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Governing the grid for the future: The case for a Federal Grid Planning Authority

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Abstract

The U.S. electricity grid is nearing crisis mode, plagued by a suite of challenges including lengthy delays in interconnecting new resources, insufficient regional and interregional transmission expansion, and increasing reliability concerns. This policy proposal argues that these problems confronting the grid should be understood centrally as a challenge of governance. For-profit companies have too large a role in the long-term, systemic planning of the electricity grid, causing U.S. consumers to dramatically overspend on grid projects that serve incumbents' financial interests but do not efficiently or effectively accomplish public goals for the system. Recent reforms improve grid planning at the margins but do not adequately address underlying governance concerns. To remedy these governance flaws, the paper proposes the creation of a public grid planning authority to develop grid expansion plans in the national interest, accompanied by changes to grid oversight to enable more scrutiny of proposed utility projects that do not align with national and regional plans. After laying out how legislation could create an ideal public grid planning entity, the paper explores how federal energy agencies could accomplish a similar set of governance reforms through more effective use of existing legal authorities. These changes would benefit communities across the country by containing the cost of electricity while enabling a cleaner and more resilient energy system.

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Introduction

The electricity grid is the backbone of a successful clean energy transition. A strong grid will connect new clean energy resources to population centers and support the electrification of transport, heating, and cooking. It will also integrate, balance, and smooth variable resources across the country, enhancing reliability in the face of mounting climate disasters. Furthermore, it will lower the cost of system transformation by enabling more robust national coordination of resources.

Our country's backbone is, at present, in failing health—not at all ready to support the clean energy transition at hand. Indeed, in an October 2023 report, the National Academies of Sciences, Engineering, and Medicine concluded that "[p]erhaps the single greatest risk to a successful energy transition during the 2020s is the risk that the nation fails to site, modernize, and build out the electrical grid."[1]

Numerous discrete challenges plague the grid. Utilities and regulators have proven incapable of agreeing on where to build long-distance, high-voltage transmission lines and how to pay for them. New renewable resources on average wait more than three years to connect to the grid, often paying exorbitant fees to do so. Additionally, warnings emerge every winter and summer that the grid is at imminent risk of failing during worsening weather extremes and natural disasters. In some cases, as with Winter Storm Uri in Texas in 2021, the grid has failed, causing devastating losses of life.

There is widespread recognition of these challenges, and federal regulators have recently taken steps to address certain policy pressure points. But these are more tweaks than rethinks. This policy proposal makes the case that a more fundamental reexamination of how the grid is planned and paid for is a critical prerequisite to accomplishing the rapid infrastructural shift needed to address climate change. More precisely, this paper directs attention to the "who" of grid planning by examining our system of **grid governance.**

The United States relies upon private bodies—collections of private energy companies—to create and administer plans for future grid development and to agree on how to share its costs, under limited federal oversight. The government has essentially outsourced grid planning to private entities on the theory that they will produce legally required "just and reasonable" rates and practices.[2] However, these entities are not doing so. This method of grid planning causes the country to overspend by billions of dollars a year on a grid that is incapable of adapting to shifting public demands for the system and does not support a reliable clean energy transition. That is because this grid governance model creates predictable pathologies: Incumbents understandably advance their own interests rather than plan a system that would better serve the public interest but threaten their bottom lines.

Fortunately, potential tools exist for stronger public grid oversight. If one could start from scratch, the diagnoses in this policy proposal point toward a **public grid planning body** as the preferred way to build the grid of the future. In the spirit of optimism and exploration, this paper briefly sketches what such an ideal-type body might look like—even as it acknowledges its present political impossibility.

It does so because understanding how a public grid planning body would work illuminates priority reforms capable of bending the system in this direction without congressional action. As this paper explores, better use of underleveraged statutory authority held by the Federal Energy Regulatory Commission (FERC) could allow for considerable movement toward more public grid planning. Most boldly, this paper traces how FERC could use its remedial authority to disallow utilities from pursuing parochial, expensive grid expansions while requiring robust regional and interregional planning and cost allocation. More modestly, it argues that applying a governance lens on the problems plaguing the grid highlights the importance and viability of numerous smaller steps that regulators could take to improve oversight and transparency in grid governance.

I. The grid and its transformation

The U.S. grid is frequently described as the largest machine on the planet. In fact, it is more like three machines with limited connections among them: the eastern interconnect, the western interconnect, and (most of) Texas. The grid's central function is to deliver power from entities that make electricity (generators) to entities that consume electricity ("load," in industry jargon). This electricity travels first through larger transmission lines, down into smaller distribution lines that connect to homes and businesses. The focus of this paper is on the larger transmission lines that form the core interconnections across the giant machinery of the grid.

FERC is the primary regulator of these interstate transmission lines, whereas distribution lines are left to state regulation. Consequently, this paper's analytical focus is on utilities under FERC's jurisdiction: investor-owned utilities that own interstate transmission lines. As a legal matter, these investor-owned utilities are designated as "public utilities," given special privileges in exchange for FERC oversight of their rates and practices.[3] Thus, both the terms "public utility" and "utility" used throughout the paper are intended to denote these utilities under FERC jurisdiction. These entities are distinct from publicly-owned utilities and cooperatives, which own a substantial portion of U.S. transmission lines but operate under different governance regimes even as they sometimes participate in FERC-jurisdictional processes and markets.[4]

These utilities have the exceedingly challenging and important job of achieving a near-perfect balance between supply and demand of electrons at all times. Grid operators rely on a range of strategies to maintain the stability that undergirds reliability, including regulations on generator characteristics, price signals, and emergency backup reserves. In most parts of the country, Regional Transmission Organizations (RTOs) run the grid. These are essentially collections of utilities that have assembled to jointly manage their systems under the aegis of a nonprofit operator (see **figure 1**).[5] In other regions (those in gray on figure 1), utilities manage their own systems, and regional transmission development occurs through loose utility collaborations.

Today, as described by journalist Kate Aronoff, "the grid is kind of a mess."[6] To be sure, electricity is still admirably reliable in the U.S., most of the time. However, the grid is both aging and under increasing stress. Most transmission infrastructure dates from the 1960s and 70s and is in need of critical repairs or replacement.[7] This aging system is encountering a new threat as climate change amplifies both the frequency and magnitude of severe weather events. Between 2000 and 2020, the number of "major disruptions" on the grid increased from two dozen to over 180 annually.[8]

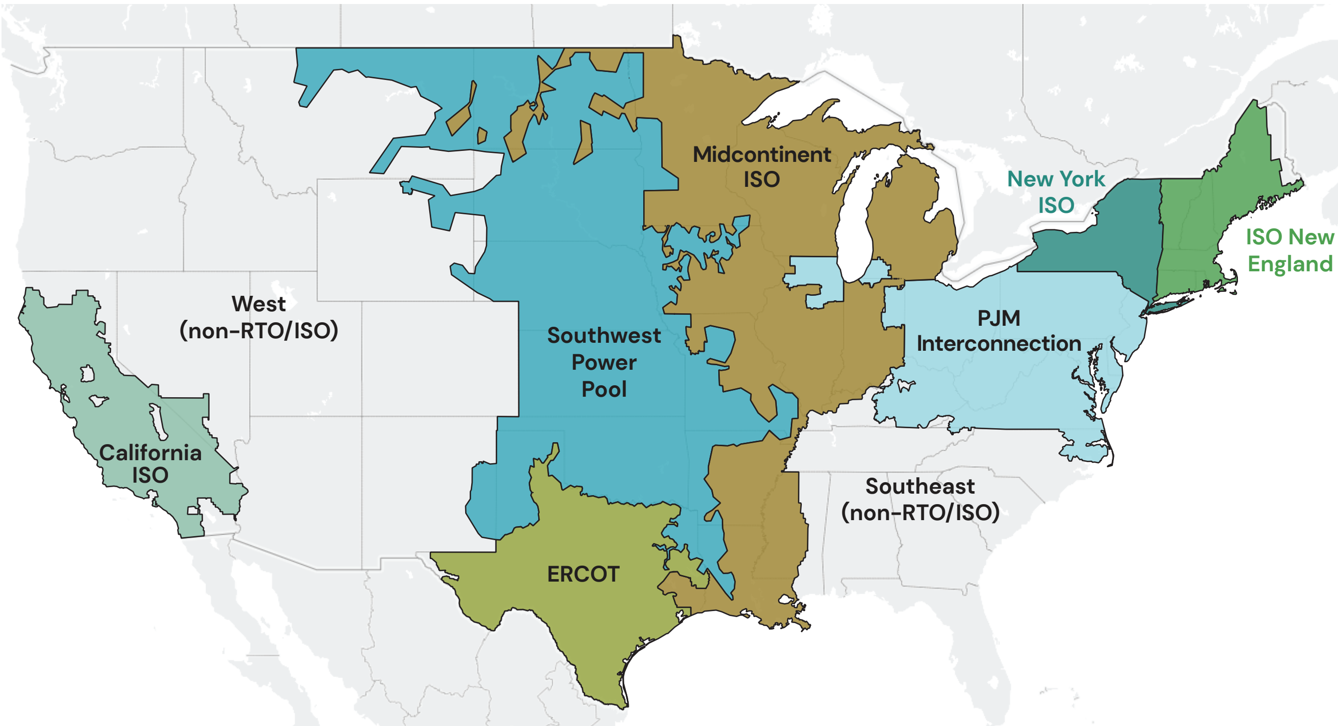
Even as reliability falters, demand for electricity is swelling. The United States is in a unique moment of growing energy demand. A December 2023 report found that "over the past year, grid planners nearly doubled the five-year load growth forecast" from 2.6 to 4.7 percent.[9] New manufacturing, industrial, and data center facilities are growing so fast that many now think even this updated estimate to be too low.[10] This surging electricity demand creates a pressing need for grid enhancements and expansions.

At the same time, the country's expectations of its energy system are changing dramatically. Since electricity's inception, fossil fuels have provided the vast majority of electricity in the United States (and beyond).[11] The Biden administration and numerous states now share an ambition to transition the U.S. electricity system to 100 percent clean energy by 2035.[12] This aim is stunningly ambitious: It would transform the grid from one that runs on nearly 60 percent fossil fuels to one that runs on no (unabated) fossil fuels in the next 11 years.[13]

This transformation requires a massive scale-up of renewable energy generation, mostly wind and solar. At the margins, these resources will need to be complemented by a range of technologies, including energy storage and some mix of next-generation nuclear, gas with carbon capture and storage, or other emerging resources capable of playing balancing roles in the energy mix.[14] The biggest legislative step in this direction is the 2022 Inflation Reduction Act (IRA), which is expected to spur somewhere between $400 million and $1.2 trillion in federal spending on clean energy in the coming decade.[15] The IRA's success in meeting its climate aims now depends on transmission grid expansion. Expert modeling shows that up to 80 percent of the benefits of IRA investments in clean energy will be lost without accompanying grid upgrades. More startlingly, the electrification spurred by the IRA might actually increase coal and natural gas consumption by 2030 if grid enhancements and expansions do not occur at unprecedented rates.[16]

FIGURE 1

U.S. regional transmission organizations and independent system operators



Source: Hitachi Energy Velocity Suite.

Note: ISO stands for independent system operator, RTO stands for regional transmission organization, and ERCOT (Texas' ISO) stands for Electric Reliability Council of Texas.

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Thus, although large, the grid is not nearly large enough—or interconnected enough.[17] Wind and solar farms must be located where nature provides the best resources, and these locations do not correspond with major demand centers in the United States. A larger, more interconnected grid is also better able to balance the weather-dependency of renewable resources, because it can transfer power among regions experiencing different conditions or levels of demand.[18] And a bigger, more interconnected grid can also help hedge against extreme-weather-related blackouts, potentially saving hundreds of lives in each instance as well as billions of dollars.[19] For all of these reasons, the grid needs to dramatically grow in size.[20] The U.S. Department of Energy's (DOE) 2023 Transmission Needs Study illustrates the staggering magnitude of grid expansion necessary over just the next decade, particularly if load growth and clean energy growth remain on their expected trajectories (**figure 2**).

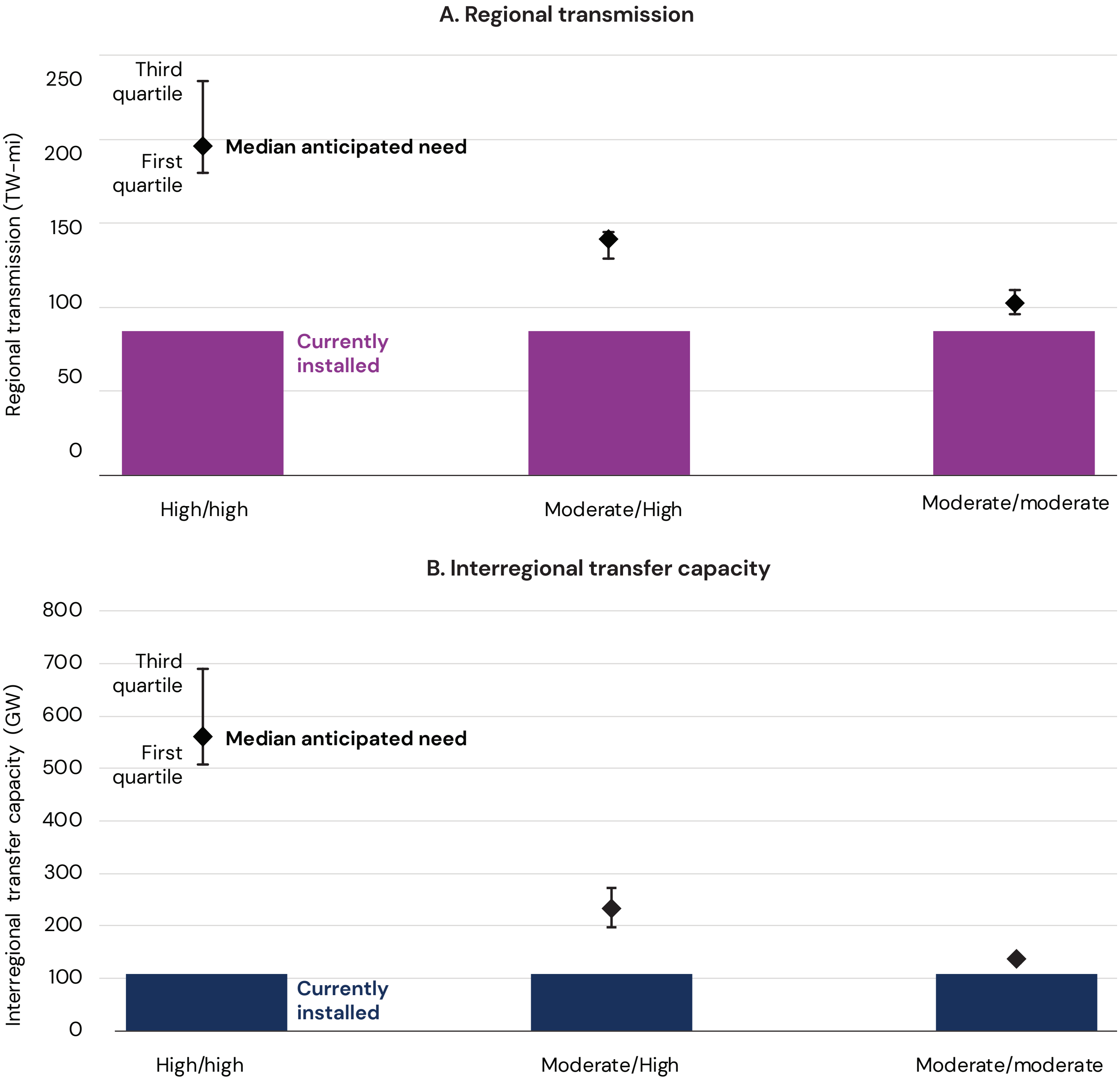
Even if climate change were not a pressing priority, grid expansion would remain an economical way to address both reliability concerns and increasing energy demand.[21] One recent modeling effort found that proposed legislation requiring interregional transmission capacity expansion would lead to "annual system cost savings of $330 million" and "a 58 percent reduction in power outages" during events similar to Winter Storm Elliot of 2022.[22] Thus, even states that do not have a political commitment to addressing climate change should be in favor of building out the transmission grid for the sake of affordability and reliability.

