COMMENT

ZAP THE SLEEPING GIANT: REVAMPING ORDER 1000 TO FACILITATE DECARBONIZATION ACROSS THE WESTERN UNITED STATES

BY

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Public policies with ambitious decarbonization requirements affect electricity systems spanning various jurisdictions and geographies in the United States. In 2011, the Federal Energy Regulatory Commission issued Order 1000, recognizing the importance of incorporating federal, state, and local public policy requirements into regional and interregional transmission planning and coordination. Alas, Order 1000 has failed to reconcile electricity grid balkanization across the western United States. This failure threatens to thwart decarbonization efforts, expose electricity customers to unfair rates, and undercut grid reliability. But even without new federal legislation, the Commission could revamp Order 1000 and leverage existing statutory mechanisms to facilitate the creation of transmission systems sufficient to comport with decarbonization goals and other public policy requirements.

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FORWARD

During the editing and publishing of this Comment, the United States enacted legislation and initiated rulemaking processes set to transform the development and management of its electricity transmission facilities. Congress passed the Infrastructure Investment and Jobs Act, which will shape a new era of the U.S. electricity grid.[1] On the administrative law front, the Federal Energy Regulatory Commission (FERC) issued an Advance Notice of Proposed Rulemaking (ANOPR) in July 2021 to revisit its prior rules and consider reforms to improve the regional transmission planning, cost allocation, and generator interconnection processes.[2]

Concurring with the issuance of the ANOPR, FERC Chairman Richard Glick and Commissioner Allison Clements struck a forward-looking and critical tone:

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[1] Infrastructure Investment and Jobs Act, Pub. L. No. 117-58 (2021); *see* Kayla J. Grant & Merrill Kramer, *Key Energy Provisions in Biden Administration $1.2 Trillion Infrastructure Investment and Jobs Act*, THE NATIONAL LAW REVIEW 321 (Nov. 17 2021), https://perma.cc/C3MX-8VPE (breaking down the Act's spending provisions).

[2] Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, 86 Fed. Reg. 40,266, 40,267 (July 27, 2021) [hereinafter ANOPR]; *see* FERC Docket No. RM21-17-000 (docketing comments on the proposed rulemaking). The buzz about this rulemaking and FERC, in general, has reached a truly bizarre level. *See*, *e.g.*, The Independent, *Cringeworthy Moment Congressman Sings 'FERCalicious' on House Floor*, YOUTUBE (July 28, 2021), https://perma.cc/S9W4-BPPA.

> [W]e believe that the *status quo* approach to planning and allocating the costs of transmission facilities may lead to an inefficient, piecemeal expansion of the transmission grid that would ultimately be far more expensive for customers than a more forward-looking, holistic approach that proactively plans for the transmission needs of the changing resource mix. A myopic transmission development process that leaves customers paying more than necessary to meet their transmission needs is not just and reasonable.[3]

The ANOPR is full of prompts, with FERC asking for input on myriad transmission-related issues. It also invites comment on more specific ideas, such as the potential creation of an "Independent Transmission Monitor" in all regions of the United States to oversee costs and planning of transmission facilities.[4] While much still hangs in the balance, this Comment discusses the history of the electricity grid in the western United States and offers rulemaking suggestions to facilitate a just and equitable transition to a decarbonized electricity grid.

I. INTRODUCTION

Many state and local policies require entities to take action to eliminate greenhouse gas emissions by decarbonizing electricity systems in the western United States.[5] Beyond changing the mix of resources generating electricity, meeting these decarbonization targets will require significant yet uncertain changes to transmission systems.[6] FERC is in the process of promulgating rules that could fundamentally change transmission development and management throughout the United States.[7] Western states present unique challenges to this process, but

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[3] ANOPR, 86 Fed. Reg. at 40,295.

[4] *Id.* at 40,291.

[5] *See, e.g.*, *State Renewable Portfolio Standards and Goals*, NAT'L CONF. OF STATE LEGISLATURES (Aug. 13, 2020), https://perma.cc/WT2V-PY6L [hereinafter NCSL] (describing state renewable portfolio and clean energy standard legislation, which require renewable energy sources to comprise a minimum percent of a state's energy mix by a certain date).

[6] *See* AARON BLOOM ET AL., TRANSMISSION PLANNING FOR 100% CLEAN ELECTRICITY 5 (explaining that "[w]ithout . . . a significant expansion of interregional transmission . . . effective economy-wide decarbonization will be much more expensive"); Paul L. Joskow, *Transmission Capacity Expansion Is Needed to Decarbonize the Electricity Sector Efficiently*, 4 JOULE 1, 1 (2019) (describing infrastructure reform as necessary to "overcome traditional boundaries between transmission networks"); *see also* JASON FINKELSTEIN ET AL., HOW TO DECARBONIZE GLOBAL POWER SYSTEMS 3 (2019), https://perma.cc/V3BK-PWHQ (explaining a range of decarbonization scenarios that would require modifications to current transmission infrastructure); *see also* Johannes Pfeifenberger et al., *Transmission Planning for the 21st Century: Proven Practices that Increase Value and Reduce Costs* 73–77 (Oct. 2021), https://perma.cc/UXX9-8LTY (listing evidence of the need for regional and interregional transmission infrastructure).

