines*, 20 J. EXPOSURE SCI. ENV'T EPIDEMIOLOGY 237, 237 (2010).

[156] Emanuele Massetti et al., *Environmental Quality and the U.S. Power Sector: Air Quality, Water Quality, Land Use and Environmental Justice*, OAK RIDGE NAT'L LAB. at viii

between the overarching need for transmission to reach renewable energy goals and individual natural resources such as certain tracts of land. This debate can be seen in full force in the conflict over the infrastructure in Maine, which turns on whether to cut down fifty-three miles of forest to connect a 1,200MW hydropower station.[157]

It can also be difficult to work with those best suited to balance these competing values: the local communities.[158] The mosaic of jurisdictional authority and length of the lines needed make it difficult to get local input. Plus, the issue of holdout states and communities may seem to make soliciting local input unwise. Unlike oil and gas pipeline projects, transmission lines do not have the option of using eminent domain to seize land to complete the project.[159] Working with these communities takes time and resources for these large-scale projects needed to green the grid.[160] With the cost of transmission already high, transmission builders may be reluctant to add on this additional cost.

Planning the new transmission necessary to increase the amount of renewable energy on the grid means ensuring that the benefits and burdens of these new lines are shared equitably. This includes benefits like jobs and investment in affected communities, as well as the perceived downsides of transmission such as lower property values or aesthetically unpleasing infrastructure.[161] Unlike more traditional energy planning, the true externalities of transmission are not well-known.[162] This uncertainty can make communities hesitant to welcome projects. Local opposition can cause the permitting, siting, and construction of transmission to take seven to ten

(Jan. 4, 2017), *available at* https://perma.cc/3DJ6-TAAF.

[157] Sharp, *supra* note 145. While the project in total calls for a 145-mile corridor, nearly three-quarters of the trees were removed from the project before public backlash halted the project. *Id.*

[158] Massetti et al., *supra* note 156, at 60.

[159] Zevin et al., *supra* note 8, at 187 ("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.").

[160] Massetti et al., *supra* note 156, at 60–61.

[161] Wartenburg et al., *supra* note 155, at 237 ("While there is a perception that energy infrastructure decreases property values, there was a similar perception for wind projects as well. This notion has been found false in some studies."); Massetti et al., *supra* note 156, at 52. However, the actual economics may not be as relevant here as the perceived property value risks when communities are considering transmission entering their communities.

[162] Massetti et al., *supra* note 156, at 56.

years longer than the same process for generation facilities.[163] In many ways, this seems counter-intuitive, since fossil-fuel generation facilities are known to cause adverse health effects. However, despite minimal scientific proof of harmful effects, people are generally uneasy with having large scale transmission near their homes.[164]

Disenfranchised, disinvested communities have always borne the brunt of the burdens of our energy system.[165] This must change going forward. Often, those who have the most access to the political and regulatory processes can avoid suffering from the negative externalities of electricity generation and production within their communities. Low-income and minority communities suffer a disproportionate burden of externalities due to a variety of factors, including implicit factors such as the lack of social capital to fight locally undesirably projects, and more explicit actions like the history of redlining (racially discriminatory housing policies).[166] These legacies continue today, resulting in these communities facing higher levels of air pollution, exposure to dangerous chemicals, and poor water quality.[167] This is due in part to their proximity to parts of our current grid, which relies on fossil fuels.[168] Close exposure to fossil fuel generations leads to poor health outcomes such as increased rates of cancer and asthma.[169] Everyone across the United States has benefitted from the traditional fossil-fuel grid, but not everyone has borne their fair share of the burden.

But this may change with the evolving geography of the grid. In fact, renewable energy in general may require more land use than our previous fossil-fuel system, at least in the short-term.[170] Shifting to a grid powered increasingly by renewable sources—and the transmission that comes with it—will require communities not accustomed to hosting "undesirable" local land uses welcoming grid infrastructure.[171] Part of this is due to transmission requiring large amounts of open space. This means that, going forward, a new demographic may be affected by new transmission lines. One study

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[163] *Id.*

[164] *Id.*; Outka, *supra* note 151, at 76.