The United States already spends an enormous and increasing amount on grid infrastructure: From 1997 to 2017, "capital spending on electricity transmission infrastructure increased by a factor of seven" and now hovers around $25 billion per year.[23] But we are not spending this money on a rational, well-planned system capable of supporting the evolving energy mix. Instead, it is being spent on small lines that serve as kinds of patches to keep the grid in service but do not facilitate the energy system of the future.[24]

It is worth keeping front of mind how consequential these costs are for U.S. families, one in seven of whom is currently estimated to live in energy poverty, unable to afford their electricity bills.[25] In large part due to inefficient transmission investments, U.S. electricity prices have recently been rising even faster than general inflation.[26] Next year, residential electricity prices are forecast to reach their highest level in nearly 30 years,[27] making grid governance reforms an urgent matter of economic and racial justice, in addition to their pressing economic and climate imperatives.

FIGURE 2

Anticipated transmission and transfer capacity need for contiguous United States in 2035



Source: U.S. Department of Energy, National Transmission Needs Study (Washington, DC: U.S. Department of Energy, 2023).

Note: According to the U.S. Department of Energy, the figure shows the "median and interquartile ranges of within-region transmission and interregional transfer results for six different recent capacity expansion models. Currently installed transmission and transfer capacity are as pictured from [Paul Denholm, Patrick Brown, Wesley Cole, Trieu Mai, and Brian Sergi, Examining Supply-Side Options to Achieve 100% Clean Electricity by 2035 (Golden, CO: National Renewable Energy Laboratory, 2022)]. Considered scenarios are categorized into groups by their future load and clean energy growth, respectively (e.g., high load/high clean energy growth)."

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II. The challenge

The challenges plaguing the grid today are often discussed piecemeal. Some focus on a problem called **interconnection**, assessing the performance of the processes designed to get new resources connected to the grid. Others point out that the United States has failed to build out long-distance, high-voltage **transmission** lines. And still others warn of the unacceptably narrow margins facing the grid's **reliability** in light of the shifting composition of generation.

A. Interconnection, transmission planning, and reliability

While interconnection, transmission planning, and reliability are all acute problems, this paper argues that they are better viewed as symptoms of one overarching problem: The system is being planned and run by industry incumbents that have limited interest in facilitating change. These entities fail to manage the grid and its expansion holistically or in the public interest—making the core problem one of **governance.** To forge this connection, this section explains the challenges of interconnection, transmission, and reliability separately, before the next section casts them as manifestations of a critical governance challenge.

1. Interconnection

For a new electricity resource to deliver power, it must first be interconnected into the grid. The process of doing so is managed by the regional grid operator—either an RTO or an individual utility. When a developer wants to interconnect a new resource, it submits to its regional operator an interconnection request and is placed in an "interconnection queue." The grid operator then conducts a series of studies to determine what system upgrades are necessary to connect the project to the grid.[28] Most of the time, these upgrades are participant funded, meaning that the developer requesting interconnection is responsible for the costs of readying the grid to accommodate the new resource.[29]

This process for managing interconnection has caused severe challenges as new generation has shifted away from large fossil fuel generators toward smaller, more dispersed renewable energy resources. The number of interconnection requests has quintupled in the last decade, creating major backlogs in interconnection queues (**figure 3**).[30] In fact, there is more energy now waiting to enter the U.S. grid than there is on the grid in total. Over half of this energy are from energy storage projects, and of the electricity generation projects, 94 percent are carbon free (mostly solar and some wind).[31]

This massive influx of interconnection requests has extended project wait times to an average of three to four years.[32] These wait times create a real conundrum for developers, who often have difficulty obtaining financing or long-term contracting without knowing the costs of interconnection—but cannot find out these costs until years after a queue application.[33] Consequently, developers often submit queue requests before they have confidence that they will build their projects, which results in many projects dropping out of the queue, with cascading effects on interconnection study results for projects later in line.[34]

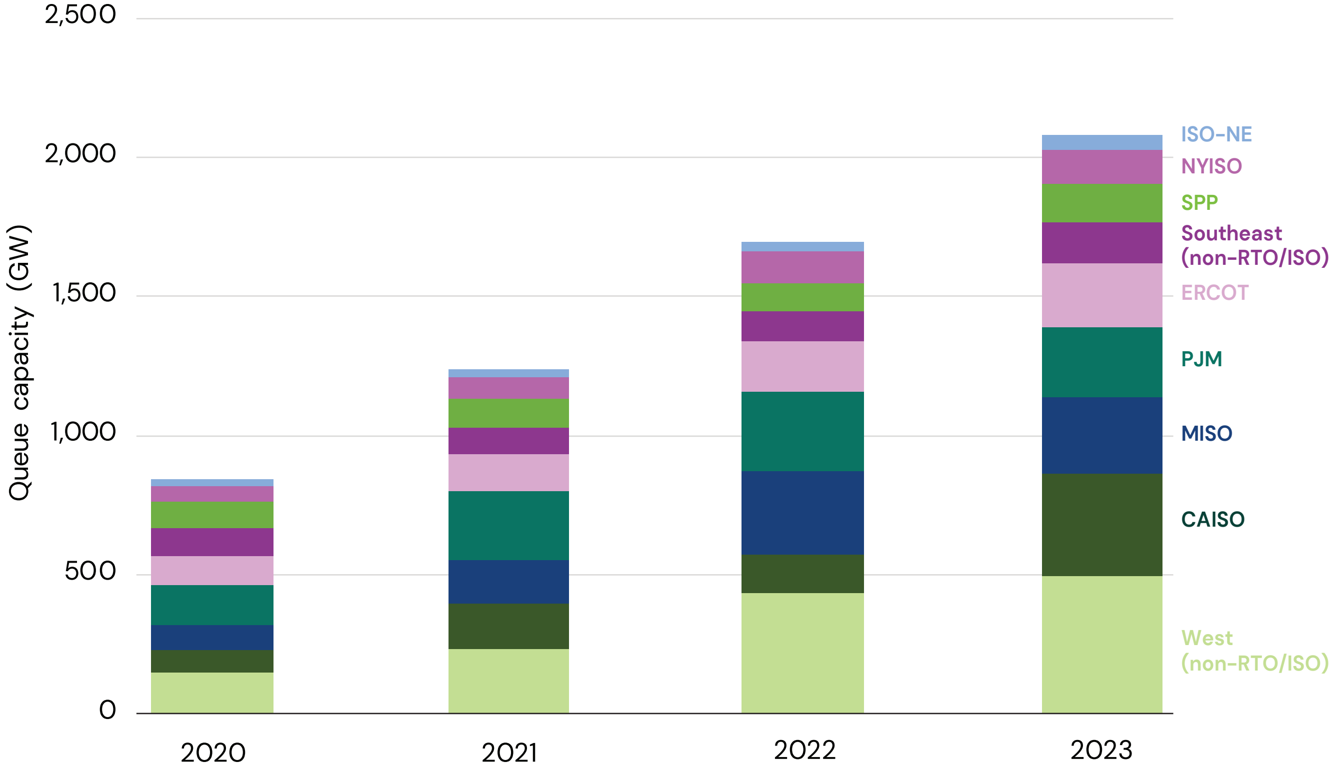
These delays and dropouts are part of the reason that only 21 percent of projects that enter interconnection queues get constructed.[35] But the central reason is that the costs of interconnection have ballooned in recent years. For example, the cost of network upgrades for wind in the Southwest has risen from 8 to 43 percent of its total capital costs, on average.[36] Increasingly and across regions, these costs are untenable and force project abandonment.[37]

2. Transmission planning

One of the central jobs of grid operators is to ensure that their transmission systems are designed to connect electricity supply to demand over the short and long term. Recognizing the importance of forward planning to the development of adequate transmission capacity in the right places, FERC has long required utilities to engage in transmission planning.[38] Its landmark rule on this topic in 2011 forced all regions of the country (RTOs and non-RTOs) to adopt a planning process that conformed to a number of good governance principles and to create a method of allocating regional project costs among utilities in the region. The regional plans emerging from these processes

FIGURE 3

Active energy capacity in the queue, by electric power markets, 2020–23



Source: Lawrence Berkeley National Laboratory (LBNL), Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection (Berkeley, CA: U.S. Department of Energy, 2021–2024).

Note: The sample is restricted to all active projects in the queue that report energy capacity. ISO stands for independent system operator, RTO stands for regional transmission organization, and CAISO stands for California ISO. MISO stands for Midcontinent ISO, PJM stands for PJM Interconnection, and ERCOT (Texas' ISO) stands for Electric Reliability Council of Texas. SPP stands for Southwest Power Pool, NYISO stands for New York ISO, and ISO-NE stands for New England ISO.

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are supposed to consider reliability, economic, and public-policy-driven transmission needs and to select a suite of regional projects to meet these needs in a cost-effective manner.[39]

These requirements are sound in theory; in practice, they have produced disappointing results.[40] As one recent report card on the grid found, "performance is declining across all regions . . . and very little new high-capacity transmission is being built."[41] Instead, utilities prefer to construct small projects within their own footprints.[42] Regional plans typically accept these projects as part of their baseline without critically analyzing whether other solutions might better meet regional needs. And rarely do regions holistically assess the economic, reliability, and public policy benefits of projects.[43]

As hard as regional planning is, interregional planning is harder yet. Regions rarely engage in successful interregional planning or projects, even though interregional transmission could bring significant benefits in terms of grid reliability, lower prices, and faster integration of clean energy resources.[44]

Open-ended guidance for how to pay for large transmission lines compounds planning challenges. The controlling legal standard is that "beneficiaries" of transmission lines should pay for their construction.[45] FERC has largely left it to regions to adopt their own processes for cost allocation, under a set of guiding principles.[46] But agreeing on how to share costs is a fraught matter, as no model can perfectly parse who benefits, and in what ways, from any given transmission expansion project.[47] Under circumstances where all utilities and their customers will benefit from a project or group of projects, some regions use a "postage stamp" methodology to allocate costs among utilities (i.e., each region pays the same amount, just as a stamp costs the same, no matter where one is mailing a letter).[48] But utilities and states often resist this type of cost socialization, reluctant to pay for transmission that they feel disproportionately benefits other states or other utilities' customers.[49]

Under the current regime, regional planners are leaving billions of potential cost savings on the table and impeding the transition to clean energy. Indeed, one 2020 study found that a comprehensive approach to building transmission in just the eastern half of the United States could produce consumer savings of $100 billion through 2050, decreasing the average bill rate by more than one-third.[50]

Even if a regional or interregional project makes it through the planning and cost allocation stages, there remains the immense challenge of getting the project permitted and sited. FERC has no interstate transmission siting authority, meaning that projects must win approval from every state through which they cross (with emerging exceptions, discussed below).[51]

For all these reasons, transmission projects typically take 5 to 10 years to plan, develop, and construct—with some of the most effective and ambitious regional and interregional projects taking 15 or 20 years.[52] To emphasize the obvious, this time frame is seriously out of sync with growing electricity demand and the necessary pace of the energy transition.

3. Reliability

A final electric grid challenge that has made headlines recently is its faltering reliability. The nation's primary grid reliability organization, the North American Electric Reliability Corporation (NERC), has increasingly sounded alarms about the grid's state. In May 2023, it warned that most of the United States faced risks of blackouts under heat wave conditions.[53] Similarly, its winter reliability assessment for 2023 found that two-thirds of the country faced power shortages in cold weather extremes.[54] Processing these findings, one NERC spokesperson described a "steady deterioration in the risk profile of the grid" in recent years and a "system . . . close to its edge."[55]

Many blame the grid's instability on recent and planned retirements of coal, natural gas, and nuclear resources. Others suggest, relatedly, that the transition to weather-dependent renewables is simply happening too fast.[56] But this is a facile, short-sighted diagnosis. There is ample modeling to suggest that with adequate transmission capacity and investment in the right backup resources, a grid that runs on 80 to 90 percent renewables is entirely feasible.[57] Thus, yet again, better grid planning emerges as a core method of ensuring reliability under changing conditions.[58] An interconnected grid is a reliable grid in the face of increasing extreme weather, as robust interconnections "make the grid larger than the storm."[59] Indeed, NERC's head has acknowledged that "interregional transmission is a terrific way to build resilience and reliability into the grid."[60] Yet, almost no interregional transmission is being built despite intensifying worries about reliability.

To be sure, achieving reliability is a complex exercise that requires a coordinated range of solutions, of which expanded transmission is only one piece.[61] More reliance on small-scale local resources, often called "distributed energy resources," will play an important role, as will better coordination between the electricity and natural gas systems.[62] Without intending to diminish these other important objectives, this proposal emphasizes the role that good grid planning can play in helping to shore up reliability.