[7] ANOPR, 86 Fed. Reg. at 40,267; *see* ROB GRAMLICH & JAY CASPARY, PLANNING FOR THE FUTURE: FERC'S OPPORTUNITY TO SPUR MORE COST-EFFECTIVE INFRASTRUCTURE 41 (2021) (reporting that FERC's transmission plans should construct the best feasible portfolios based on all available technologies, configuration, and options, including building on

FERC must facilitate these states' decarbonization goals to adhere to its practice of cooperative federalism,[8] obligation to ensure grid reliability,[9] and ultimate responsibility of protecting the "public interest."[10]

Under the Federal Power Act (FPA),[11] FERC has the authority to facilitate the development of the United States' electricity grid and wholesale electricity markets.[12] In 2011, FERC issued Order 1000,[13] recognizing the importance of incorporating federal, state, and local "Public Policy Requirements"[14] into regional and interregional transmission planning and coordination.[15] Alas, Order 1000 has failed to live up to its potential.[16] Order 1000's shortcomings uniquely shortchange

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requirements to ensure that the scenarios modeled draw on all types of solutions to serve transmission needs).

[8] Rich Glick & Matthew Christiansen, *FERC and Climate Change*, 40 ENERGY L.J. 1, 15 (2019).

[9] *See id.* at 23 (describing FERC's corresponding obligations to ensure a level playing field for variable energy resources, i.e., solar and wind, and maintain the reliability of the grid).

[10] *See id.* at 45 n.239 ("[T]he purpose of the power given [to FERC] . . . is the protection of the public interest." (quoting Fed. Power Comm'n v. Sierra Pac. Power Co., 350 U.S. 348, 353 (1956))).

[11] Federal Power Act, 16 U.S.C. §§ 791a-825u (2018).

[12] FERC has authority over the regulation of "'the sale of electric energy at wholesale in interstate commerce,' including both wholesale electricity rates and any rule or practice 'affecting such rate[s].'" FERC v. Elec. Power Supply Ass'n (*EPSA*), 577 U.S. 260, 260 (2016) (quoting 16 U.S.C. §§ 824(b), 824e(a)). FERC also has "jurisdiction over all facilities for such transmission or sale of electric energy." 16 U.S.C. § 824(b)(1). Under FPA sections 205 and 206, FERC is responsible for ensuring that the rates, terms, and conditions for transmission of electricity in interstate commerce are just, reasonable, and not unduly discriminatory or preferential. 16 U.S.C. § 824(d)-(e).

[13] Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 76 Fed. Reg. 49,842 (Aug. 11, 2011) (codified at 18 C.F.R. pt. 35) [hereinafter Order 1000]; *see* S.C. Pub. Serv. Auth. v. FERC, 762 F.3d 41, 52 (D.C. Cir. 2014) (upholding the regulation).

[14] In Order 1000, FERC defines "'Public Policy Requirements' as public policy requirements established by state or federal laws and regulations . . . mean[ing] 'enacted statutes . . . and regulations promulgated by a relevant jurisdiction, whether *within* a state or at the federal level.'" Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 77 Fed. Reg. 32,184, 32,234 (May 31, 2012) (codified at 18 C.F.R. pt. 35) (emphasis added). Further, FERC notes that "Order 1000 does not require the consideration of Public Policy Requirements; rather, it requires the consideration of transmission needs driven by Public Policy Requirements." *Id.* FERC then declined to "exclude any particular state or federal law or regulation from the definition of Public Policy Requirements." *Id.*

[15] Order 1000, *supra* note 13, at 49,845, 49,867, 49,876–77.

[16] Then-FERC Chairman Neil Chatterjee notes that "Order 1000 clearly isn't delivering the results that were initially envisioned." Rich Heidorn, Jr., *WIRES Conference Talks Order 1000, Tx Incentives*, RTO INSIDER (July 30, 2020), https://perma.cc/TZV8-PXPK; *see generally* Robert H. Schulte & Frederic C. Fletcher, *Why the Vision of Interregional Electric Transmission Development in FERC Order 1000 Is Not Happening*, ELEC. J., July 2020, at 1–2 (stating interregional transmission planning has not happened ten years after Order 1000); Kelly Andrejasich, *Pointing to 'Perverse Incentive' Under Order 1000, FERC's Glick Calls For Changes*, S&P GLOBAL (Oct. 11, 2019), https://perma.cc/U57E-SA3H (reporting on Chairmin Rich Glick's thoughts that Order 1000 "is not working as intended").

the western electricity grid, which remains a largely balkanized system,[17] and present problems for decarbonization policies[18] and traditional electricity regulation goals alike.[19] By revitalizing Order 1000, FERC could facilitate efficient decarbonization in light of the wide range of potential transmission needs that could result from Public Policy Requirements.[20]

Part II provides context regarding the varying electricity market, policy, and regulatory dynamics across the western grid, more specifically, the United States portion of the Western Interconnection.[21] The current need for shrewd transmission management is acute—achieving a 100% clean energy grid by 2035 has recently become a mainstream policy ambition.[22] And renewable energy resources are rapidly coming online.[23] The systemic changes necessary to meet deep decarbonization goals will present grid reliability challenges and

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[17] REBECCA JOHNSON, GRID INTEGRATION IN THE WEST: BULK ELECTRIC SYSTEM RELIABILITY, CLEAN ENERGY INTEGRATION, AND ECONOMIC EFFICIENCY 4–5 (2015).