[165] Wartenburg et al., *supra* note 155, at 238.

[166] *Id.*

[167] *Id.*

[168] *Id.*

[169] *Id.*

[170] Gross, *supra* note 138, at 2 ("Wind and solar generation require at least 10 times as much land per unit of power produced than coal- or natural gas-fired power plants, including land disturbed to produce and transport the fossil fuels.").

[171] *Id.*

conducted in upstate New York found that communities living within two thousand feet of high-voltage transmission lines tended to be white, higher income, educated, and home-owners.[172] Typically, these groups had political pull to ensure traditional energy projects remained away from their homes, meaning white, high-income communities have not historically had undesirable energy infrastructure near them.[173] Whenever there are NIMBY issues, we must be concerned about who gets their voices heard.[174] Luckily, these burdens going forward will not include as many polluting facilities as our prior fossil fuel-based grid created. Instead, much of the discussion centers around land use and the location of new projects and transmission.[175]

4. Financial Challenges

Though many agree there needs to be more transmission to meet renewable energy goals, there is less agreement about who should pay. The roadblocks and obstacles to transmission projects make them a risky investment.[176] Building transmission lines is an "expensive process[ ] fraught with uncertainty."[177] Currently, PJM (an RTO serving the mid-Atlantic and parts of the Midwest) estimates it will cost between $2.2 to $3.2 billion of transmission just to meet demand for offshore wind projects within its region.[178] PJM believes these projects will ultimately lower costs for ratepayers once the projects are up and running.[179] Despite the long-term benefits, the short-term investments and hurdles must be overcome.

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[172] Wartenburg et al., *supra* note 155 at 237.

[173] *Id.* at 237–38.

[174] Outka, *supra* note 151, at 76.

[175] While there has been some discussion about the health effects of transmission due to the magnetic fields they produce, there is not the same level of certainty for adverse health effects as fossil-fuel generating plants. Wartenburg et al., *supra* note 155, at 238; Gross, *supra* note 138, at 9.

[176] Shalini Vajjhala et al., *Green Corridors: Linking Interregional Transmission Expansion and Renewable Energy Policies*, RES. FOR THE FUTURE at 1 (Feb. 28, 2008), https://www.rff.org/publications/working-papers/green-corridors-linking-interregional-transmission-expansion-and-renewable-energy-policies/ [https://perma.cc/A47J-ZRFA].

[177] *Id.*

[178] Ethan Howland, *Meeting State Offshore Wind, Renewable Goals Requires up to $3.2B in Transmission, PJM Says*, UTILITY DIVE (Oct. 21, 2021), https://www.utilitydive.com/news/state-offshore-renewable-goals-cost-transmission-pjm-planning/608643/ [https://perma.cc/FM39-ZGEV].

[179] *Id*.

In most circumstances, there are two options to pay for a transmission project.[180] If a specific energy generation project, such as a wind farm or natural gas-fired plant, needs to connect to the grid, the generating project pays for it.[181] Adding new projects onto the grid can create two types of costs: interconnection (the cost of equipment to physically connect the project to an *existing* line) or, for certain generation projects, upgrading the existing line or creating a new line altogether.[182] This is added to the overall cost of the generation project itself.[183] Once the initial project is connected to the grid, however, other facilities can connect to the already-completed and paid-for transmission, only paying the interconnection fee.[184] The upfront costs of transmission creates the "first-mover" problem.[185] The geography of renewables is different from traditional fossil-fuel sources: once one project bears the upfront costs of creating the transmission line, it is likely other renewable projects will be built.[186] Therefore, developers may be reluctant to be the first mover.