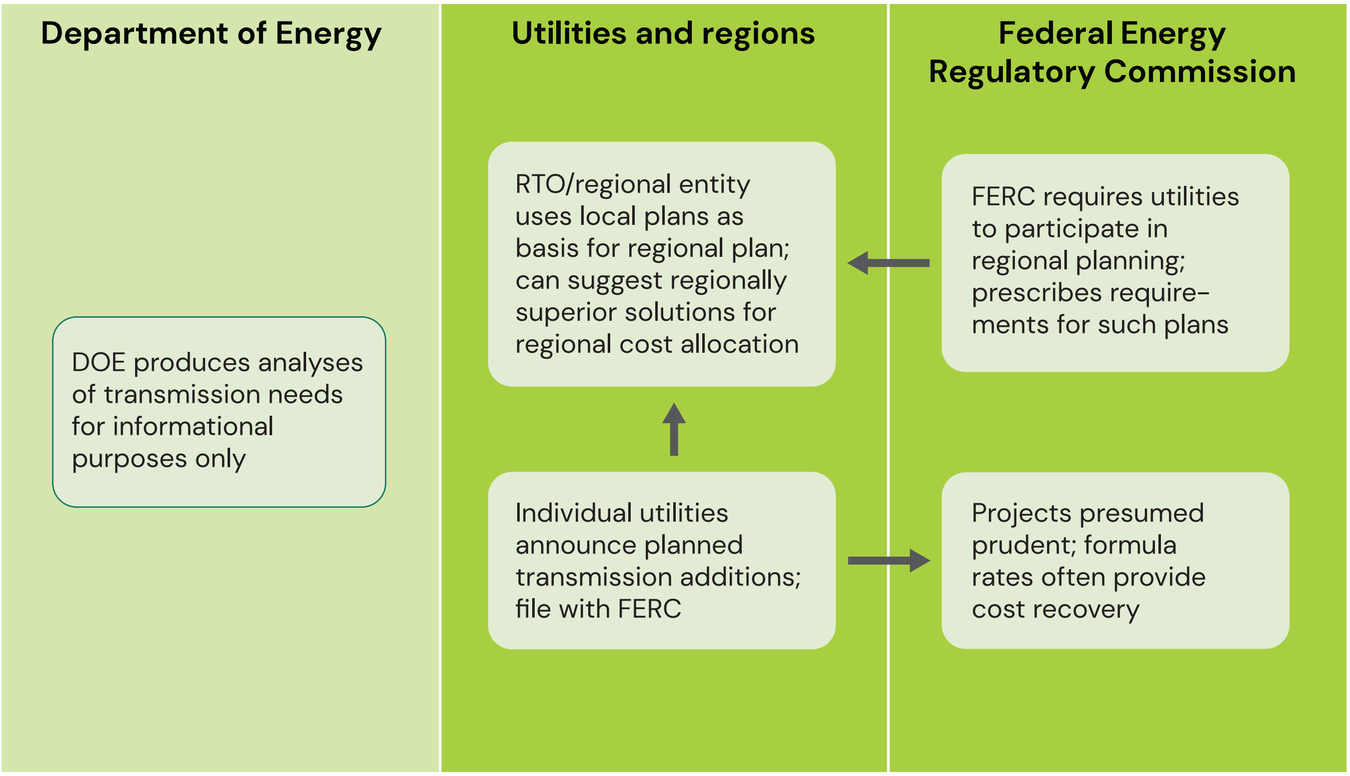
B. Understanding the challenges as grounded in governance

These central challenges confronting the grid—backlogged interconnection, sclerotic and irrational transmission development, and decreasing reliability—are frequently diagnosed, discussed, and treated piecemeal. But there is widespread acknowledgment that they are substantively interrelated. Generator retirements would be matched by new entrants if the interconnection queues worked smoothly.[63] Interconnection queues would not be so jammed up if transmission planning anticipated future needs and built toward them. Reliability would not be threatened by a changing resource mix if regions could agree on how to share the cost of lines to better interconnect resources and if states could agree to site them. Transmission planning would be eased if the reliability, economic, and policy benefits of transmission lines were evaluated together.[64]

A core aim of this policy paper is to illustrate how these interconnected challenges facing the grid are all manifestations of an underlying problem of governance—that is, a problem with the processes that exist for making decisions across these topics. To make this point, more details on the entities that plan and manage the grid are necessary. As noted above, there are essentially two categories of such entities: RTO regions and non-RTO regions.

In RTO regions, stakeholder processes shape the rules governing transmission planning and how resources interconnect to the grid.[65] These vary somewhat by region (considerably in California[66]), but the general contours are as follows: RTOs' geographic footprints are established by the transmission-owning utilities that voluntary elect to join. These utilities turn over operational control—but not ownership—of transmission to the RTO, which is a nonprofit managed by a board of directors. This board is appointed either directly or indirectly by the RTO's membership and is composed mostly of industry insiders and sometimes a few outside stakeholders or state representatives.[67] Rules for RTO markets, transmission planning, and interconnection requirements are developed by the membership via committees, with proposed changes requiring a two-thirds majority of member votes (weighted by membership sector) to reach the board. The board usually selects which proposals to submit to FERC, with some exceptions where membership

FIGURE 4
Incumbent-dominated governance model



committees have direct filing rights. FERC then evaluates whether the proposed changes to regional rules are “just and reasonable” and comply with other relevant legal requirements.[68] FERC’s review on this point is, however, “passive and reactive,” requiring it to accept any proposal within the “zone of reasonableness.”[69]

Outside of RTOs, utilities manage their own transmission systems with much less collaboration. Because FERC has required that these utilities at least make a regional plan, they have nominally formed regional planning organizations (**figure 4**). However, these organizations typically just take individual utility transmission plans as a given and “roll them up” into a regional plan for purposes of checking a compliance box.[70] Utilities in these regions also typically manage their own interconnection queues and have limited, if any, participation in electricity markets.

With this institutional background established, it is easy to trace **incumbency bias as a throughline in the challenges of interconnection, transmission planning, and reliability**. Whether an individual utility makes decisions, or an RTO’s “membership-club democracy” does, these are not neutral entities determining the future shape of the system.[71] A tour through incumbents’ incentives to thwart forward-looking interconnection, transmission planning, and reliability solutions illuminates these dynamics.

When it comes to interconnection, the vast quantity of new renewable energy and storage resources waiting to connect to the grid promises to lower electricity prices and force inefficient older generation out of electricity markets. This dynamic threatens incumbent generation owners, who logically seek to erect hurdles to new competitors’ entry. Because these incumbents are many of the same entities charged with establishing the procedures for interconnection,[72] one might reasonably imagine that these procedures would not be maximally effective—as indeed, they are decidedly not. As described above, there have been enormous delays and even attempted moratoria facing new queue applications.[73] More pointed critiques regarding queue management include allegations that utilities are improperly reserving portions of their transmission capacity for their own projects ahead of others[74] and are “cooking the books” to shunt more grid costs onto interconnecting resources.[75]

These biases carry through to transmission planning, where incumbent transmission owners and other generators often have interests at odds with robust regional and interregional grid expansion.

Transmission-owning utilities prefer to build smaller lines in their own footprints, so that they can include these assets in the capital base upon which they earn a generous rate of return and avoid cost allocation battles in which they might be forced to pay for upgrades owned by another utility.[76] Meanwhile, utilities and other generators that are operating in congested parts of the grid may oppose upgrades that would relieve that congestion and thus lower electricity prices.[77]

A recent study highlights the stakes of transmission planning for incumbent utilities. In a 2024 analysis, Catherine Hausman makes two critical findings in her study of the southwestern and midwestern RTOs. First, "the costs of transmission constraints have been rising, totaling more than $2 billion in 2022."[78] This $2 billion estimate measures just the cost of not being able to deploy cheaper, existing renewable resources due to congested transmission lines in these regions. However, her second finding is that this lack of capacity actually benefits "fossil incumbents," which "have been partially protected from new competitors by a lack of transmission."[79] In some cases, these benefits are quite concentrated: Four firms with the most to lose from transmission optimization "would have earned a combined $1.6 billion less in operating profits in 2022" under a well-planned system. Perhaps unsurprisingly, some of these same firms have aggressively and publicly tried to thwart regional transmission planning.[80]

This analysis makes plain why transmission-owner-dominated processes for regional transmission planning do not produce plans that are maximally consumer protective and public policy forward: They threaten powerful incumbents' bottom lines.[81] And because utilities control the flow of information into these plans, it makes it hard for other stakeholders to even know when utilities are obfuscating more efficient regional options.[82]

When it comes to reliability, a similar set of incentives is at work. It is tempting for utilities to ascribe blame to the burgeoning renewables industry for reliability failures because this narrative supports their efforts to maintain and expand their fossil fuel resources. For example, Georgia Power, a Southern Company subsidiary, has requested permission from its regulators to build enormous new quantities of gas generation to "preserve system reliability and resilience."[83] The reliability fix of building out regional and interregional lines to connect renewables is less financially appealing to these entities than a continued reliance on dispatchable fossil fuels (though these fossil fuel resources themselves are less dispatchable than many utilities assert and are at the root of several recent grid disasters[84]). Consequently, both utilities and reliability regulators regularly pursue a narrow set of solutions to reliability challenges that does not include sufficient regional or interregional transmission.[85]

To point out that utilities participate in regional planning and rulemaking in ways that privilege their own financial interests is not to fault these utilities and other market actors. They are acting as the shareholder-wealth-maximizing entities that U.S. economic theory has long demanded.[86] But it does highlight a major disconnect in the U.S. governance system for managing the grid: Although grid planning is intended to advance the public interest, there is limited representation of the public in official planning processes. States might partially serve in this role but have cabined voting power in RTOs and frequently voice frustration with their inability to influence RTO decisionmaking.[87] Similarly, stakeholder groups typically have very limited voting power and report extreme difficulties participating in technical, arcane, and disparate regional proceedings.[88]

As the public agency charged with regulating utilities, FERC has the most potential to steer this system for the public good. And indeed, it has long recognized the challenges of trusting groups of incumbents to manage the energy system fairly, efficiently, and in a public-oriented way. FERC has used its authority to attempt to debias energy governance many times over the past 30 years: in requiring transmission owners to provide "open access" to their lines, in establishing principles of independence and good governance for RTOs, and in requiring regional planning that conforms to a set of established principles.[89]

However, as traced above, these reforms have not brought the incumbent-dominated model of grid governance into line with system needs. Quite the contrary: The design flaws in grid management institutions have become more glaring as public goals for energy system transformation have started to clash more dramatically with incumbent bottom lines.[90] For this reason, **it is critical to understand the problems plaguing the grid today as not just matters of substantive design flaws in various rules and regulations but also as challenges of governance and institutional design.**

C. Incremental efforts to improve system planning

FERC has recently taken several noteworthy steps to improve interconnection processes and transmission planning. However, as described below, there are several reasons to think that the agency's recent efforts are short of the kind of transformational change necessary.

In July 2023, FERC issued an order aimed at improving regional interconnection processes. The order requires transmission providers to study projects in "clusters" rather than one by one, to increase the speed with which they do so, and to allocate upgrade costs pro rata among clustered projects. Project developers, in turn, face more stringent requirements for queue eligibility and penalties for queue withdrawal.[91]

In May 2024, FERC significantly updated its transmission planning requirements. Its landmark "Order 1920" creates long-term regional transmission planning criteria and mandates that regions consider an enumerated set of benefits when evaluating projects or portfolios.[92] It also partially melds interconnection challenges into transmission planning by requiring that regional planning include "interconnection-related transmission needs that are repeatedly identified but not constructed."[93] The order stops short, however, of mandating that regions prioritize regional projects identified as net beneficial, instead specifying that "transmission providers have the discretion to select or not select" any facility that meets regional criteria.[94]

These reforms focus on inducing regions to adopt better practices for interconnection and transmission planning, without fundamentally changing underlying governance structures. As such, they are commendable but not revolutionary. Both orders draw inspiration from several noteworthy regional experiments. For example, recent efforts in the Midwest and Southwest to plan transmission collaboratively, and to share resultant costs collectively, represent progress that the Commission hopes to spread.[95] And Texas' model of proactively building transmission to accommodate anticipated resource influxes and its relatively simpler interconnection processes have fueled rapid growth in renewable energy generation in the state.[96] But nothing in FERC's reforms guarantees that other regions will follow in the footsteps of such innovations.

I celebrate FERC's recent attention to grid challenges but worry that reforms that do not tackle underlying governance challenges will not produce the systemic changes needed in grid planning. Interconnection process reforms will help at the margins with speeding up queues, but as several commentators observed, they mirror the procedures already used in several regions that themselves have significant queue backlogs. What is more, they barely scratch the surface of the bigger challenges of uncoordinated, inefficient, project-by-project transmission system upgrade planning and financing.[97] At least some in FERC leadership appear aware of the order's limitations: FERC Commissioner Allison Clements wrote a concurrence (meaning a separate opinion endorsing these reforms) to highlight that "more will be necessary to solve the problem."[98]

FERC's reforms to transmission planning will certainly improve informational quality and better highlight the benefits of regional projects. However, as described above, key players in these regions continue to have distinct financial incentives to resist outcomes that threaten their bottom lines.[99] For this reason, improvements in process may not translate to improvements in substance; the devil will very much be in implementation and compliance details. Moreover, it is clear that more will need to be done to improve interregional planning in particular, which Order 1920 does not address.

The Biden administration is also pursuing innovative solutions for advancing a cleaner grid outside of FERC, including the establishment of a "Grid Deployment Office" within the DOE. This office is charged with helping to build interregional transmission lines across the country by working with localities to expedite siting and implementing a novel program where DOE acts as an "anchor tenant" to purchase up to 50 percent of the capacity of large new transmission lines and engages in public-private partnerships on lines of particular interest.[100] These are important initiatives that in some ways simply underscore the core point of this policy paper: Public initiatives—not reliance on private transmission clubs—are necessary to construct a grid in the public interest. Thus, as the DOE continues efforts to mitigate the effects of regional transmission planning flaws, we should also be working to fix these flaws at their source. To do that, an overhaul of our core mechanisms of grid governance is necessary.

III. The proposal: Reclaiming the "public" in public utility regulation

The record investments in clean energy spurred by the IRA will be rendered substantially less effective in helping meet clean energy and affordability goals without historic levels of change in transmission system investment. Never before has grid governance reform been more pressing—or so firmly in line with federal policy priorities.