[18] *See* NCSL, *supra* note 5 (showing the diversity of renewable energy goals among the states).

[19] *See* MELISSA POWERS, ELECTRICITY LAW & POLICY 4 (2019) (describing regulators' aim to ensure "abundant, affordable, and reliable electricity" supply while maintaining utilities' financial stability).

[20] Most experts agree that decarbonization will require some additional transmission capacity. But estimates of how much capacity is needed, how efficient new technologies will be, and strategies for how to best use existing capacity vary greatly. *See, e.g.*, ENERGY STRATEGIES, WESTERN FLEXIBILITY ASSESSMENT: INVESTIGATING THE WEST'S CHANGING RESOURCE MIX AND IMPLICATIONS FOR SYSTEM FLEXIBILITY 121, 124 (2019), https://perma.cc/K7WN-4QZ6 (finding that 2035 policy targets would be difficult to achieve without incremental transmission additions); SAUL GRIFFITH ET AL., REWIRING AMERICA: A FIELD MANUAL FOR THE CLIMATE FIGHT 55, 65 (2020) (discussing the need to expand long-distance transmission infrastructure); SONIA AGGARWAL & MIKE O'BOYLE, REWIRING THE U.S. FOR ECONOMIC RECOVERY 12–15 (2020), https://perma.cc/KY4V-S3FG (arguing that FERC should expand its capacity to require regional transmission expansion and simplified interconnection rules).

[21] The Western Interconnection spans fourteen states and parts of Canada and Mexico. In this Comment, references to the Western Interconnection generally refer to the United States portion. *The Western Interconnection*, W. ELEC. COORDINATING COUNCIL, https://perma.cc/UDZ8-MJ5J (last visited Sept. 17, 2021) [hereinafter *Western Interconnection*].

[22] John Muyskens & Juliet Eilperin, *Biden Calls for 100 Percent Clean Electricity by 2035. Here's How Far We Have to Go*, WASH. POST (July 30, 2020), https://perma.cc/R6UP-UNXF; *see* U.C. BERKELEY, 2035 THE REPORT 2 (2020) (demonstrating the technical and economic feasibility of achieving 90% clean electricity in the United States by 2035). Note that in this Comment, "clean energy" and "carbon-free energy" are used interchangeably.

[23] *See, e.g.*, JOSEPH RAND ET AL., QUEUED UP: CHARACTERISTICS OF POWER PLANTS SEEKING TRANSMISSION INTERCONNECTION AS OF THE END OF 2020, LAWRENCE BERKELEY NAT'L LAB'Y 3, 11, 13, 22 (2021), https://perma.cc/5YG3-X3GC (showing, among other things, that proposed solar projects are widespread nationally); *Electric Power Monthly, Table 6.1 Electric Generating Summer Capacity Changes (MW), June 2021 to July 2021*, U.S. ENERGY INFO. ADMIN. (June 2021), https://perma.cc/FLB2-4AUP (showing significant numbers of proposed renewable energy projects as of mid-2021).

substantially affect transmission planning and coordination.[24] But, as explained below, the western grid's balkanization complicates decarbonization planning and underscores the importance of Order 1000's regional and interregional reach. Part II then discusses some of the major technological changes, specifically around energy storage, that impact decarbonization efforts and will inevitably shape the need for, and optimal use of, transmission capacity in the future. Uncertainty regarding these changes highlights the need for stronger, coordinated transmission planning.

Part III discusses Order 1000's objectives, implementation, and potential to facilitate decarbonization. Unfortunately, Order 1000 has been largely unsuccessful.[25] FERC stopped short of creating more structured processes for one of Order 1000's core purposes—facilitating coordinated regional planning to meet the transmission needs of federal, state, and local Public Policy Requirements.[26] Part III continues by discussing why and how FERC should strategically revamp Order 1000. Ultimately, this Comment argues that Order 1000 and future FERC rules hold tremendous, albeit dormant, potential to facilitate decarbonization across the Western Interconnection.

II. THE STATUS QUO OF THE WESTERN INTERCONNECTION

The Western Interconnection currently serves over eighty million people with approximately 136,000 miles of transmission lines.[27] As the Western Interconnection has developed, "it has functioned with remarkable reliability."[28] But the Western Interconnection's physical infrastructure, like the United States as a whole, is in dire need of upgrades.[29] The West will likely invest more than $200 billion in its electricity grid by 2030—the question is not whether this money will be spent, but how.[30]

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[24] *See, e.g.*, N. AM. ELEC. RELIABILITY CORP., POTENTIAL RELIABILITY IMPACTS OF EPA'S CLEAN POWER PLAN vii–viii (2016), https://perma.cc/D869-AQXF (finding that the Environmental Protection Agency's Clean Power Plan is expected to "accelerate a fundamental change in the electricity generation mix in the United States," and highlighting a need for planning to assure continued reliability of the nation's bulk power system).