The second way to finance transmission lines is for regulated utilities to pay for new transmission lines.[187] These costs are then passed onto ratepayers. This is referred to as "socializing" the costs, where utilities pay the upfront costs of the investments, and then recover these costs through the rates they charge customers.[188] Utilities must receive permission from regulators to recover these costs (placing them in the "rate base") by raising prices over a fixed amount of time.[189] This method allows for regulatory oversight to ensure that ratepayers are not being charged unfairly. However, for large interstate projects, there may be issues of fairness for which ratepayers pay—and by how much—for new transmission lines.

Both financing methods come down to the same classic chicken-and-egg problem: generators don't want to build high-cost renewable projects due to a lack of transmission to connect to the grid, but the transmission project can't be built yet because there is no need and nobody to pay for it.[190] This becomes

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[180] BROWN & SEDANO, *supra* note 14, at 22–23.
[181] *Id.*
[182] *Id.*
[183] *Id.*
[184] *Id.*
[185] *Id.*
[186] Vajjhala et al., *supra* note 176, at 3.
[187] BROWN & SEDANO, *supra* note 14, at 22–23.
[188] *Id.* at 23.
[189] *Id.*
[190] Schumacher et al., *supra* note 131, at 30–31.

more complicated for renewables because they are so tied to location.[191] Locations suitable for renewables are often remote, like the Mojave Desert, and need significant investment in transmission to be viable.[192] The question remains whether transmission should take a "build it and they will come" approach or rework the system to address the first mover problem.

IV. SOLUTIONS

Despite the issues facing transmission buildout, there's also an opportunity to shape the U.S. grid going forward to create a system that works for everyone. We can learn from the past and present to build a better grid for the future.

A. Working with Communities

Bringing communities and stakeholders to the table early in the process may help address many of the potential barriers to transmission projects. At every level of authority, pushback by the community can impede or even stop large-scale projects from being built. While host communities may have legitimate concerns, these kinds of holdouts can greatly impact our ability to transform the grid to handle the transition to renewable energy. However, there is little incentive for communities to take a perspective that puts the needs of the many ahead of their own. A global problem like climate change requires a global solution; it's difficult to see how the acts of one area can fight this Goliath of a problem. When it comes to transmission, there is a great opportunity for communities to contribute to the global solution, starting with giving them a seat at the table.

Working with the community from the beginning can change the public's perspective and improve public perception of the projects. This is even more critical for transmission, where the benefits are not as immediately apparent.[193] Those who will be affected by the projects should have a voice to provide input on the decision making for these projects, especially with respect to determining a project's externalities. Considering externalities at the beginning of large transmission projects can improve project development, help limit the socio-economic impacts of the projects on the

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[191] Vajjhala et al., *supra* note 176, at 3.

[192] Glick & Christiansen, *supra* note 47, at 35; Zevin et al., *supra* note 8, at 191 ("But even if FERC were to finalize this rule or other policies intended to incentivize the deployment of new technology, improvements to existing transmission facilities cannot substitute fully for transmission system expansion to remote wind- and sun-rich locations.").

[193] Gross, *supra* note 138, at 10–12.

local communities and take advantage of local knowledge to improve the project itself.[194]

Though the sheer scale of additional transmission needed may seem like a Herculean task, there's some hope that community involvement will reduce costs and time. Many transmission projects are held up in later stages by one level of authority, sometimes as a "holdout." In these cases, one piece of the puzzle may halt the project, costing time and money. Including communities from the get-go may solve this issue at both the state and local levels. Local resistance to a project often centers on how the public perceives the quality of the decision-making process for high-voltage transmission.[195] One study found that while decision makers thought local resistance to the placement of transmission lines was due to concerns about aesthetics, land value, and potential health impacts, the true concerns were about the process.[196] This disconnect can be addressed by changing how transmission projects are placed. Traditionally, many decision-makers use a "decide-announce-defend" approach to transmission siting.[197] Communities' "[l]evel of acceptance was tied to trust in the developer and perceived procedural and distributive justice issues;" communities that feel as if they have no influence may be more resistant to transmission projects.[198]