Understanding the challenges facing the grid as challenges of governance unlocks new possibilities for reform, grounded in powerful centuries-old principles and precedents. It is worth remembering that despite the many changes that have roiled the electricity industry, the private companies that own and run the transmission grid legally remain **public utilities,** charged with securing essential services.[101] This designation sets investor-owned utilities apart from typical corporations. In exchange for the privilege of legally-protected monopoly service territories, transmission-owning utilities commit to commission oversight of their rates and practices to ensure that these remain **just and reasonable.**[102] More broadly, as scholar William Boyd has explained, "public utility . . . is not a thing or a type of entity but an undertaking—a collective project aimed at harnessing the power of private enterprise and directing it toward public ends."[103]

The public utility model is not, at present, accomplishing this mission. As FERC pointedly acknowledged in its proposed transmission rule, current practices for transmission planning and interconnection are producing "unjust and unreasonable" rates by failing to create the interconnected, interregional grid necessary to support the system into the future.[104] FERC's recent reforms, while well intentioned, continue too much of a "lighter touch" approach to its regulatory duties.[105] FERC has allowed governance reform to languish as it tackles the substantive challenges facing the grid piecemeal. It should no longer: **Governance reform is a precondition to building the grid of the future because a system planned by incumbents is likely to remain a system planned for incumbents.**

To build the grid that the public needs and deserves, a more fundamental reclamation of the "public" in public utility law is in order. To that end, I propose a new Federal Grid Planning Authority. Alongside the creation of this office, or the assignment of these responsibilities to an existing office, Congress should enhance FERC's authority to mandate utility compliance with this national grid plan.

A. National public planning for a national public grid: The Federal Grid Planning Authority

In some countries, the friction between private enterprises running the grid and public aims for the sector has been resolved through nationalization—that is, full public ownership or control. Most notably, the United Kingdom (U.K.) just established a "Future System Operator" to run its grid through a process of "effective nationalization."[106] This independent, public-owned entity, to be stood up in 2024, is charged with taking a "whole-system view" of energy planning and operations to facilitate the U.K.'s climate goals while maintaining reliability and affordability.[107] As the U.K. government has explained, it took this dramatic step because "[w]e need fundamental change to build a net zero energy system."[108] It determined that this level of change required it to "establish the FSO in public ownership, in a way which ensures it is truly and properly independent—not only of asset ownership and other commercial energy interests, but also from day-to-day operational control of government."[109]

I propose stopping well short of effective nationalization in reforming U.S. grid governance. Instead, changes should be directed toward the component of the public utility model most broken: grid planning in the public interest. An ideal form of public grid planning would take the shape of a **new Federal Grid Planning Authority (FGPA)**, which would be given authority to (1) holistically forecast system needs and changes through long-term scenario planning and (2) develop a plan to cost-effectively and efficiently support the country's energy future by developing a blueprint of interregional and regional transmission line additions and upgrades that becomes the baseline of all FERC-overseen regional planning efforts.[110]

To operationalize these authorities and obligations, I propose the following:

Congress should pass legislation creating the FGPA and task it with **creating a national grid development plan every three years**. This plan should identify all high-voltage transmission lines that are determined to cost-effectively meet the nation's identified long-term transmission needs. FGPA planners should be required to comprehensively evaluate the benefits of all potential grid expansions at both a national and regional level, with suites of projects selected on the basis that their benefits exceed their costs. They might do so in conjunction with the considerable expertise developed across DOE and the national laboratories in executing such modeling.[111] Additionally, the FGPA should have explicit authority to plan for transmission expansion necessary to accommodate projections of future energy supply development. In other words, areas with substantial projected future interconnection requests should be anticipated and co-optimized in the FGPA process, through renewable energy zone designation or other relevant methodologies.[112]

Congress should complement the creation of the FGPA with a mandate that **all regional planning entities under FERC's jurisdiction must accept the national plan as the baseline** for their regional planning efforts. Regional additions to the FGPA-generated baseline plan would be permissible when the regional planning entity deems them necessary to meet localized transmission needs.[113] Deviations from the FGPA-generated baseline plan should be permissible only when proven necessary to FERC under a new statutorily established stringent standard of review (e.g., clear and convincing evidence).

In addition, Congress should explicitly authorize FERC to allocate the cost of FGPA-approved lines to all beneficiaries, broadly construed. This authority should make plain that postage-stamp cost allocation is appropriate across all regions that are projected to benefit more than they are burdened by the selected portfolio of national projects.[114]

To ensure planning in the public interest, the FGPA would be required to create a process for eliciting input into planning that **includes all relevant stakeholders**. Regional planning entities and transmission-owning utilities should be required to provide all relevant data to the FGPA and to collaborate in necessary efforts to upscale regional data into the national plan.[115] States should be given a robust participation role, as their public policies and future generation plans are critical determinants of national grid expansion needs. Additional stakeholders should be given meaningful opportunities for participation that do not require complex technical knowledge or ongoing participation in multiple committee processes. Federal funding might support the participation of underrepresented stakeholders, including historically disadvantaged communities, energy communities, and tribes.

Finally, Congress should confer **automatic federal siting authority** for every transmission project approved in the FGPA plan. As proposed by Senator Sheldon Whitehouse (D-RI) in the Streamlining Interstate Transmission of Electricity Sites (SITES) Act, and often discussed by others,[116] conferring siting authority on FERC for transmission lines equivalent with natural gas pipelines could be an important element of expediting transmission grid development.

B. Meaningful regulatory change: Harnessing existing public utility law

In recognition that there are substantial hurdles to the timely establishment of an FGPA, it is critical to press forward on ways to improve grid planning that do not rely on new legislation.

I propose systemic, structural reforms that FERC and the DOE could undertake in the absence of legislation to address the governance challenges impeding the creation of a cost-effective and forward-looking transmission grid. Those reforms are in three categories: maximalist interventions, moderate steps, and more meaningful tweaks.

1. Maximalist interventions: An agency-driven federal grid planning process

Just how close could FERC come to the federal, public grid planning process sketched above via administrative action? The answer to this question depends on the commission's willingness to wield its remedial authority more forcefully than it has in the past. FERC has already recognized that current regional grid planning processes produce "unjust and unreasonable" results in violation of the Federal Power Act.[117] After finding any existing utility practice unjust and unreasonable, that act gives FERC authority to "determine the just and reasonable rate, charge, classification, rule regulation, practice or contract to be thereafter observed and in force."[118]

This admission presents a justification and starting point from which to build out reforms that target core governance problems. As a matter of past practice, FERC has often allowed regions substantial compliance flexibility after such a finding—but its statutory mandate makes clear that it need not wait.[119] Instead, FERC could immediately wield its existing authority far more forcefully in the transmission planning space through several potential reforms undertaken collaboratively with the DOE.

To move toward federal public grid planning, FERC might make a determination that RTOs and regional transmission planning entities outside RTOs, as private membership clubs, inherently lack the independence or comprehensive vision necessary to produce just and reasonable regional and interregional transmission plans.[120] As described above and in numerous reports cited herein, FERC would have decades of evidence to back this determination.[121]

Simultaneously, the DOE might work to administratively establish a new or revamped public office of grid planning along the lines proposed above for what could be established through legislation. The DOE has considerable planning and modeling expertise it could draw upon in establishing this new function. For purposes of streamlining implementation, it might be easiest to give the job of grid planning to one of the DOE's relevant preexisting offices, either the Office of Grid Deployment or the Office of Electricity. Because the DOE is already statutorily charged to conduct a triannual study of "electric transmission capacity constraints and congestion" that includes robust stakeholder, state, and tribal participation,[122] layering on the development of a concrete baseline plan for best addressing identified transmission needs would be a manageable expansion of responsibilities. Additional funding and staffing would be necessary but might be relatively modest—perhaps on the magnitude of appropriations devoted to establishing the Grid Deployment Office, which are around $65 million for fiscal year 2024.[123]

The implementation of such a plan would then depend upon concerted action at FERC. As a remedy for present discriminatory transmission rates, FERC could mandate that regional planners use DOE-produced plans as the baseline from which to launch their regional planning efforts, adding local lines only where necessary to address additional needs. This requirement would be imposed under FERC's authority to "order the reasonable . . . practice" to remedy manifestly unjust and unreasonable transmission rates and practices.

This change would only work if FERC accompanied it with reforms of its review process for utilities' filings of local transmission development plans. At present, FERC presumptively assumes that transmission providers' proposed local projects are prudent, meaning that unless a line is contested, it is accepted.[124] Indeed, because most utilities now provide transmission service under streamlined federal "formula rates," individual lines often receive no substantive regulatory review at either the federal, regional, or state level.[125] Without changes to this process, utilities would be able to circumvent improved regional processes by defaulting to individually planned local lines. To avoid this outcome, FERC should eliminate the presumption of prudence for any local line not produced as an outcome of regional planning efforts.[126] Concurrently, additional staffing at FERC to engage in the necessary prudence reviews would likely be necessary.

As an alternative, FERC could make a similar but less expansive finding related specifically to interregional planning.[127] The creation of a public planning entity focused specifically on interregional planning could be coupled with new federal requirements on regions' interregional planning efforts.[128] These changes would have particularly strong record and legal support and would lower the level of federal intrusion into regional planning efforts. (Notably, such efforts might complement proposed legislation focused on minimum interregional transfer requirements.[129])

FERC could also wield the authority it has vis-à-vis cost allocation more forcefully to support a nationally-planned grid. The legal precedent is clear: All that is required to render a cost allocation method acceptable is that the beneficiaries of transmission roughly share its costs.[130] Again, FERC could deploy its mandate to ensure just and reasonable rates to find that current cost allocation practices produce unjust and unreasonable results. For regional and interregional lines, FERC might establish much more prescriptive cost allocation methodologies that do not rely on regional governance processes or state agreement to proceed. For example, the agency might adopt a rule establishing that the portfolio of lines selected via federal planning for each region is presumptively eligible for postage-stamp cost allocation where modeling shows a certain benefit-to-cost ratio range for all utilities.[131]

One proverbial elephant in the room of this proposal is the transmission siting challenge. If FERC and the DOE were to embark on a national transmission planning effort with forced cost allocation to all beneficiaries, some states would almost certainly balk. Given that states retain authority over transmission line siting and local determinations of need, their resistance might pose a substantial problem (as it has in the past). However, as others have cataloged, FERC has an expanding arsenal of tools to cope with siting challenges, including enhanced ability to override state siting determinations in the case of certain nationally important lines.[132] FERC could coordinate with the DOE to ensure that federally-planned lines receive designation as lines in the national interest.[133]

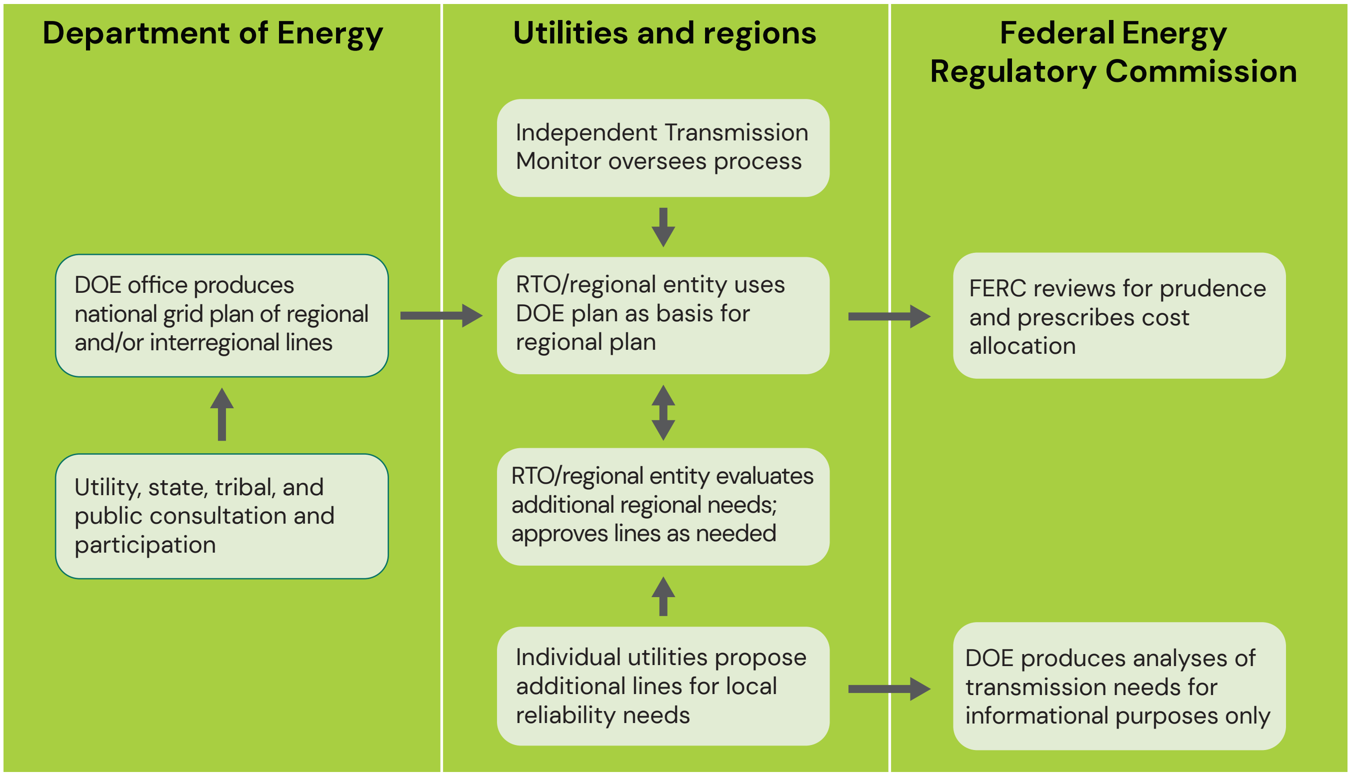
Implementing these proposed changes would result in a collaborative model of public-private grid planning that continues to involve utilities and regional planners but under a more robust set of public controls. An overview schematic of how reformed grid governance might proceed is shown in **figure 5**.

2. Moderate steps to enhance public control of grid planning

Given the governance challenges facing the model of incumbency-led grid planning, a full-throated move to public-oriented planning has the greatest chance of

FIGURE 5

Improved governance model



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surmounting the current grid crisis. However, if FERC were not prepared to undertake so dramatic a remedy, understanding the grid as facing a crisis of governance nevertheless creates a new priority list of moderate actions that it might undertake.