[25] *See supra* text accompanying note 16 (generally indicating that Order 1000 has not operated as intended).

[26] *See S.C. Pub. Serv. Auth.*, 762 F.3d 41, 52–53 (D.C. Cir. 2014) (explaining that one of Order 1000's core reforms was to require interregional transmission planning procedures).

[27] *Western Interconnection*, *supra* note 21.

[28] JOHNSON, *supra* note 17, at 4.

[29] The American Society of Civil Engineers recently gave America's power grid infrastructure a "C-." *Report Card for America's Infrastructure*, AM. SOC'Y CIV. ENG'RS (2021), https://perma.cc/K24D-58FH.

[30] CARL LINVILL ET AL., WESTERN GRID 2050: CONTRASTING FUTURES, CONTRASTING FORTUNES 137 (2011), https://perma.cc/6AM6-3Y4E.; MARC W. CHUPKA ET AL., TRANSFORMING AMERICA'S POWER INDUSTRY: THE INVESTMENT CHALLENGE 2010-2030, 37 (2008), https://perma.cc/6AN4-FTHK.

The West needs to improve its transmission systems to accommodate the necessary and optimal growth in technologies that will enable deep decarbonization.[31] The state policy landscape is promising, with nine out of the eleven states in the Western Interconnection footprint having enacted a renewable portfolio standard or goal.[32] California, Nevada, New Mexico, Oregon, and Washington have committed to 100% carbon-free energy by or before 2050.[33] These state policies represent over fifty-six million people served by the Western Interconnection.[34] Adding to this momentum, at least eighty municipalities within the Western Interconnection have 100% clean energy commitments of their own.[35] These goals are achievable because, with the plummeting costs of solar, wind, and battery technologies,[36] the United States as a whole can achieve 90% carbon-free electricity by 2035 at no extra cost to consumers.[37] Progress toward decarbonization goals is already underway, with the vast majority of proposed electricity generation in the West coming from renewable energy technologies.[38]

Strategic development of renewable energy facilities and transmission infrastructure will be important to meet decarbonization goals cost-efficiently. In addition, more fluid energy markets could help the West decarbonize its energy systems more efficiently.[39] But no West-wide transmission manager or electricity market exists yet, and the relationship among participants in the Western Interconnection has been historically more physical than financial.[40] Further, institutional inertia

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[31] *See supra* text accompanying note 22 (discussing the current need for shrewd transmission management to meet policy goals).

[32] NCSL, *supra* note 5.

[33] *Id.*

[34] *State Population Totals and Components of Change: 2010-2019*, U.S. CENSUS BUREAU (Dec. 2019), https://perma.cc/7JVA-T263.

[35] *Check Out Where We Are Ready for 100%*, SIERRA CLUB, https://perma.cc/5JH2-5PVM (last visited Sept. 18, 2021).

[36] Between 2009 to 2020, the levelized cost of energy from unsubsidized wind generation and unsubsidized utility-scale solar generation decreased by 71% and 90%, achieving cost parity with fossil fuel generation sources in many parts of the country. LEVELIZED COST OF ENERGY ANALYSIS VERSION 14.0, LAZARD 3, 7, 9 (2020), https://perma.cc/2DPJ-ZBKE; *see* Ryan Wiser et al., *Expert Elicitation Survey Predicts 37% to 49% Declines in Wind Energy Costs by 2050*, LAWRENCE BERKELEY NAT'L LAB'Y 15 (2021), https://perma.cc/U3AK-NSXR (finding that the decreased cost of wind energy from 2015–2020 outpaced predictions, and that experts continue to predict significant declines in the future).

[37] U.C. BERKELEY, *supra* note 22, at 2. This assertion is controversial because it depends on what constitutes the cost calculation. Billions of dollars are necessary to finance renewables, grid modernization, and other features of a decarbonized society. But this investment pales in comparison to the costs of *not* decarbonizing our electricity systems and the ensuing climate havoc. *Id.* at 33–34. Who will ultimately foot the bill for decarbonization is another question, largely dependent on state and federal regulators.

[38] *Generation, Storage, and Hybrid Capacity in Interconnection Queues*, LAWRENCE BERKELEY NAT'L LAB'Y, https://perma.cc/2Z8X-WMN5 (last visited Oct. 4, 2021).

[39] *See* JOHNSON, *supra* note 17, at 7 (stating that inefficiency and poor liquidity are "hallmarks" of the Western Interconnection).