One case study in Chile found that coordinating with communities and among transmission-line users to build new transmission networks from the beginning stages could reduce costs by twenty-one percent compared to "business as usual."[199] Working with communities can help identify and address the externalities associated with building transmission at the beginning, rather than allowing them to become costly roadblocks throughout the process.[200] Further, encouraging projects to work together to share transmission lines can reduce redundancies and streamline the process to bring more renewable projects on to the grid efficiently.[201]

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[194] Carlos Matamala et al., *The Value of Network Investment Coordination to Reduce Environmental Externalities When Integrating Renewables: Case on the Chilean Transmission Network*, 126 ENERGY POL'Y 251, 252–53 (2019).

[195] Keir et al., *supra* note 152, at 108–09.

[196] *Id.* at 108.

[197] *Id.*

[198] *Id.* at 116.

[199] *Id.*

[200] *Id.* at 259–60.

[201] *Id.*

Working with communities to build these large-scale transmission lines may be a lot of work but is ultimately worth the time and effort. Community concerns about process means that improving the procedural justice aspects of transmission siting can improve project viability. Involving the community may provide certainty to investors, ultimately removing some of the barriers to more quickly and cheaply building lines needed for the transition to renewable energy. And bringing in these too-often ignored voices can help build our grid in a more equitable way.

The Department of Energy's (DOE) new initiative under the recent Bipartisan Infrastructure Bill is a step in the right direction. The "Building a Better Grid" Initiative aims to streamline the process of building transmission, in part through "engaging with other federal agencies, state and local governments, American Indian Tribes and Alaska Natives, industry, unions, local communities, environmental justice organizations, and other stakeholders."[202] Though DOE lacks specific plans to make this goal a reality, it is an encouraging sign. DOE intends to leverage the use of existing regional structures like ISOs and RTOs to bring in local stakeholder engagement.[203] The agency further plans on "modernizing" transmission planning by developing guidelines to assist in planning for long-term projects.[204] The guidelines will help "provide greater certainty to drive investment," bolster community engagement, and improve the process for building transmission projects overall. Shifting the perception of process in transmission planning and working with communities are positive developments in the quest to meet the growing need for transmission that enables a green and reliable grid.

B. "National Interest Corridors" as a Solution

National Interest Corridors pose a possible solution to the troubles with transmission. The Energy Policy Act of 2005 created the ability for the DOE to identify "national interest electric transmission corridors" (NIETC).[205] These corridors create a designated right of way intended to ease the regulatory roadblocks and red tape facing transmission lines in order to simplify the transmission process.[206] However, transmission is not the only line that stands to benefit from the corridors. Oil, gas, and hydrogen pipelines

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[202] Building a Better Grid Initiative To Upgrade and Expand the Nation's Electric Transmission Grid To Support Resilience, Reliability, and Decarbonization, 87 Fed. Reg. 2769-70 (proposed Jan. 19, 2022).

[203] *Id.* at 2770.

[204] *Id.* at 2771.

[205] Vajjhala et al., *supra* note 176, at 4.

[206] *Id.*

can also take advantage of the simplified process under this framework. [207] No NIETC have been successfully implemented due to the complicated federalism issues at play.[208]

Congress allocating the power to identify NIETCs to DOE is significant because it gives FERC "backstop" siting authority for transmission lines developed in the DOE-identified corridors, a power that until then had been held solely by the states.[209] Under this framework of heightened federal authority, states still get to have a "notice and comment" period, but the Secretary of Energy may still create a NIETC in "any geographic area that experiences electric energy transmission constraints or congestion that adversely affects consumers."[210] To exercise this impressive power, FERC must first find there is transmission congestion and consider many factors including economics, U.S. energy independence, the "interests of national energy policy" and "whether it enhances national defense."[211] Once these factors have been established, FERC can, in limited circumstances, exercise significant power under its backstop authority.[212] This includes overriding state commissions to issue construction permits and delegate eminent domain.[213] FERC exercising this authority to override the will of a state would be a major change in the historically careful balance of siting powers between states and the federal government.