Adopt prudence-based review of regional transmission plans

At present, FERC's system for ensuring high-quality regional planning relies upon regions filing their official planning processes with the commission. FERC then reviews these processes to make sure they satisfy regulatory requirements. However, it does not review the outcomes of these planning processes for just and reasonable results. If FERC wants to continue to devolve regional planning to private entities, it should, at a minimum, exert its authority as a public utility regulator to engage in prudence review of the resultant plans.[134] Analogous state-level review of utility-integrated resource plans establishes a strong precedent for such commission-level review.[135] Because these plans are limited in number, such a shift should not overly tax FERC's administrative capacity. In addition, FERC might enhance the manageability of such reviews by focusing not on the prudence of particular planned investments but rather on the models and assumptions used to develop the regional plan. FERC should accompany these changes with a rule that proposed projects filed by independent transmission owners lose their presumption of prudence if they do not accord with FERC's approved regional plan.

Clarify the hierarchy of regional planning over local planning

Order 1000 attempted to establish a process whereby cost-effective regional solutions to identified transmission needs would prevail over local projects.[136] As is well documented, this hierarchy does not hold in practice. In fact, some transmission owners are attempting to enshrine the opposite hierarchy into foundational regional governance documents.[137] FERC should use its authority over just and reasonable rates and practices to clarify that it is unjust and unreasonable for a regional plan to allow for—or for any utility to pursue—any local project for which a regional solution has been shown to fill the same need at a lower cost.[138] At the same time, regional planners should face a more explicit mandate to affirmatively review the advisability of local projects as compared to regional solutions. FERC could enforce this mandate via prudence review of regional transmission plans (as proposed above).

Fold interconnection planning into grid planning

Evidence from Texas and the Midwest makes clear that the most effective, efficient way to interconnect new resources into the grid is via long-term transmission planning—not project-based interconnection queues.[139] Given projections for load growth across the country, it has become unjust and unreasonable for regions not to incorporate the connection of projected load growth with projected areas of resource growth into transmission planning. FERC should require all regional plans to include a portfolio of projects intended to facilitate interconnection of future supply and load, drawing from the exemplary models produced out of various regions.

3. More meaningful tweaks

Conceptualizing the grid crisis as a governance crisis also points the way toward a set of modest reforms that would not dramatically change planning processes but could help to root bias out of their implementation.

Independent transmission monitors and planners

Early in its recent process of developing revisions to transmission planning, FERC floated the idea of creating independent transmission monitors (ITMs) that could create records to help the commission evaluate the prudence and reasonability of transmission rates.[140] However, this idea dropped away in FERC's proposed rule despite ample stakeholder support. I propose resurrecting the ITM idea to provide a method of checking incumbency biases in regional planning.[141] ITMs could potentially also assist with efforts to expand prudence review of regional or local transmission investments no longer deemed presumptively prudent.[142] Indeed, the Ohio Consumers' Counsel has filed a complaint with FERC asking for precisely this kind of independent monitor to help control inflated and under-scrutinized local transmission spending in the PJM region.[143]

Several commentators have also proposed that FERC could require the creation of "independent transmission planners" to oversee regional transmission planning and interconnection in a non-incumbent-dominated manner.[144] Although less effective than the fully public and interregional planning effort endorsed in this policy proposal, such independent planners could achieve significant improvements over current stakeholder-dominated planning efforts if requirements for these planners were thoughtfully designed, executed, and overseen.

Internal governance reforms

Most of the reforms proposed in this policy proposal focus on transforming the relationship between FERC and regional planning entities. But many researchers have proposed a different set of reforms, focused on improving the governance processes internal to RTOs. Although I believe internal governance reform to be limited in its ability to fully ameliorate grid governance challenges, it is an option worth putting on the table. The first step would be for FERC to open a notice of inquiry into regional governance, to explore what reforms it might make in the criteria necessary for RTO certification.[145] At least one current FERC commissioner has indicated support for precisely this sort of inquiry into the balance of power in RTOs.[146]

IV. Questions and concerns

1. This paper diagnoses the challenge as one of private governance, but isn't permitting really the problem?

Permitting reforms alone cannot and will not solve the problem of utilities building the wrong lines to begin with. Nor will speeding up permitting matter if sclerotic interconnection queues remain our primary way of building out the grid. Fundamentally, then, grid governance and permitting reforms (across jurisdictional levels) are a "both/and" set of problems that requires a comprehensive solution set.

One way to conceptualize the grid's myriad challenges is sequentially: First, we must rationalize and economize grid planning through governance reforms to ensure that the right projects are even attempting to get built. Then, we need to focus on speeding up the pace at which these projects can be constructed through thoughtful permitting reforms.

It is worth being somewhat granular about the range of permitting challenges impeding transmission. Often, the National Environmental Policy Act (NEPA) comes in for particular blame, and average NEPA timelines have crept up in recent years in ways that impact transmission development.[147] However, several recent initiatives should make progress on shortening NEPA reviews, including 2023 changes to the statute in the Fiscal Responsibility Act that, among other things, establish a two-year deadline for environmental reviews.[148] In addition, the DOE is working to establish a coordinated program that would streamline federal environmental permitting and reviews for transmission lines.[149]

NEPA, however, is not the main permitting hurdle plaguing regional and interregional transmission expansion—rather, state and local permitting is. States' primary weapon to block nationally-beneficial grid expansion actions is their legal control over transmission siting, which always requires state approvals and sometimes additional local ones.[150] States and localities too often use this authority to block regionally beneficial lines that are unpopular with certain constituencies (or the local utility). That said, and as noted above, FERC and the DOE have several new tools at their disposal to counteract these state tendencies to take a narrow view of "needed" transmission expansions, and the federal courts and rules of federal preemption also offer an emerging path.[151]

2. How do the proposals outlined here intersect with utilities' rights under the Federal Power Act?

Even where utilities have joined RTOs, they maintain a robust set of rights to control their own decision making and file their own tariffs with FERC under section 205 of the Federal Power Act.[152] Recent case law has reaffirmed guardrails on FERC's ability to require utilities to relinquish section 205 filing rights as a condition of RTO membership.[153]

However, this case law does not put any limits on FERC's remedial powers under section 206 of the Federal Power Act—powers that remain untested at their edges. Thus, while it is clear that FERC could not, for example, bar utilities from pursuing their preferred local transmission projects under section 205, it can announce standards by which it will judge the permissibility of these plans. The changes proposed here focus on FERC's ability to monitor and shape such filings rather than eliminating them. Utilities would retain their ability to file their preferred solutions, but it would require a considerably higher burden of proof for FERC to accept any filings found to be out of line with public plans designed to achieve just and reasonable rates.

It is also worth pointing out the importance of FERC using its remedial authority to address unjust transmission planning practices broadly, across both RTO and non-RTO regions. If FERC were to focus only on RTO processes, there would be a risk that any changes it required might precipitate withdrawals of transmission owners given RTOs' voluntary nature.[154] However, because transmission planning remains deeply problematic in non-RTO regions as well as RTO regions, FERC should be able to make findings of unjust and unreasonable practices nationwide and impose requirements on regional planners irrespective of RTO status, eliminating this gaming incentive.

3. Would this proposal impermissibly or ill-advisedly usurp state authority?

Under prevailing statutes, states and the federal government share authority over electricity, with the federal government explicitly given jurisdiction over interstate transmission and interstate wholesale sales of electricity, and the bulk of authority reserved to the states.[155] This shared authority has created mounting friction in regional transmission planning as the clean energy transition has accelerated, as states object to hosting or paying for transmission lines driven by other states' divergent public policy goals. For example, in a letter to FERC, U.S. Senator Cramer (ND-R) accuses "blue states" of trying to "force customers across entire transmission regions" to cover the costs of states' "misguided policies" that promote intermittent resources.[156]

These concerns should be taken seriously given states' prerogative to establish their own preferred electricity generation mix. As Commissioner Christie has observed, "RTOs/ISOs are not regional long-term Integrated Resource Plan (IRP) planners of generating or other resources."[157] To honor the distinction between resource planning and transmission planning, there should be a robust process for state input into federal grid planning efforts, with a particular emphasis on states' identification of their planned generation additions.[158] But states should not get a say beyond these inputs into what lines federal planners consequently select as cost-effective regional or interregional solutions.

Nor should states be able to quash economically beneficial lines for purposes of regional or interregional cost allocation on objections related to differential state public policies. Any effort to parse only the public policy benefits of a new line—or deduce which state policies are "driving" a planned suite of new lines—quickly runs into deep practical challenges. The clean energy transition is being fueled by converging forces beyond divergent state policies, including economics, privately established targets, and federal policies. Clean energy is now frequently cheaper than fossil fuel alternatives such that it is the preferred resource to meet much load growth irrespective of state policies. Moreover, many utilities are seeking out these resources: One tracker finds that 84 percent of U.S. customers are now served by a utility that itself has committed to reduce carbon emissions.[159] And the IRA represents a monumental federal commitment to spurring domestic clean energy production that will drive a considerable amount of the growth in renewables in coming decades.[160] It is hardly state public policies alone driving changes in the composition and needs of the energy system—and so objections grounded in this supposition are oversimplistic.

Finally, it is worth emphasizing that the very reason that Congress federalized control over interstate transmission rates and practices nearly 100 years ago was to overcome parochial battles among states over how to share costs.[161] Transmission planning is paramount to FERC's duty to ensure just and reasonable interstate transmission rates. The fact that this planning also has implications for matters under state concern is irrelevant.[162]

4. Isn't there considerable legal risk in FERC undertaking these reforms itself?

Bold FERC action to improve grid planning of course comes with legal risks, particularly because the Supreme Court is rapidly shifting the frameworks for analyzing the legality of agency actions.[163]

Nonetheless, FERC has a reasonable legal argument that requiring regional planning to presumptively conform with established public grid planning is necessary to ensure just and reasonable rates.[164] The biggest legal risk in this regard stems from the emerging "major questions doctrine," which the Supreme Court recently used to strike down an attempt by the Environmental Protection Agency to regulate carbon emissions from power plants.[165] Under this doctrine, the court may decline to defer to agency interpretations of ambiguous statutory provisions in cases where the actions implicate "major policy decisions," shift the nature of regulation, or exert "unprecedented power over American industry."[166]

A move to require federal grid planning to be used as the basis of regional transmission plans would be susceptible to a major-questions-based claim that it stretches preexisting statutory authority too far. That said, FERC has historically been allowed considerable leniency and deference in interpreting its just and reasonable rate authority, under which it has established the entire modern electricity system of RTOs and markets.[167] Given the sweeping nature of changes to the sector that have already occurred under the Federal Power Act, it is difficult to predict how courts would evaluate a move to require more coordinated planning.

The narrower FERC actions suggested above run far less risk of invalidation under the major questions doctrine, as they are on par with transformations that courts have previously upheld.[168]

What is more, FERC inaction on pressing grid challenges carries its own legal risk. Under its "state agreement approach," FERC recently approved an agreement by New Jersey to foot the entire bill for grid expansion necessary to accommodate the state's (and federal government's) aims to develop a substantial offshore wind industry.[169] But as others have pointed out, New Jersey residents are far from the only beneficiaries of this line, which arguably renders such arrangements in violation of the "beneficiary pays" principle.[170] A similar argument can be made about assigning the entire cost of system upgrades to any particular interconnecting project developer, in spite of a broad range of beneficiaries.[171] All to say, the current system is unjust and unreasonable—making stasis an untenable option.

5. Are there alternative ways to tackle incumbency power in grid governance?

Yes, although these are best pursued as complements to grid governance reform rather than as alternatives. Two possibilities stand out. First, tools of antitrust have seen a resurgence across sectors under the Biden administration and could potentially be useful to constrain sectoral consolidation and structural power within electricity. As energy law expert (and now FERC administrative law judge) Scott Hempling has documented, mergers across electric utilities have increased substantially since the mid-1980s, and particularly since the repeal of the Public Utilities Holding Act in 2005, which previously limited consolidation among non-geographically contiguous utilities.[172] These mergers create holding companies with immense economic and political power that often wield it in questionable ways—including in the grid governance space.[173]

To remediate these challenges, Hempling suggests that FERC could be far more aggressive in its duty to evaluate mergers to ensure they are "consistent with the public interest."[174] States, too, could be more aggressive in their merger reviews.[175] Such shifts might indeed prevent further sectoral consolidation but cannot unwind past ones. It would require far more stringent legal interpretation of existing antitrust statutes to make an antitrust case for unwinding existing utility holding companies. Another possibility for reform is that Congress could consider reviving historic limitations on non-geographically contiguous holding companies. A revival of these principles of structural separation would not cure the ills that plague grid governance, but it might help prevent some cross-affiliate gaming of the systems in place.

Second, commentators often observe that the voluntary nature of RTOs gives transmission owners outsized power in these organizations, as they can threaten to leave and thereby diminish the size of the RTO.[176] Legislation to require RTO membership would take away this structural influence of transmission-owning utilities, and it would also likely bring large efficiency gains to those regions that have thus far resisted regionalization. (FERC could also potentially mandate RTO membership through agency action, although similar past FERC efforts have run into significant political roadblocks.) However, there are risks to making RTOs mandatory. States as well as utilities currently have the power to exit RTOs and have used this power to resist private maneuverings in RTO markets that threaten their public policy objectives—a power that they would lose under mandatory membership.[177] On the whole, however, mandatory regionalization would likely bring large improvements to grid planning and operation, making it a worthwhile conversation to pursue as political openings arise. Again, however, RTOs are only as good as their governance such that governance reform becomes even more important if RTO membership is compulsory.

6. What about public power agencies and other types of utilities—how do the reforms proposed here relate to these entities?

The United States boasts several major public power entities with significant transmission assets, including the Tennessee Valley Authority in the Appalachian region and the Bonneville Power Administration in the Pacific Northwest. These agencies are largely exempt from FERC jurisdiction, as are many transmission-owning cooperatives, such that the planning requirements that FERC imposes on the public utilities it regulates do not apply equally to these other types of utilities.[178] However, FERC has imposed "reciprocity" provisions on nonpublic utility transmission providers that require that if they benefit from FERC's open access provisions, they must provide access to jurisdictional utilities on these same terms.[179] FERC has thus encouraged these organizations to participate in regional planning by "conditioning non-public utilities' access to the open systems of public utilities on the former's adherence to the planning and cost allocation requirements."[180] Nevertheless, reports of less-than-enthusiastic participation by nonjurisdictional utilities are frequent—with no repercussions from FERC.[181]

The question of how precisely FERC might bring nonjurisdictional utilities further into the grid planning fold is beyond the scope of this proposal but certainly merits deeper exploration.[182] It might pursue reforms in this vein by opening a notice of inquiry into whether and how nonjurisdictional utilities pose a significant impediment to achieving a well-integrated grid. If the findings merit action, then the case built here for a focus on grid governance reform would counsel for legislative or agency action to further integrate these entities into public, national efforts toward an efficient and effective grid of the future.