[40] *See id.* at 5 (noting that contract-based transmission paths are still the basis of most transmission transactions in the Western Interconnection region).

and strong incumbency dynamics in the Western Interconnection have influenced the planning, development, and operation of the western grid, in places creating an outdated, inflexible system.[41]

Ultimately, well-coordinated transmission planning is critically important to decarbonization efforts because of the significant uncertainty and risks associated with decarbonization.[42] Robust transmission planning and coordination can protect consumers against price volatility by allowing greater competition, regional flows of power, and responsiveness to price signals.[43] By contrast, poor planning can saddle ratepayers with upwards of hundreds of billions of dollars without providing any additional value to the grid.[44] The Western Interconnection is particularly vulnerable to cost overruns and inefficiencies because of its balkanization.[45] As explained below, transmission planning occurs with varying degrees of organization and obstruction in the West. And because transmission projects have long lead times relative to generation infrastructure, the importance of effective and efficient transmission planning done in a timely manner that fully embraces decarbonization policies is hard to overstate.[46]

A. Organized and Non-Organized Markets

In most of the Western Interconnection, electricity customers and providers do not have access to a regional transmission organization

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[41] *See id.* at 4 (arguing that changes to the Western Interconnection have been prevented by entrenched political, economic, and operations priorities, resulting in a system in need of upgrades); *see also* Chris Westfall, *Western Regional Transmission Organization: Creating a Market to Support Renewable Energy*, 31 GEO. ENV'T L. REV. 409, 415–16 (2019) (providing California as an example of western states' unwillingness to reform their grids).

[42] Most experts agree that some new transmission capacity is needed to fully decarbonize the United States' electricity systems. But exactly how much capacity is needed, where the infrastructure will go, and how efficiently the future grid will be capable of operating could result in any number of different transmission needs. *See generally supra* text accompanying note 20 (discussing the benefits of revitalizing FERC 1000 in light of the wide range of potential transmission that could result from Public Policy Requirements).

[43] Comments of The Sustainable FERC Project, Natural Resources Defense Council, and Union of Concerned Scientists on Codes, Standards, Specifications, and Other Guidance for Enhancing the Resilience of Electric Infrastructure Systems Against Severe Weather Events, 84 Fed. Reg. 32,730, 19–21 (Aug. 26, 2019).

[44] *See* Francisco D. Muñoz et al., *Optimizing Your Options: Extracting the Full Economic Value of Transmission When Planning Under Uncertainty*, 28 ELEC. J. 5, 26–38 (2016) (discussing advanced optimization-based methodologies for transmission line planning); *see also* BENJAMIN F. HOBBS ET AL., ASSESSING TRANSMISSION INVESTMENTS UNDER UNCERTAINTY (2013), https://perma.cc/88R7-BSNR (indicating that the transmission plans promoting the most renewable integration result in the lowest system costs); *see also* Francisco David Muñoz Espinoza, Engineering-Economic Methods for Power Transmission Planning Under Uncertainty and Renewable Resource Policies, 1, 74–77 (Jan. 2014) (Ph.D. dissertation, John Hopkins University), https://perma.cc/F26S-5E3X (analyzing three different engineering-economic challenges of power transmission planning that arise from the large scale integration of renewable energy technologies).

[45] Westfall, *supra* note 41, at 415, 424.

[46] JOHNSON, *supra* note 17, at 27.

(RTO) or independent system operator (ISO) to purchase and sell power.[47] RTO/ISOs are independent entities that administer transmission grids and wholesale power markets on a regional basis.[48] The California Independent System Operator (CAISO) is the only RTO/ISO fully within the Western Interconnection footprint. However, the easternmost portion (or "seam") of the interconnection abuts two RTO/ISOs: the Midwest Independent System Operator (MISO) and Southwest Power Pool (SPP).[49] There have been multiple attempts to create a West-wide RTO but none have succeeded.[50] Thus, many transmission providers in the Western Interconnection own assets operating outside of any RTO/ISO membership or responsibilities.

FERC's authority extends beyond RTO/ISO markets.[51] For example, utilities and grid operators in and outside of organized markets must set their prices for transmission services according to a nondiscriminatory "Open Access Transmission Tariff" approved by FERC as provided by Order 888.[52] To enable access to the grid, FERC promulgated nationwide rules providing the interconnection customer's option to build facilities

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[47] FERC, ENERGY PRIMER: A HANDBOOK OF ENERGY MARKET BASICS 56, 58 (2015). Roughly one in three electricity customers in the United States purchase their electricity outside of an RTO/ISO. Richard L. Revesz & Burcin Unel, *Managing the Future of the Electricity Grid: Energy Storage and Greenhouse Gas Emissions*, 42 HARV. ENV'T L. REV. 139, 156 (2018). The terms ISO and RTO are used interchangeably in this Comment because "[a]n RTO is just a type of ISO" that usually has a broader footprint. POWERS, *supra* note 19, at 210 n.3.

[48] *RTOs and ISOs*, FERC, https://perma.cc/7U82-PW6Q (last updated Apr. 15, 2021).

[49] Allison Clements, *Making Sense of Potential Western ISO Governance Structures: The Role of the States*, NAT. RES. DEF. COUNCIL 1 (June 2016), https://perma.cc/M8SY-4S9N.

[50] *See, e.g.*, Hudson Sangree, *Western RTO Proponents Vow to Keep Trying*, RTO INSIDER (Sept. 9, 2018), https://perma.cc/DHJ3-JBYE (discussing the continued efforts of proponents of an organized market in the Western Interconnection to turn CAISO into an RTO).

[51] *See supra* text accompanying note 12 (discussing FERC's authority to facilitate the development of the United States' electricity grid and wholesale electricity markets under the FPA).