While the NIETCs would be a seismic shift in the delegation of powers, utilizing them presents an opportunity to solve some of the issues plaguing transmission. Federal oversight would bridge the gaps left by state actors working on their own and move transmission projects forward. This route is also attractive because it would require no new legislation. Combining the corridors with FERC Order 1000 allows for regional plans, where states are involved in the process but FERC retains ultimate oversight authority.[214] A strong federal oversight process may solve the issues where "pass through"

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[207] *Id.*

[208] *Id.*

[209] Aaron S. Lax, *A High-Wire Balancing Act: Federal Energy Transmission Corridors*, 23 NAT. RESOURCES & ENV'T 18, 18 (2008).

[210] 16 U.S.C. § 824p(a)(2).

[211] Erich W. Struble, *National Interest Electric Transmission Corridors: Will State Regulators Remain Relevant?*, 113 PA. ST. L. REV. 575, 588 (2008); 16 U.S.C. § 824p(a)(4).

[212] Struble, *supra* note 211, at 589; 16 U.S.C. § 824p(b)(1)(A)-(C).

[213] Rossi & Brown, *supra* note 126, at 743.

[214] *Id.*

states have little motivation to go forward with these projects and a more centralized approach to coordinate.

Despite the many positives, National Interest Corridors face opposition from the courts and the states.[215] States object to FERC taking powers historically held by the states.[216] Courts have generally backed the states in these challenges.[217] Specifically, states take issue when federal law preempts state and local laws, with land-use concerns, and with the inability to provide input during the process.[218] When challenged, the courts have generally construed FERC's siting authority narrowly and pushed back on allowing FERC to broadly exercise authority, reducing the potency of what makes these corridors an attractive way to address the problems plaguing transmission.[219]

The Bipartisan Infrastructure Bill may have addressed some of these issues flagged by the courts. Section 40105 of the bill clarifies FERC's authority over the corridors, giving the agency the power to override a state's rejection of a permit for the construction of a transmission project within an NIETC.[220] This may be clarification based on a 2009 Fourth Circuit decision in which the court found that FERC did not have the authority to issue permits under the NIETC designation when a state denies a permit.[221] The decision limited FERC's authority only to instances where a state withheld approval of a permit for more than a year.[222] Section 40105 seems to clarify and counter the Fourth Circuit decision to expand the scope of FERC's authority to site transmission lines.[223]

It is unclear whether FERC would exercise its newfound authority to override a state. It would be a bold, contentious move for FERC to directly grant a permit that a state has explicitly denied. Generally, the federal

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[215] Struble, *supra* note 211, at 591.

[216] *Id.*

[217] Piedmont Env't Council v. Fed. Energy Regul. Comm'n, 558 F.3d 304 (4th Cir. 2009), cert. denied, 130 S. Ct. 1138 (2010).

[218] Struble, *supra* note 211, at 592; Nancy A. McLaughlin, *Condemning Open Space: Making Way for National Interest Electric Transmission Corridors (Or Not)*, 26 VA. ENV'T L.J. 399, 427 (2008).

[219] McLaughlin, *supra* note 218, at 416–17.

[220] *Id.*

[221] *Piedmont Envtl. Council*, 558 F.3d at 325.

[222] *Id.*

[223] *See* McLaughlin, *supra* note 218, at 416–17.

government and FERC have been reluctant to directly contradict states.[224] Doing so could have political ramifications where the federal government intrudes on what has historically been considered states' rights. Further, the statute requires that FERC considers whether the project developer sought "good faith" consultations before engaging FERC's backstop authority to override a permit denial.[225] It remains unclear how these good faith consultations might proceed before federal backstop authority sweeps in. The inherent federalism tension between the states and FERC could hinder progress. Still, this helps clarify Congress's intent behind the NIETC framework and its attempt to grant a federal oversight authority to build more long-range transmission lines.