V. Conclusion

In shaping regional grid managers 25 years ago, FERC emphasized that the "principle of independence is the bedrock."[183] Twenty-five years later, it has become clear that independence in grid planning requires something more than amalgamations of regional utilities. What is more, striving for independence alone has failed to produce the collective grid that is needed to support an efficient clean energy transition. Times have changed; needs have changed. The system for governing how to plan the grid for these changes must change, too.

Endnotes

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12. "Map and Timelines of 100% Clean Energy States," Clean Energy States Alliance; "Fact Sheet: President Biden to Catalyze Global Climate Action through the Major Economies Forum on Energy and Climate," The White House, statements and releases, April 20, 2023.
13. "Electricity Explained," U.S. Energy Information Administration, June 30, 2023.
14. See Patrick R. Brown and Audun Boterud, "The Value of Inter-Regional Coordination and Transmission in Decarbonizing the U.S. Electricity System," *Joule* 5 (2021): 117 (finding that the cheapest pathway to a no-carbon energy future is one combining renewables, lithium iron storage, and significant transmission expansion).
15. Josh Saul, "Goldman Sees Biden's Clean-Energy Law Costing U.S. $1.2 Trillion," Bloomberg, March 23, 2023.
16. Jesse D. Jenkins, Jamil Farbes, Ryan Jones, Neha Patankar, and Greg Schivley, "Electricity Transmission Is Key to Unlock the Full Potential of the Inflation Reduction Act," REPEAT Project, September 2022, 4.
17. Paul L. Joskow, "Transmission Capacity Expansion Is Needed to Decarbonize the Electricity Sector Efficiently," *Joule* 4 (2020): 1–3.
18. Brown and Boterud, "The Value of Inter-Regional Coordination and Transmission in Decarbonizing the U.S. Electricity System," 123.
19. Zach Zimmerman, *Transmission Planning and Development Regional Report Card* (Washington, DC: Americans for a Clean Energy Grid), 12.
20. U.S. Department of Energy, *National Transmission Needs Study* (Washington, DC: U.S. Department of Energy, 2023).
21. See Brown and Boterud, "The Value of Inter-Regional Coordination and Transmission in Decarbonizing the U.S. Electricity System," 116 (showing that "interstate co-ordination and transmission expansion reduce the system cost of electricity in a 100%-renewable US power system by 46% compared with a state-by-state approach"); Energy Systems Integration Group (ESIG), "Transmission Planning for 100% Clean Electricity" (white paper, ESIG, Reston, VA, 2021); The Brattle Group and Grid Strategies, *Transmission Planning for the 21st Century,* 8 (discussing myriad benefits of "upscaling" transmission); Michael Goggin, *Transmission Makes the Power System Resilient to Extreme Weather* (Washington, DC: Grid Strategies), 89 (reporting that "moving away from a regionally divided network to a national network of HVDC transmission can save consumers up to $47 billion annually").
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23. Karl D. Werner and Stephen Jarvis, "Rate of Return Regulation Revisited" (working paper 329R, Energy Institute at Haas, Berkeley, CA, 2022); "Meeting Clean Energy Goals Will Require the Grid of the Future," *Environmental Forum Debate*, November/December 2023, 12 (estimating an annual spend of $25 billion).
24. "Meeting Clean Energy Goals Will Require the Grid of the Future," 12.
25. Kayleigh Rubin, Molly Freed, Ashna Aggarwal, "1 in 7 Families Live in Energy Poverty. States Can Ease That Burden," RMI, December 18, 2023.
26. Robert Walton, "U.S. Electricity Prices Outpace Annual Inflation," Utility Drive, March 13, 2024.
27. Id.
28. Joseph Rand, Rose Strauss, Will Gorman, Joachim Seel, Julie M. Kemp, Seongeun Jeong, Dana Robson, and Ryan Wiser, "Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection as of the End of 2022," Berkeley Lab, April 2023, 2, 5.
29. Standardization of Generator Interconnection Agreements and Procedures, Order No. 2003, 104 FERC ¶ 61,103, July 24, 2003 (approving this methodology). As Tyler Norris nicely explains, however, these studies really go above and beyond simply analyzing interconnection itself, as they typically study the upgrades necessary to ensure the full deliverability of interconnecting resources at all times, thus heightening the expenses of interconnection. See Tyler Norris, *Beyond FERC Order 2023: Considerations on Deep Interconnection Reform* (Durham, NC: Nicholas Institute for Energy, Environment & Sustainability, Duke University).
30. Will Gorman, Lawrence Berkeley, Joseph Rand, Julia Matevosyan, and Fredrich Kahrl, *Transforming Interconnection: Paving the Way to Reliably Achieve an Energy Transition on the U.S. Transmission System by 2035* (Washington, DC: U.S. Department of Energy, 2023), 8.
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32. Sarah Johnston, Yifei Liu, and Chenyu Yang, "An Empirical Analysis of the U.S. Generator Interconnection Policy" (working paper, University of Wisconsin-Madison and University of Maryland, 2023), 2.
33. Gorman et al., *Transforming Interconnection*.
34. Rand et al., "Queued Up," 22.
35. Rand et al., "Queued Up," 3.
36. Jay Caspary, Michael Goggin, Rob Gramlich, and Jessie Schneider, *Disconnected: The Need for a New Generator Interconnection Policy* (Washington, DC: Americans for a Clean Energy Grid, 2021), 15.
37. Johnston, Liu, and Yang, "An Empirical Analysis of the U.S. Generator Interconnection Policy," 1.

38. Zimmerman, *Transmission Planning and Development Regional Report Card*, 8–9 (tracing the history of FERC planning requirements).
39. See Order No. 1000, 136 FERC ¶ 61,051.
40. Zimmerman, *Transmission Planning and Development Regional Report Card*; FERC T Planning NOPR.
41. Zimmerman, *Transmission Planning and Development Regional Report Card*, 7.
42. See FERC, "Building for the Future through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," 18 CFR Part 35, Docket No. RM21-17-000 (issued April 21, 2022), 179 FERC ¶ 61,028, at ¶¶ 39–41; Claire Wayner, "Increased Spending on Transmission in PJM—Is It the Right Type of Line?," RMI, March 20, 2023 (detailing this pattern within PJM).
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44. Zimmerman, *Transmission Planning and Development Regional Report Card*, 20; Johannes Pfeifenberger, Kasparas Spokas, J. Michael Hagerty, and John Tsoukalis, *A Roadmap to Improved Interregional Transmission Planning* (Cambridge, MA: The Brattle Group, 2021), 17; U.S. Department of Energy, *National Transmission Needs Study* (Washington, DC: U.S. Department of Energy, 2023), 8.
45. Illinois Commerce Commission v. FERC, 576 F.3d 470, 476 (7th Cir. 2009); Long Island Power Auth. v. FERC, 27 F.4th 705, 709 (D.C. Cir. 2022).
46. Jeffrey S. Dennis, "Transmission Cost Allocation and 'Beneficiary Pays,'" IEA ESAP and CEER, Expert Workshop IV, January 14, 2015.
47. William W. Hogan, "A Primer on Transmission Benefits and Cost Allocation," *Economics of Energy & Environmental Policy* 7, no. 1 (2018): 25–46; Ross Baldick, Ashley Brown, James Bushnell, Susan Tierney, and Terry Winter, "A National Perspective on Allocating the Costs of New Transmission Investment: Practice and Principles" (white paper, WIRES, Washington, DC, 2007), 7 ("Attempts to identify—once and forever, and with complete precision—the exact beneficiaries of specific incremental investments in the transmission system is virtually impossible.").
48. Hogan, "A Primer on Transmission Benefits and Cost Allocation," 14. See also Illinois Com. Comm'n v. Fed. Energy Regul. Comm'n, 756 F.3d 556, 559 (7th Cir. 2014) ("This is FERC-speak for allocating the costs of the high-voltage lines across *all* [regional] utilities … in proportion to each utility's respective sales.").
49. Dennis, "Transmission Cost Allocation and 'Beneficiary Pays'"; Johannes Pfeifenberger, "Transmission Cost Allocation: Principles, Methodologies, and Recommendations," The Brattle Group, November 16, 2020, 3–4.
50. Christopher T.M. Clack, Michael Goggin, Aditya Choukulkar, Brianna Cote, and Sarah McKee, *Consumer, Employment, and Environmental Benefits of Electricity Transmission Expansion in the Eastern U.S.* (Washington, DC: Americans for a Clean Energy Grid, 2020).
51. See Alexandra Klass and Elizabeth Wilson, "Interstate Transmission Challenges for Renewable Energy: A Federalism Mismatch" *Vanderbilt Law Review* 65, no. 6 (2012).
52. Pfeifenberger, "Transmission Cost Allocation," 3; Robert Zullo, "Building Transmission Takes Forever. The Biden Administration Is Pushing to Change That," News from the States, December 12, 2023.
53. Robert Walton, "Most of U.S. Faces Elevated Risk of Blackouts in Extreme Heat This Summer, NERC Warns," Utility Drive, May 17, 2023.
54. "Two-Thirds of North America Could Face Power Shortages This Winter—NERC," Reuters, November 8, 2023.
55. Walton, "Most of US Faces Elevated Risk of Blackouts in Extreme Heat This Summer, NERC Warns."
56. Senator Kevin Cramer, Letter to FERC Commissioners, September 12, 2023; Erin Kelly, "FERC Commissioners Warn of Threats to Reliable Electricity," National Rural Electric Cooperative Association, May 8, 2023.
57. See Brown and Boterud, "The Value of Inter-Regional Coordination and Transmission in Decarbonizing the U.S. Electricity System" ("We find that a zero-carbon power system is feasible at the level of hourly system balancing using technologies deployed today (photo-voltaics [PV], wind, transmission, Li-ion batteries, and hydropower) at all spatial scales considered."); Goldman School of Public Policy, University of California at Berkeley, *2035 4.0* (Berkeley: University of California, Berkeley, 2020); National Renewable Energy Laboratory, *Renewable Electricity Futures Study*, vol. III (Golden, CO: National Renewable Energy Laboratory, 2012); Eric Larson et al., *Net-Zero America: Potential Pathways, Infrastructure, and Impacts* 88 (Princeton, NJ: Princeton University, 2021).
58. Cf., Organization of PJM States, letter to Mark Takahashi (chair, PJM Board of Managers) and Manu Asthana (PJM president and CEO), November 28, 2023.
59. Sara Baldwin, "Skepticism Persists around Clean Energy and Grid Reliability. Here's How to Fix That," Utility Drive, October 5, 2023.
60. Zimmerman, *Transmission Planning and Development Regional Report Card*, 36 (quoting NERC head).
61. See Joshua C. Macey, Hannah Wiseman, and Shelly Welton, "Grid Reliability in the Electric Era," *Yale Journal on Regulation* 41, no. 164 (2024).
62. Robert Walton, "Electric-Gas Coordination, Planning Vital to Grid Recovery after Blackouts: FERC-NERC Report," Utility Drive, December 21, 2023.
63. See "E-1: Commissioner Clements Concurrence on Order No. 2023: Improvements to Generator Interconnection Procedures and Agreements," FERC, July 28, 2023.
64. See Johnston, Liu, and Yang, "An Empirical Analysis of the U.S. Generator Interconnection Policy," 7 (observing that "at a high-level," interconnection upgrades and transmission investments are "substitutes").
65. See Ari Peskoe, "Replacing the Utility Transmission Syndicate's Control," *Energy Law Journal* 44, no. 3 (2023): 46 ("Filing a tariff amendment at FERC is the culmination of many RTO rulemaking processes. Each RTO's governance rules determine how amendments are developed.").
66. See Welton, "Rethinking Grid Governance for the Climate Change Era," 229.
67. See Peskoe, "Replacing the Utility Transmission Syndicate's Control," 39–46.
68. For more on the details of RTO governance, see Welton, "Rethinking Grid Governance for the Climate Change Era"; Stephanie Lenhart and Dalten Fox, "Participatory Democracy in Dynamic Contexts: A Review of Regional Transmission Organization Governance in the United States," *Energy Research and Social Science* 83 (2022): 102345; Daniel E. Walters and Andrew N. Kleit, 2023, "Grid Governance in the Energy-Trilemma Era: Remedying the Democracy Deficit," *Alabama Law Review* 74, no. 4 (2023): 1033–88.
69. See Cities of Bethany, et al. v. FERC, 727 F.2d 1131, 1136 (D.C. Cir. 1984) (outlining the standard of review as "not whether [one] method is more appropriate than [another] method, but rather whether the [proposed] method is reasonable and adequate"); NRG Power Mktg. v. FERC, 862 F.3d 108, 114 (D.C. Cir. 2017) (observing that "Section 205 puts FERC in a passive and reactive role").
70. See Peskoe, "Replacing the Utility Transmission Syndicate's Control," 37.
71. See Welton, "Rethinking Grid Governance for the Climate Change Era."
72. See Gorman et al., *Transforming Interconnection* ("[I]nterconnection reforms are shaped by transmission providers' stakeholder processes."); Ari Peskoe, "Is the Utility Transmission Syndicate Forever?," *Energy Law Journal* 42, no. 1 (2021): 1–66 (noting that in ISO-New England, investor-owned utilities hold filing rights regarding the allocation of generator interconnection transmission upgrades, meaning that these utilities "could substantially affect the pace of new entry").
73. William Driscoll, "PJM's Pace of Interconnection Will Not Meet Demand through 2028, Says NRDC," *PV Magazine*, Mary 19, 2023; Ethan Howland, "ERC Rejects MISO Interconnection Queue Cap, Saying It Could Be Undermined by Exemptions," Utility Drive, January 22, 2024.
74. Ethan Howland, "Colorado Cities Urge FERC to Reject Cost Allocation for Xcel's $2B Power Pathway Transmission Project," Utility Drive, February 23, 2024.
75. Ari Peskoe, "Comment of the Harvard Electricity Law Initiative," Transmission Planning and Cost Management, Docket No. AD22-8, March 23, 2023, 10.
76. See "Comments of Public Interest Organizations," Building for the Future through Electric Regional Transmission Planning and Cost

Allocation and Generator Interconnection, Docket No. RM21-17-000, August 16, 2022, 11 ("Transmission is funded primarily by captive ratepayers; as such, the primary interests of monopoly utilities—maximizing investments and profit from those investments—is often in conflict with societal interests in maximizing cost efficiency and choosing clean resources while maintaining a safe and reliable electric system.").