[52] Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540, 21,540–41 (May 10, 1996) (codified at 18 C.F.R. pts. 35, 385); *see* POWERS, *supra* note 19, at 330 (describing this type of tariff as "a standard contract that provides the terms of transmission service and should, if properly implemented, avoid discrimination against non-utility electricity providers"). FERC has created a process to provide interested parties sufficient opportunity to obtain and review information necessary to evaluate the implementation of the tariffs, which allow public utilities to recover the cost for transmission facilities. *See also* Midwest Indep. Transmission Sys. Operator, Inc., 139 FERC ¶ 61,127, at 7 (2012) (providing a process for interested parties to have a sufficient opportunity to obtain and review information necessary to evaluate the implementation of the tariffs, which allow public utilities to recover the cost for transmission facilities); Order on the Investigation of Formula Rate Protocols re Midwest Idep. Transmission Sys. Operator, Inc., 143 FERC ¶ 61,149, at 2, 17 (2013) (stating that a party's knowledge of formulation rate for tariffs is not to determine if a party was provided with enough information to understand tariff protocols); Order on compliance filing re Midcontinent Indep. Sys. Operator, Inc., 146 FERC ¶ 61,212, at 9 (2014); Order on compliance filing re Midcontinent Indep. Sys. Operator, Inc., 150 FERC ¶ 61,025, at 11 (2015).

and upgrade networks.[53] But FERC often writes orders specifically applying only to RTO/ISOs to create compliance obligations within those organized markets.[54]

Non-organized parts of the Western Interconnection lose out on the benefits of FERC rules and regulations designed to promote electricity system reliability, affordability, and efficiency within RTO/ISOs.[55] This organized/non-organized market distinction is significant for decarbonization because, to date, FERC has exercised its authority with the overall effect of phasing out fossil fuels in organized electricity markets.[56] Areas of the Western Interconnection outside of an RTO/ISO do not readily benefit from such progress.

Arguments in favor of more centrally organized electricity systems in the West generally rest on three basic assumptions. First, access to more energy resources over a larger geographic footprint is better than fewer resources over a smaller footprint.[57] Second, efficient use of available resources is more likely when coordinated through an economic clearinghouse.[58] And third, although siloed in many ways, the Western Interconnection is practically one big grid.[59] Regional organized markets

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[53] Standardization of Generator Interconnection Agreement and Procedures, 68 Fed. Reg. 49,846, 49,877–78 (Aug. 19, 2003) (codified at 18 C.F.R. pt. 35); Reform of Generator Interconnection Procedures and Agreements, 83 Fed. Reg. 21,342, 21,353 (May 9, 2018) (codified at 18 C.F.R. pt. 37); Reform of Generator Interconnection Procedures and Agreements, 84 Fed. Reg. 8156, 8158 (Mar. 6, 2019) (codified at 18 C.F.R. pt. 37); Order on Rehearing and Clarification, 168 FERC ¶ 61,092, at 19 (2019).

[54] *See, e.g.*, Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators, 86 Fed. Reg. 33,853, 33,852–53 (June 28, 2021) (codified at 18 C.F.R. pt. 35) (issuing a final rule dealing with the participation of distributed energy resource aggregations in markets operated by regional transmission organizations and independent system operators); Wholesale Competition in Regions with Organized Electric Markets, 125 FERC 61,071, 16–19 (2008).

[55] U.S. DEP'T OF ENERGY, OFF. OF ELEC. DELIVERY AND ENERGY RELIABILITY, UNITED STATES ELECTRICITY INDUSTRY PRIMER, 25–26 (2015), https://perma.cc/J8P6-7A42; *About 60% of the U.S. Electric Power Supply is Managed by RTOs*, U.S. ENERGY INFO. ADMIN. (April 4, 2011), https://perma.cc/4Z9K-SR9P.

[56] FERC has an expressly technology- and fuel-neutral regulatory approach and operates according to principles (such as eliminating barriers to wholesale market competition and a commitment to cooperative federalism) that were conceived and are applied without regard to environmental consequences. Nonetheless, FERC has exercised its authority with the effect "of facilitating a cleaner, less [carbon]-intensive energy mix." Glick & Christiansen, *supra* note 8, at 5.

[57] *See* AARON BLOOM ET AL., THE VALUE OF INCREASED HVDC CAPACITY BETWEEN EASTERN AND WESTERN U.S. GRIDS: THE INTERCONNECTIONS SEAM STUDY 7 (2020), https://perma.cc/6Z5G-KLB8 (finding that "with increased intercontinental transmission [] the system was able to balance generation and load with less total system installed capacity across each of the generation scenarios, due to load and generation diversity, and increased operating flexibility").

[58] *See* Clements, *supra* note 49, at 3 ("The Federal Power Act . . . essentially required the FERC to ensure the wholesale prices are fair and that no class of customers or individual customers is treated unfairly when it comes to price or access to the transmission system.").