Time will tell whether this solution will work. Commissioner Glick, who currently heads FERC, has expressed doubts that this grant in authority will work in practice.[226] One gap still left is the project's ability to acquire land rights to actually build the project. If FERC were to use its backstop authority, the project developer would be able to use eminent domain to compel federal or private landowners to allow the project to be built.[227] This power to strongarm land acquisition through eminent domain becomes more complicated on state-owned land.[228] It seems unlikely that a state whose permit denial is overruled by the federal government would turn around and cooperate by allowing the land to become a part of the project, even through eminent domain. Such a strong action could be a politically contentious

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[224] *Id.*

[225] Infrastructure Investment and Jobs Act, H. R. 3684, 117th Cong. § 40105(c) (2021).

[226] Ethan Howard, *Biden Signs $1.2 Trillion Infrastructure Bill with Funding For EYS, Transmission, Hydrogen*, UTILITY DIVE (Nov. 8, 2021), https://www.utilitydive.com/news/congress-approves-infrastructure-bill-funding-transmission-hydrogen-ev/609649/ [https://perma.cc/3JGH-8FWV] ("However, FERC Commissioner Richard Glick doubts the backstop siting authority will have much practical effect. 'I think it's going to be somewhat limited in terms of its deployment.'").

[227] John Decker & Andrew DeVore, *President Biden Signs the Bipartisan Infrastructure Bill into Law, Certain to Fuel Long Standing Debates at FERC*, V&E ENERGY UPDATE (Nov. 16, 2021), https://www.velaw.com/insights/president-biden-signs-the-bipartisan-infrastructure-bill-into-law-certain-to-fuel-long-standing-debates-at-ferc/ [https://perma.cc/7V86-DJWT].

[228] *Id.* This remains an unsettled area of law that could spur litigation (and increase project costs and timelines), as the Supreme Court recently held in *PennEast Pipeline Co. v. New Jersey* that a private party can exercise eminent domain power for a natural gas pipeline project under authority from the Natural Gas Act. PennEast Pipeline Co. v. New Jersey, 141 S. Ct. 2244 (2021). However, it is not currently clear what this means in the context of transmission lines.

move. Still, we can hope that this change in law reflects an acknowledgement of the need for change.

The DOE has also taken notice of this workaround and is considering ways to work together with FERC to use NIETC to build long-range transmission lines. In a recent Notice of Intent, DOE's Office of Electricity indicated it believes the updated NIETC process is a viable route forward to designate National Corridors on a "route-specific, applicant-driven basis."[229] This framework is also a part of DOE's "Building a Better Grid" Initiative under the Infrastructure Bill.[230] The agency intends to "harmonize" the NIETC and FERC permitting processes by coordinating between the DOE and FERC.[231] Further, DOE hopes to "give particular consideration to proposed National Corridors that, to the greatest degree possible, overlap with or utilize existing highway, rail, utility, and federal land rights-of-way."[232]

This initiative also includes and tries to address the issues from the splits of authority and regulatory power over transmission between many parties. The DOE announced that it will also "consult and work collaboratively with government entities, including states, American Indian Tribes, and Alaska Natives, and other stakeholders throughout the process of evaluating and deploying the [DOE]'s tools and authorities to accelerate transmission deployment."[233] This is a significant step to solve two major issues in transmission: split regulatory authority and lack of community involvement. DOE can begin overcoming these hurdles by collaborating from the beginning to avoid many of the issues that can halt and delay projects. While the collaborative approach is still in its early stages and lacks detail, it is a step in the right direction to improve the existing framework. This step, along with others discussed, can help overcome the barriers still in place to meet the transmission needs of the grid going forward.