77. Peskoe, "Is the Utility Transmission Syndicate Forever?," 34; Lucas W. Davis, Catherine Hausman, and Nancy L. Rose, "Transmission Impossible? Prospects for Decarbonizing the U.S. Grid," *American Economic Association* 37, no. 4 (2023): 168.
78. Catherine Hausman, "Power Flows: Transmission Lines and Corporate Profits," 1 (working paper 32091, National Bureau of Economic Research, Cambridge, MA, 2024).
79. Hausman, "Power Flows: Transmission Lines and Corporate Profits," 2..
80. Hausman, "Power Flows: Transmission Lines and Corporate Profits," 4-5, 27–28.
81. See Peskoe, "Replacing the Utility Transmission Syndicate's Control," 3 (tracing transmission owners' "formal authority" and "informal influence" in regional transmission planning).
82. "Comments of the Institute For Policy," Building the Future through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, Docket No. RM21-17-000, August 17, 2022 ("Where planning entities exercise strategic modeling behavior—selecting inputs that will bias the results of the model—transmission planning may not yield the most efficient or cost-effective transmission solutions, undermining the regional planning process."); Peskoe, "Is the Utility Transmission Syndicate Forever?," 34 (explaining why utilities "are not capable of acting as neutral arbiters in transmission planning processes").
83. Georgia Power Company, "2023 Integrated Resource Plan Update," Docket No. 55378, October 2023.
84. Robert Walton, "Gas Plants 'Disproportionately Vulnerable to Failure,' Warns Union of Concerned Scientists Report," Utility Drive, January 9, 2024.
85. See Macey, Wiseman, and Welton, "Grid Reliability in the Electric Era."
86. See S. P. Kothari, "Why Shareholder Wealth Maximization Despite Other Objectives," Harvard Law School Forum on Corporate Governance, May 23, 2018; Lucian A. Bebchuk and Roberto Tallarita "The Illusory Promise of Stakeholder Governance," *Cornell Law Review* 106 (2020): 91–178; Lynn M. LoPucki, "The End of Shareholder Wealth Maximization," *UC Davis Law Review* 56 (2023): 2017–65 (trying to finally unseat this paradigm).
87. Lenhart and Fox, "Participatory Democracy in Dynamic Contexts"; Welton, "Rethinking Grid Governance for the Climate Change Era." Official state power within multistate RTO processes varies by region, with states in Midcontinent Independent System Operator (MISO) and Southwest Power Pool retaining more authority. See Lenhart and Fox, "Participatory Democracy in Dynamic Contexts." On state frustration, see, for example, "New England States Vision Statement," New England States Committee on Electricity, October 16, 2020.
88. See Walters and Kleit, "Grid Governance in the Energy-Trilemma Era: Remedying the Democracy Deficit," 1067 (finding that RTO processes "excludes certain perspectives").
89. See Orders 888, 890, 2000, 1000. See also Peskoe, "Is the Utility Transmission Syndicate Forever?"; Peskoe, "Replacing the Utility Transmission Syndicate's Control," 36 (observing that FERC has long known about the dangers of relying on utility self-interest to rationally expand the grid).
90. Welton, "Rethinking Grid Governance for the Climate Change Era."
91. "Improvements to Generator Interconnection Procedures and Agreements," 184 FERC ¶ 61,054, Federal Energy Regulatory Commission, 18 CFR Part 35, Docket No. RM22-14-000, Order No. 2023 (issued July 28, 2023), 7–8.
92. U.S. Federal Energy Regulatory Commission, "Building for the Future through Electric Regional Transmission Planning and Cost Allocation," Docket No. RM21-17-000, 187 FERC ¶ 61,068, at ¶¶ 248, 269, 720-21, 911 (May 13, 2024).
93. Id. at ¶ 1109.
94. Id. at ¶¶ 966, 1026.
95. Zimmerman, *Transmission Planning and Development Regional Report Card*, 16 (describing MISO's "Multi-Value Project" process); Hogan, "A Primer on Transmission Benefits and Cost Allocation," 17 (describing Southwest Power Pool's successful experiments). More recently, MISO's Long Range Transmission Plan Tranche 1 produced 18 new lines, which will provide, on average, $2.60 in benefits for every dollar spent. See MISO, 2022, "MTEP21 Report Addendum: Long Range Transmission Planning Tranche 1 Executive Summary," at 4.
96. "Transmission & CREZ Lines: Bringing Texans More Affordable, Reliable Power," Power Up Texas, December 2018. See also Norris, *Beyond FERC Order 2023*.
97. See, for example, Norris, *Beyond FERC Order 2023*, 1; Ethan Howland, "FERC Interconnection Rule May Not Speed Process in Much of US: Experts," Utility Drive, August 4, 2023.
98. "E-1: Commissioner Clements Concurrence on Order No. 2023: Improvements to Generator Interconnection Procedures and Agreements," FERC, July 28, 2023.
99. See "Comments of Public Interest Organizations," Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, Docket No. RM21-17-000, August 16, 2022, 16 ("[E]ven with mandatory requirements, public utility transmission providers may only do the bare minimum necessary to comply with FERC requirements.").
100. "Transmission Facilitation Program (TFP)," Grid Deployment Office, October 23, 2023.
101. See William Boyd, 2014, "Public Utility and the Low Carbon Future," UCLA Law Review 61: 1616–710; William J. Novak, "The Origins of Modern Business Regulation," in *New Democracy: The Creation of the Modern American State* (Harvard University Press, 2022).
102. 16 U.S.C. § 824d.
103. Boyd, "Public Utility and the Low Carbon Future," 1619.
104. U.S. Federal Energy Regulatory Commission, "Building for the Future through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," 18 CFR Part 35, Docket No. RM21-17-000, 179 FERC ¶ 61,028, at ¶¶ 55, 161.
105. Order No. 2000, Regional Transmission Organizations, 65 Fed. Reg. 810, 811, 830 (issued Dec. 20, 1999) (codified at 18 C.F.R. pt. 35); Welton, "Rethinking Grid Governance for the Climate Change Era"; Lenhart and Fox, "Participatory Democracy in Dynamic Contexts."
106. Betsy Reed, "National Grid to Be Partly Nationalised to Help Reach Net Zero Targets," *The Guardian*, April 6, 2022.
107. "Introduction to the FSO," National Grid ESO, December 2023; UK 2023 Energy Policy Act, Part 5, § 163; UK 2023 Energy Policy Act, c. 52.
108. "Energy Security Bill Factsheet: Future System Operator," Gov.UK, September 1, 2023.
109. "Future System Operator: Government and Ofgem's Response to Consultation," Department for Business, Energy, and Strategy and Ofgem, April 2022.
110. A limited number of blueprints attempt to sketch out how such an authority might be shaped. See ESIG, "Transmission Planning for 100% Clean Electricity" (recommending a "National Electric Transmission Authority"); Bob Zavadil and Alison Silverstein, "Blueprint for a National Electric Transmission Authority" (working paper, EnerNex and Alison Silverstein Consulting, 2021) (fleshing out this idea); Alison Silverstein, "Prepared Remarks of Alison Silverstein," Climate Change, Extreme Weather and Electric System Reliability, Docket No. AD21-13-000, June 1, 2021; Pfeifenberger et al., *A Roadmap to Improved Interregional Transmission Planning*, 19 (recommending "[a] new federal or central planning authority that would identify economic and public policy needs, including those driven by new state or federal policies, and has the authority to ensure projects are evaluated, permitted and sited, and ultimately built."); Peskoe, "Is the Utility Transmission Syndicate Forever?," 4 ("I propose that FERC should induce IOUs to accept third-party controlled planning.").
111. See "National Transmission Planning Study," Grid Deployment Office, Energy.gov (explaining that at present, "[t]he Needs Study is not intended to displace existing transmission planning processes and is not intended to identify specific transmission solutions to address identified needs, but it does identify key national needs that can inform investments and planning decisions").

112. See ESIG, "Transmission Planning for 100% Clean Electricity," 12 (recommending that a national authority support "renewable energy zones that can support major levels of wind or solar development concentrated in favorable locations with the availability of rapid, large-scale transmission facilities and interconnection capacity"); see also Gorman et al., *Transforming Interconnection*, 12, 55 (recommending decoupling "delinking the interconnection process and network upgrade investments" via proactive transmission planning). In its Transmission NOPR, the Commission proposed requiring regions to *consider* such zones—again, a light touch approach. See U.S. Federal Energy Regulatory Commission, "Building for the Future through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," 18 CFR Part 35, Docket No. RM21-17-000, 179 FERC ¶ 61,028, at ¶ 146.
113. Cf. "Comments of Public Interest Organizations," 36 (recommending that transmission providers "continue to handle unforeseen and short-term reliability needs).
114. Cf. "Comments of Public Interest Organizations," 12 (explaining why a portfolio-based planning approach is essential "to address the broad range of long-term regional transmission needs in a cost-effective fashion"); Pfeifenberger, "Transmission Cost Allocation" (explaining that postage stamp allocation is appropriate for these types of portfolios); Baldick et al., "A National Perspective on Allocating the Costs of New Transmission Investment," 27 (explaining that "the beneficiaries pay" concept supports socializing the costs of "baskets of system enhancements" that "have inherently broad public benefits").
115. See "Comments of Public Interest Organizations," 55 (suggesting that "the Commission should require each public utility transmission provider to submit, in coordination with the relevant regional planning process, a comprehensive list of all anticipated local reliability violations and forecast load growth for inclusion in at least three long term regional planning cycles").
116. S. 2651, SITE Act, 117th Cong. (2021–22). Sponsored by Sen. Sheldon Whitehouse [D-RI], introduced on August 5, 2021. Referred to the Senate Committee on Energy and Natural Resources.
117. U.S. Federal Energy Regulatory Commission, "Building for the Future through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection," 187 FERC ¶ 61,068, at ¶ 85.
118. 16 U.S.C. § 824e; see also Transmission Access Pol'y Study Grp. v. FERC, 225 F.3d 667, 687 (D.C. Cir. 2000) (explaining that this provision gives FERC the "broad authority to remedy unduly discriminatory behavior").
119. See Niagara Mohawk Power Corp. v. FPC, 379 F.2d 153, 159 (D.C. Cir. 1967) (explaining that an agency's discretion is "at zenith" when administering remedies).
120. This determination would be made under Federal Power Act, section 206, the same section FERC has proposed using to determine that current regional planning processes are unjust and unreasonable.
121. Cf. Peskoe, "Is the Utility Transmission Syndicate Forever?," 11 ("FERC has unexercised authority under section 206 to separate IOUs from transmission decision making or take other remedial actions that aim to neutralize IOUs' unearned advantages.").
122. See 16 U.S.C. § 824p.
123. "FY 2024 Congressional Justification," Grid Deployment Office, March 15, 2023.
124. See Iroquois Gas Transmission System, L.P., 87 FERC ¶ 61,295, 62,168, June 17, 1999 (explaining the Commissions' "presumption of prudence"); Peskoe, "Is the Utility Transmission Syndicate Forever?"; Goggin, *Transmission Makes the Power System Resilient to Extreme Weather*, 71; "Comments of Public Interest Organizations," 53 (proposing that the Commission adopt similar reforms such that "if a public utility transmission provider seeks rate recovery for a project that is presented as a 'surprise,' addressing needs not reported to a regional process, they would need to affirmatively demonstrate that the project is prudent through a normal prudency review").
125. See Office of the Ohio Consumers' Counsel v. PJM Interconnection, et al., Docket No. EL23-___-000, Complaint to Protect Ohio Consumers from Monopoly Electric Transmission Charges (filed September 28, 2023), 4, 13; Peskoe, "Comment of the Harvard Electricity Law Initiative."
126. See Peskoe, "Is the Utility Transmission Syndicate Forever?," 59; "Comments of Public Interest Organizations," 56; Ari Peskoe, "Pre-Technical Conference Statement," Transmission Planning and Cost Management, Docket No. AD22-8, October 12, 2021, 1–2.
127. Devin Hartman, "R Street Comments on Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection before the Federal Energy Regulatory Commission," R Street Institute, October 12, 2021.
128. See id.
129. "Hickenlooper, Peters Introduce BIG WIRES Act to Reform Permitting, Lower Energy Costs," U.S. Senator Hicklooper, press release, September 15, 2023.
130. See Justin Gundlach, *Transmission Siting Reforms in the Infrastructure Investment and Jobs Act of 2021* (New York: Institute for Policy Integrity, 2021); "Transmission Facilitation Program," Energy.gov.
131. Cf. Illinois Com. Comm'n v. Fed. Energy Regul. Comm'n, 756 F.3d 556, 559 (7th Cir. 2014) (explaining that postage stamp allocation requires that benefits be spread "equally, or even approximately equally, among the utilities" in the region); Illinois Com. Comm'n v. Fed. Energy Regul. Comm'n, 721 F.3d 764, 775 (7th Cir. 2013) (allowing "crude" estimations of regional benefits).
132. See Avi Zevin, Sam Walsh, Justin Gundlach, and Isabel Carey, "Building a New Grid without New Legislation: A Path to Revitalizing Federal Transmission Authorities," *Ecology Law Quarterly* 48 (2021): 169–240.
133. See "Transmission Facilitation Program," Energy.gov (the Grid Deployment Office's Transmission Facilitation Program).
134. Cf. S. 2480, CHARGE Act of 2023, 118th Cong. (2023–24). Sponsored by Sen. Edward J. Markey [D-MA], introduced on July 25, 2023. Referred to the Senate Committee on Energy and Natural Resources, section 318 (proposing a new "Office of Transmission" within FERC to "review transmission plans submitted by public utilities in accordance with the regional and interregional transmission planning processes, including the processes established pursuant to section 206").
135. FERC's legal authority for doing so in regions outside RTOs would rest on its ability to find that individual utilities' tariffs were unjust and unreasonable in the absence of a regionally reviewed plan. Cf. Peskoe, "Is the Utility Transmission Syndicate Forever?," 61.
136. See Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 136 FERC ¶ 61,051, 18 CFR Part 35, Docket No. RM10-23-000, Order No. 1000 (issued July 21, 2011, ¶ 148.
137. See Letter from Organization of PJM States, Inc. to the Board Chair and President of PJM, April 3, 2024.
138. FERC has laid the groundwork for this finding in its declaration that "the potential for a significant investment in the transmission system in the coming years underscores the importance of ensuring that ratepayers are not saddled with costs for transmission facilities that are unneeded or imprudent." See Building for the Future through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, Advanced Notice of Proposed Rulemaking, 176 FERC ¶ 61,024 (2021).
139. See supra notes 96-97 and accompanying text.
140. Bldg. for the Future through Elec. Reg'l Transmission Plan. & Cost Allocation & Generator Interconnection, 176 FERC ¶ 61,024, 61,187 (2021).
141. See Comments of the Michigan Public Service Commission at 8; Joshua C. Macey, "Pre-Conference Comments of Joshua C. Macey, Assistant," Transmission Planning and Cost Management, Docket No. AD22-8-000, October 2, 2022; Comments of New Jersey Board of Public Utilities at 24.
142. See Ari Peskoe, "Comment of the Harvard Electricity Law Initiative," Building for the Future through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, Docket No. RM21-17, 3.
143. See Office of the Ohio Consumers' Counsel v. PJM Interconnection, et al., 35.
144. See "Reply Comments of the Industrial Customer Organizations," Building for the Future through Electric Regional Trans-