[59] The Western Interconnection is highly interconnected. *Western Interconnection*, *supra* note 21. One body, the Western Electricity Coordinating Council, oversees the reliability of

are perhaps the single greatest tool available to integrate policy, economic, and reliability considerations into grid management.[60]

Admittedly, when states elect to enter markets organized by multilateral institutions, state regulators give up some authority.[61] In addition, RTO/ISOs still face challenges to efficient transmission development.[62] However, the benefits of regional organized markets, such as the ability to coordinate transmission development, are substantial enough to justify the added challenges of operating within a multilateral institution.[63] This is why more participants in western electricity markets are joining CAISO spot markets, most prevalently the CAISO's Energy-Imbalance Market (EIM).[64] Gradually, federal hydropower and transmission giant Bonneville Power Administration (BPA) is entering the EIM, as are many major utility companies in the West.[65]

Whether the West would be best served by a future RTO[66] or some independent transmission monitor[67] is an open question. This Comment explores how rules building on Order 1000 could deliver widespread benefits in lieu of, or in combination with, greater RTO/ISO operation of the Western Interconnection. The West is gradually moving toward more regionalized electricity systems—the majority of western balancing

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the entire interconnection for their region. *See ERO Enterprise: Regional Entities*, N. AM. ELEC. RELIABILITY CORP., https://perma.cc/46TE-FNDT (last visited Oct. 8, 2020) (discussing methods by which ERO Enterprise seeks to attain its goals of assuring the effective and efficient reduction of risks to the reliability and security of the BPS).

60 *See RTOs and ISOs*, *supra* note 48 ("In Order No. 2000, the [Energy] Commission encouraged utilities to join regional transmission organizations. . . . Each of the ISOs and RTOs have energy and ancillary services markets in which buyers and sellers could bid for or offer generation. The ISOs and RTOs use bid-based markets to determine economic dispatch.").

61 *See generally* Regional Transmission Organizations, 65 Fed. Reg. 810, 811 (Jan. 6, 2000) (codified at 18 C.F.R. pt. 35) (requiring states who voluntarily enter RTOs to agree to "rates, terms, and conditions of transmission and sales" in order to ensure that all public utilities are priced equitably across the entire region).

62 *See* Julie Lieberman, *How Transmission Planning & Cost Allocation Processes are Inhibiting Wind & Solar Development in SPP, MISO, & PJM*, (Mar. 2021), https://perma.cc/NZW8-LKW9 (explaining deficiencies in regional and interregional transmission planning processes among RTO/ISOs).

63 Benefits of RTO/ISO participation include "enhanced reliability, coordination, competition and economies of scale" and "efficient commitment and dispatch of generation plants." ERIC KRALL ET AL., FERC, COMMON METRICS REPORT: PERFORMANCE METRICS FOR REGIONAL TRANSMISSION ORGANIZATIONS, INDEPENDENT SYSTEM OPERATORS, AND INDIVIDUAL UTILITIES FOR THE 2010-2014 REPORTING PERIOD 72 (2016).

64 *About*, W. ENERGY IMBALANCE MKT., https://perma.cc/34DR-6GX9 (last visited July 29, 2021); News Release, *Western Energy Imbalance Market Quarterly Results Set New Record*, W. ENERGY IMBALANCE MKT. (Aug. 2, 2021), https://perma.cc/A6W7-HT78.

65 *About*, *supra* note 64.

66 *See generally* Clements, *supra* note 49, at 2 (noting a benefit of a multistate grid operation in the West is the ability to meet energy demands in cost effective ways while increasing ease of regulatory compliance).

67 Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, 86 Fed. Reg. 40,266, 40,291 (July 27, 2021) (codified at 18 C.F.R. pt. 35).

authorities[68] now participate in regional energy markets.[69] But this incremental progress may be insufficient to comport with decarbonization requirements and timelines.

B. Balkanized Transmission Coordination and Development

The broadest participatory body in the western grid is the Western Electricity Coordinating Council (WECC). As an independent, non-profit corporation approved by FERC as the "Regional Entity" for the Western Interconnection, WECC oversees grid reliability planning, assessments, and compliance and has over 270 member organizations.[70] But neither WECC nor any other entity can regulate the entire fragmented landscape of transmission providers comprising the Western Interconnection.

Operationally, i.e., with hands on buttons and switches, the Western Interconnection is served by Reliability Coordinators (RCs).[71] In the United States portion of the Interconnection, the SPP RC (also known as Western RC) and the CAISO RC (also known as RC West) coordinate and provide services to their constituent balancing authorities.[72] CAISO RC alone consists of forty-two balancing authorities.[73]

The proliferation of balancing authorities across the West is evidence of the region's balkanized development.[74] Each balancing authority independently operates with the "incumbent obligation" of balancing electricity supply and demand in real time, primarily with resources within the boundaries of some control area.[75] The western mosaic of balancing authorities is drawing increased scrutiny because interregional pooling of demand and supply is unquestionably better for system reliability, energy economics, and renewable energy integration.[76]

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[68] A balancing authority is an entity that integrates resource plans in a given territory and balances electricity supply and demand in real time. *Glossary of Terms Used in NERC Reliability Standards*, N. AM. ELEC. RELIABILITY CORP. (June 28, 2021), https://perma.cc/5DL5-85CS.

[69] Namely, the California Independent System Operator's Energy Imbalance Market and the Southwest Power Pool's Western Energy Imbalance Service market. *Western Interconnection*, *supra* note 21.