C. Abandon Plans for Long-Range Transmission?

Microgrids offer another way to transition our grid quickly to renewable energy and to side-step the need for *some* long-range transmission lines. Much like the name implies, microgrids are small independent systems of electricity sources that can operate without reliance on the larger grid

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[229] Building a Better Grid Initiative, 87 Fed. Reg. at 2773.

[230] *Id.*

[231] *Id.*

[232] *Id.*

[233] *Id.* at 2770.

system.[234] These systems rely only on local energy sources, often by pairing renewable sources like rooftop solar with energy storage systems like batteries.[235] Microgrids offer flexibility, since they can connect to the larger grid system while also being able to operate in "island mode" and support themselves without reliance on longer-ranged sources.[236] This ability to operate in "island mode" is especially attractive for dealing with more frequent and intense weather events and natural disasters fueled by climate change that can affect long range transmission.[237] However, despite their many benefits, microgrids do not negate the need for transmission reform as their implementation also relies on the building and updating of transmission lines.

Microgrids often work hand-in-hand with distributed energy resources like rooftop solar, and the rise of the "prosumer," who both contributes to and takes energy from the grid.[238] While these prosumers help microgrids to flourish, our current transmission system and grid were simply not designed to handle the situation where energy is flowing in two directions.[239] When the sun is shining, rooftop solar generation often outpaces consumption at residential buildings.[240] Excess energy must then flow back to the grid, which is problematic in areas where old transformers were not built to handle this new situation.[241] When the sun is shining, a peak in rooftop solar production can cause transformer failures and energy shutoffs.[242] This necessitates costly upgrades to our transmission infrastructure to make microgrids a reality.[243]

Despite these undeniable benefits, microgrids continue to run into the same issue as long-range transmission: cost. Transitioning to a grid reliant on microgrids may cost more than a grid reliant on long-range transmission lines while still presenting many issues.[244] On average, utility-scale generation,

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[234] Dan Su et al., *Research on Renewable Energy Planning Considering the Flexible Region of the Microgrid*, 10 APPLIED SCI. 7544, 7544–45 (2020).

[235] *Id.* at 7545.

[236] Nikolaos E. Koltsaklis, *Optimal Energy Planning and Scheduling of Microgrids*, 131 CHEMICAL ENGINEERING RES. DESIGN 318, 318 (2018).

[237] *Id.* at 318–19.

[238] Su et al., *supra* note 234, at 7545.

[239] Ivan Penn, *Old Power Gear Is Slowing Use of Clean Energy and Electric Cars*, N.Y. TIMES (Oct. 28, 2021), https://perma.cc/FZ7W-VWU7.

[240] *Id.*

[241] *Id.*

[242] *Id.*

[243] *Id.*

[244] *See* Julieta Giraldez et al., *Phase I Microgrid Cost Study: Data Collection and*

especially for renewables, is less expensive than distributed generation.[245] Furthermore, microgrids do not solve the issue of bringing renewable energy to population centers that do not have consistent access to renewables, like the Northeast.[246] These obstacles highlight that microgrids alone cannot solve these issues of transitioning to a renewable-powered grid.

Microgrids offer the ability to ensure local power remains on during large disruptions. Going forward, microgrids will undoubtedly play a role in our transition to renewable energy, but they too may be reliant on upgrades to our transmission system. Thus, no matter the approach taken, the troubles with transmission must be addressed and improved to meet renewable transmission goals.