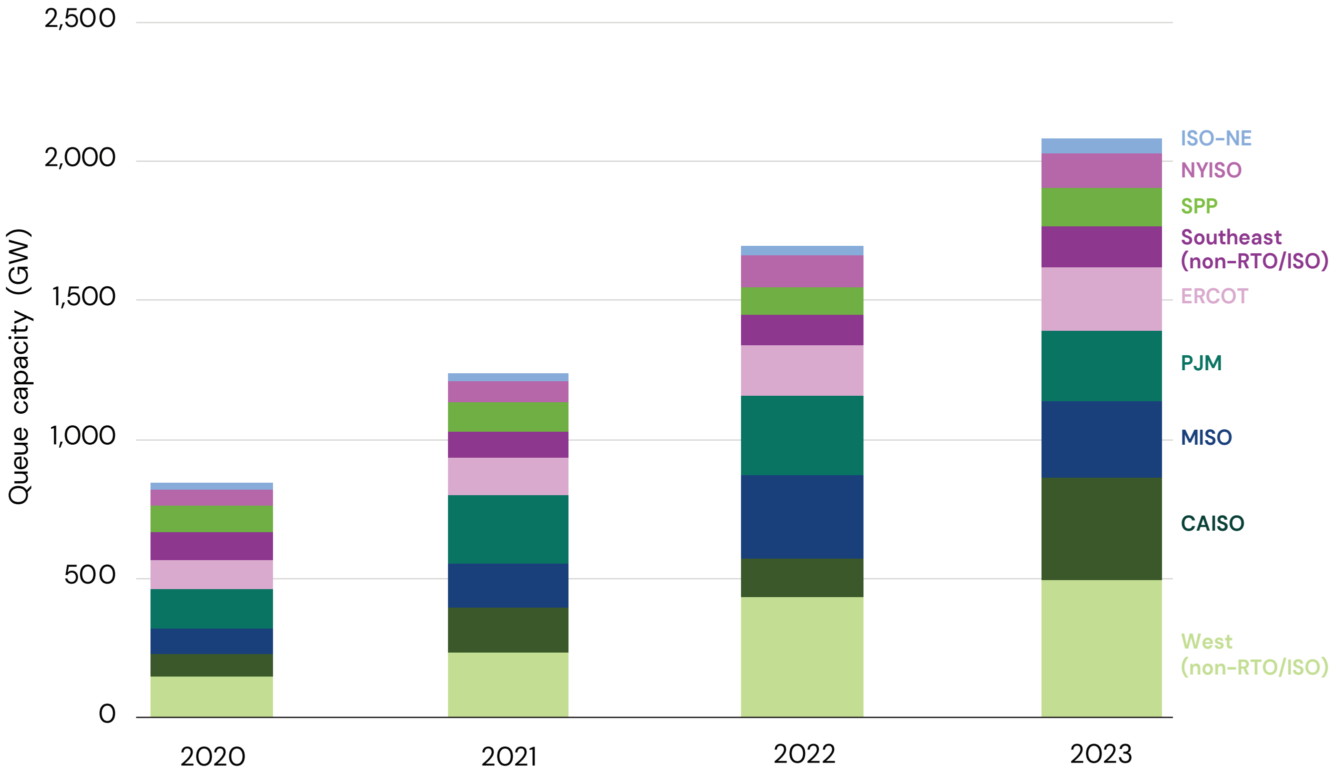
mission Planning and Cost Allocation and Generation Interconnection, Docket No. RM21-17-000, September 19, 2022; "Reply Comments of the Electricity Transmission Competition Coalition," Building for the Future through Electric Regional Transmission Planning and Cost Allocation and Generation Interconnection, Docket No. RM21-17-000, November 30, 2021.

145. See Tyson Slocum, "Comments of Public Citizen, and Request to Address RTO Governance Shortcomings in a Notice of Inquiry of Order 719," Public Service Commission of West Virginia v. PJM Interconnection LLC, Docket No. EL23-45, March 28, 2023.
146. See "Commission Christie's Statement in the PSC West Va. and PJM IMM Complaints, EL23-45 and EL23-50," FERC, March 1, 2024.
147. Philip Rossetti, "Addressing NEPA-Related Infrastructure Delays," Policy Study No. 234, R Street Institute, Washington, DC, 2021.
148. Fiscal Responsibility Act of 2023, Pub. L. No. 118-5, 137 Stat. (June 3, 2023).
149. "Coordination of Federal Authorizations for Electric Transmission Facilities," Federal Register, August 16, 2023.
150. See Klass and Wilson, "Interstate Transmission Challenges for Renewable Energy, supra note 49. States also wield informal authority—and sometimes, more formal authority—during regional transmission planning. See Peskoe, "Replacing the Utility Transmission Syndicate's Control."
151. See Transource Pennsylvania, LLC v. Steven M. DeFrank, et al. No. 1:21-CV-01101. M.D. Pa., December 6, 2023, Memorandum by Judge Jennifer P. Wilson (finding that Pennsylvania's denial of a transmission developer's permit application was preempted by the Federal Power Act and violated the dormant commerce clause because PJM's regional process had already established its necessity and broader benefits).
152. See 16 USC § 824d; Peskoe, "Replacing the Utility Transmission Syndicate's Control," 49–54.
153. See Atlantic City Elec. Co. v. FERC, 295 F.3d 1, 10 (2002); Amer. Muni. Power, Inc. v. FERC, Slip Op., Case No. 20-1449, D.C. Circuit (decided Nov. 17, 2023).
154. Cf. Atlantic City Elec. Co. v. FERC, 295 F.3d 1 (2002); Peskoe, "Replacing the Utility Transmission Syndicate's Control," 49–56 (noting transmission owners' power in this regard).
155. 16 U.S.C. § 824(a).
156. Cramer, Letter to FERC Commissioners.
157. "Commissioner Christie's Concurrence in MISO Resource Adequacy Construct Proceedings, Docket Nos. ER22-495 and ER22-496," FERC, August 31, 2022.
158. MISO's "Multi-Value Project" initiative provides an excellent example of how state collaboration on identifying resource needs can help drive high-quality regional planning. See AESL Consulting, David Boyd, and Edward Garvey, "A Transmission Success Story: The MISO MVP Transmission Portfolio" (paper, AESL Consulting, Saint Paul, Minnesota, 2021), 12–14.
159. Zimmerman, *Transmission Planning and Development Regional Report Card*, 14.
160. See Jesse D. Jenkins et al., Princeton University Zero Lab, Climate Progress and the 117th Congress: The Impacts of the Inflation Reduction Act and the Infrastructure Investment and Jobs Act, 6 (July 2023).
161. See Public Utilities Comm'n v. Attleboro Steam Co., 273 U.S. 83 (1927).
162. See FERC v. Elec. Power Supply Ass'n, 577 U.S. 260 (2016).
163. See W. Virginia v. Env't Prot. Agency, 142 S. Ct. 2587, 2592 (2022) (elucidating the "major questions doctrine" that arrogates interpretive authority to courts instead of agencies in certain instances); "Loper Bright Enterprises v. Raimondo," SCOTUSblog, n.d. (considering whether to overrule the longstanding regime of court deference to agencies' statutory interpretations).
164. Cf. Peskoe, "Is the Utility Transmission Syndicate Forever?" (arguing that "FERC retains broad authority under section 206 to police anti-competitive IOU behavior and should act decisively to separate transmission planning from IOU control").
165. W. Virginia v. Env't Prot. Agency, 142 S. Ct. 2587 (2022).
166. W. Virginia v. Env't Prot. Agency, 142 S. Ct. 2587, 2612 (2022).
167. See Transmission Access Pol'y Study Grp. v. FERC, 225 F.3d 667, 683 (D.C. Cir. 2000), aff'd sub nom. New York v. FERC, 535 U.S. 1 (2002).
168. See, for example, S.C. Pub. Serv. Auth. v. FERC, 762 F.3d 41 (D.C. Cir. 2014) (upholding FERC's requirements of regional transmission planning in Order 1000).
169. See State Voluntary Agreements to Plan & Pay for Transmission Facilities, 175 FERC ¶ 61,225, 62,291 (2021).
170. See Zimmerman, *Transmission Planning and Development Regional Report Card*, 31; "Comments of the Office of the People's Counsel for the District Of Columbia and the Maryland Office of People's Counsel Regarding the Notice of Proposed Rulemaking," Building for the Future through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, Docket No. RM21-17-000, 39–40; The Brattle Group and Grid Strategies, *Transmission Planning for the 21st Century: Proven Practices That Increase Value and Reduce Costs* (Cambridge, MA: The Brattle Group, 2021), 10; see also El Paso v. FERC, 5th Cir. (invalidating a plan in which all utilities benefitting from new transmission did not share in its costs).
171. See "Comments of Public Interest Organizations" ("The current practice of allocating costs of new transmission infrastructure associated with interconnecting generators violates settled law that requires costs to be allocated both to cost causers and beneficiaries."); Caspary et al., *Disconnected: The Need for a New Generator Interconnection Policy* (making a similar argument).
172. Scott Hempling, "Inconsistent with the Public Interest: FERC'S Three Decades of Deference to Electricity Consolidation," *Energy Law Journal* 39, no. 233 (2018): 237–41.
173. See Aneil Kovvali and Joshua C. Macey, "The Corporate Governance of Public Utilities," Yale Journal on Regulation 40, no. 569 (2023): 569–619 (documenting how holding companies' exploit their regulated assets to the benefit of their nonregulated assets).
174. Hempling, "Inconsistent with the Public Interest," 240.
175. Id. at 304.
176. See, for example, Peskoe, "Replacing the Utility Transmission Syndicate's Control."
177. See Danny Cullenward and Shelly Welton, "The Quiet Undoing: How Regional Electricity Market Reforms Threaten State Clean Energy Goals," *Yale Journal on Regulation* 36 (2019).
178. S.C. Pub. Serv. Auth. v. FERC, 762 F.3d 41, 93 (D.C. Cir. 2014) ("Non-public utilities are not subject to Section 206 of the FPA, and so are not directly governed by Order No. 1000 and its planning and cost allocation requirements.").
179. S.C. Pub. Serv. Auth. v. FERC, 762 F.3d 41, 93 (D.C. Cir. 2014)
180. S.C. Pub. Serv. Auth. v. FERC, 762 F.3d 41, 93 (D.C. Cir. 2014); see also Order 1000, Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 76 FR 49842-01, ¶¶ 815–18.
181. See, for example, Simon Mahan, "Gridlocked: Planning Failure with the Southeastern Regional Transmission Planning Process," Southern Renewable Energy Association, December 20, 2023; El Paso Elec. Co. v. FERC, 76 F.4th 352, 366 (5th Cir. 2023) (considering the challenge of nonjurisdictional utilities "free-riding" on regional transmission upgrade cost allocations).
182. Several commentators on Order 1000 suggested that FERC would have the authority impose such an obligation; others vigorously disputed this point. See id. at ¶¶ 800–14. FERC explained that "if it finds on the appropriate record that a non-public utility transmission provider is not participating in the proposed regional transmission planning and cost allocation processes set forth in this Final Rule, the Commission may exercise its authority under FPA section 211A on a case-by-case basis." Id. at ¶ 799.
183. Order 2000, Reg'l Transmission Organizations, 89 FERC ¶ 61,285 (1999).

ADVISORY COUNCIL

The U.S. electricity grid is nearing crisis mode, plagued by a suite of challenges including lengthy delays in interconnecting new resources, insufficient regional and interregional transmission expansion, and increasing reliability concerns. This policy proposal argues that these problems confronting the grid should be understood centrally as a challenge of governance. For-profit companies have too large a role in the long-term, systemic planning of the electricity grid, causing U.S. consumers to dramatically overspend on grid projects that serve incumbents' financial interests but do not efficiently or effectively accomplish public goals for the system. Recent reforms improve grid planning at the margins but do not adequately address underlying governance concerns. To remedy these governance flaws, the paper proposes the creation of a public grid planning authority to develop grid expansion plans in the national interest, accompanied by changes to grid oversight to enable more scrutiny of proposed utility projects that do not align with national and regional plans. After laying out how legislation could create an ideal public grid planning entity, the paper explores how federal energy agencies could accomplish a similar set of governance reforms through more effective use of existing legal authorities. These changes would benefit communities across the country by containing the cost of electricity while enabling a cleaner and more resilient energy system.

Active energy capacity in the queue, by electric power markets, 2020–23



Source: Lawrence Berkeley National Laboratory (LBNL), Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection (Berkeley, CA: U.S. Department of Energy, 2021–2024).

Note: The sample is restricted to all active projects in the queue that report energy capacity. ISO stands for independent system operator, RTO stands for regional transmission organization, and CAISO stands for California ISO. MISO stands for Midcontinent ISO, PJM stands for PJM Interconnection, and ERCOT (Texas' ISO) stands for Electric Reliability Council of Texas. SPP stands for Southwest Power Pool, NYISO stands for New York ISO, and ISO-NE stands for New England ISO.

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