D. Cost Allocation and Economic Tools

Economic issues must be addressed to create a system to build transmission to meet the needs of a grid powered primarily by renewable energy. Congress came up with a creative economic solution to address these issues of cost allocation and the first-mover problem in the Bipartisan Infrastructure Bill. Section 40106 creates a $2.5 billion fund for the Transmission Facilitation Program, which allows DOE to invest as an "anchor-tenant" in new transmission projects.[247] Funding projects may help solve the first-mover problem hampering transmission development, as DOE can now initially fund the project by buying capacity now and selling it off once the project is deemed viable. DOE will do so by purchasing up to fifty percent of capacity offered in a new, proposed transmission project for up to forty years.[248] After this initial investment to get the project off the ground, DOE can then sell off their capacity contracts to generators wanting to use the new transmission lines.[249] This critical investment will help secure the project's long-term viability, adding the stability that has been lacking in transmission projects.[250] Then, DOE can reinvest this money into a new

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Analysis of Microgrid Costs in the United States, NREL at 36, *available at* https://perma.cc/HC95-KADH; Will Gorman et al., *Improving Estimates of Transmission Capital Costs for Utility-Scale Wind and Solar Projects to Inform Renewable Energy Policy*, 135 ENERGY POL'Y 110994, at 13 (2019).

[245] Gorman et al., *supra* note 244, at 2–3.

[246] Su et al., *supra* note 234.

[247] Infrastructure Investment and Jobs Act, H. R. 3684, 117th Cong. § 40106(d)(2) (2021).

[248] Building a Better Grid Initiative, 87 Fed. Reg. at 2771.

[249] H. R. 3684 § 40106(d)(4).

[250] Building a Better Grid Initiative, *supra* note 248, at 2771–72.

transmission project to get another project off the ground.[251] In this way, DOE will create a revolving fund to solve some of the funding problems discussed.

Though untested, the Transmission Facilitation Program offers a novel solution to a complex problem. The creation of this significant funding may facilitate the creation of transmission projects needed to make the transition to renewable energy. Renewable energy generators will not have to weigh the cost of building the transmission lines for all projects. Instead, they will be able to buy transmission capacity from DOE for already built transmission lines, significantly reducing the overall cost and risk of projects. Further, DOE will also be able to "enter into public-private partnerships to co-develop projects that are located in a National Corridor or that are necessary to accommodate an increase in demand for interstate transmission."[252] This flexibility may begin to solve the chicken-and-egg problem of transmission projects, bringing renewable energy on the grid faster.

Innovative financial incentives, coupled with a community-based approach, offer a faster solution to the barriers facing transmission. Prior to the recent Bipartisan Infrastructure Bill, Congress had done little to fix the barriers to building new transmission lines.[253] Instead, the actions by FERC have eliminated the Federal ROFR but have left in its wake a greater issue—state ROFRs.[254] These state-level obstacles, including everything from state ROFRs to state siting issues, likely cannot be solved by a top-down approach. Even natural gas pipelines—which have the benefit of top-down control in the form of eminent domain—continue to face long delays and blockages.[255] This pushback and delay persist even with greater centralization and force behind bringing pipelines online.[256] The Bipartisan Infrastructure Bill won't solve all these problems. Instead, the aforementioned financial initiatives can begin to pave the way forward for a sustainable grid when combined with a community-based approach.

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[251] H. R. 3684.

[252] Building a Better Grid Initiative, 87 Fed. Reg. at 2772.

[253] 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).

[254] Weiler, *supra* note 71, at 20.

[255] James W. Coleman & Alexandra B. Klass, *Energy and Eminent Domain*, 104 MINN. L. REV. 659, 680–82 (2019).

[256] *Id.*

CONCLUSION

Transforming the grid within the United States is a monumental undertaking. But it is vitally important to adapt and overcome the barriers to transitioning to renewable energy. There have been some missteps along the way, such as FERC's inability to adequately squash the issues that come along with rights of first refusals. On the other hand, there have also been great steps forward to try to make a transmission revolution a reality.

At the very heart of the issue is the tension between the need for local support and input versus the need for centralized oversight to move projects forward. The best, most just way to transform our energy grid will be to prevent repeating the mistakes of the past that disproportionately burdened certain communities by ensuring local input. It will take a vision beyond the immediacy of a single transmission project to see the cumulative impact that adding renewable energy will have on our country and the world. Hopefully, we will realize that the only way to transform our electricity grid and pave the way to fight climate change is by working together.

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