[70] *About WECC*, W. ELEC. COORDINATING COUNCIL, https://perma.cc/SCM5-LDCU (last visited Oct. 26, 2021); *Membership*, W. ELEC. COORDINATING COUNCIL, https://perma.cc/HWE8-A2K7 (last visited Oct. 26, 2021).

[71] A Reliability Coordinator is "[t]he entity that is the highest level of authority who is responsible for the reliable operation of the Bulk Electric System . . . and has the operating tools, processes and procedures, including the authority to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations." *Glossary of Terms Used in NERC Reliability Standards*, *supra* note 68.

[72] *Western Interconnection*, *supra* note 21.

[73] *RC West Entities*, CAL. INDEP. SYS. OPERATOR (Aug. 2021), https://perma.cc/2J3F-JBGD.

[74] JOHNSON, *supra* note 17, at 5.

[75] *Id.*

[76] *See generally* BLOOM ET AL., *supra* note 57, at 1, 7 ("[Ex]amin[ing] the potential economic value of increasing electricity transfer between the Eastern and Western Intercon-

Most of the Western Interconnection footprint operates according to "contract-path transmission," which creates system inefficiencies.[77] For example, when power producers sell wind energy from Wyoming to far-away cities, those electrons might transfer across multiple transmission systems, accumulating tolls at each junction. Referred to as "wheeling charges," these fees are standard across the Western Interconnection.[78] By contrast, RTO regions of the United States transitioned to "flow-based transmission tariffs," enabling those regions to manage the physical and financial dimensions of the underlying electricity system congruently.[79]

A growing consensus recognizes that a flow-based compensation system is necessary in the non-RTO/ISO West to resolve contract-path inefficiencies.[80] However, thus far, a myopic focus on localized sufficiency among western transmission providers has starved the broader region of the benefits of more open electricity markets.[81] In addition, many stakeholders have voiced political opposition to more centrally controlled electricity systems in the West.[82]

Transmission siting is another issue that speaks to the problematic balkanization of the Western Interconnection. State, not federal or regional, regulators are primarily responsible for approving the actual construction of transmission facilities.[83] Under the status quo, the developer of a multistate transmission line in the Western Interconnection needs to obtain the blessing of the relevant authorities, whether federal, state, or local, along the full length of the line.[84] Statutory obligations can constrain these decision-makers, who may not

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nections using high-voltage direct-current (HVDC) transmission."); Judy W. Chang & Johannes Pfeifenberger, *Well-Planned Electric Transmission Saves Customer Costs: Improved Transmission Planning is Key to the Transition to a Carbon-Constrained Future*, BRATTLE GRP. (June 6, 2016), https://perma.cc/982X-BS4U ("To address future uncertainties . . . policymakers and regulators must engage now in evaluating the critical role that transmission investments can [have] in reducing customer cost and risks.").

77 *See* JOHNSON, *supra* note 17, at 5.

78 *Id.*

79 *Id.*

80 *Id.*

81 *Id.*

82 Arguably, with good reason. The Enron fiasco and California energy crisis of the early 2000s was an expensive lesson for the West that continues to inform debates about how to best manage western electricity systems. *See, e.g.*, Matthew Bandyk, *Pacific Northwest Looks to Avoid California-Style Blackouts Through More Regional Coordination*, UTIL. DIVE (Aug. 24, 2020), https://perma.cc/UP46-HCG9 (describing how California's high risk of blackouts influenced clean energy advocates to learn from California's mistakes and increase efforts to improve).

83 Alexandra B. Klass, *Expanding the U.S. Electric Transmission and Distribution Grid to Meet Deep Decarbonization Goals*, 47 ENV'T L. REP. 10,749, 10,756 (2017).

84 BIPARTISAN POL'Y CTR., CAPITALIZING ON THE EVOLVING POWER SECTOR: POLICIES FOR A MODERN AND RELIABLE U.S. ELECTRIC GRID 28–29 (2013); *see* James J. Hoecker & Douglas W. Smith, *Regulatory Federalism and Development of Electric Transmission: A Brewing Storm*?, 35 ENERGY L.J. 71, 82, 86–88 (2014) (discussing legislative barriers to interstate transmission projects).

have the power to consider the regional benefits of the proposed project.[85] Further, many state laws do not allow, or create uncertainty as to whether they allow, non-utility transmission developers to obtain siting permits or exercise eminent domain authority.[86] This patchwork of permitting authorities and attendant business case uncertainty present significant problems for effective transmission planning and development.

C. Uncertainty Regarding Decarbonization Pathways

Over the next decade, the nexus of deep decarbonization policies and deep pockets will carry massive investments in wind, solar, storage, and other types of clean energy.[87] The energy sector of the United States economy is made up of well-resourced industries, and the opportunity ahead is unprecedented.[88] In addition to state decarbonization ambition, President Biden has called for a federal agenda of eliminating carbon emissions from the electricity sector by 2035, funding large-scale energy efficiency projects, and electrifying the nation's transportation system.[89] However these investments play out, the profound technological shift needed to meet decarbonization policies will undoubtedly impact the needs and operation of electricity transmission systems in the future.

Operational characteristics of new technologies can create jurisdictional controversy and uncertainty among federal, state, and local regulators.[90] Regulators are navigating uncharted waters as more technologies capable of providing multiple services across the traditional generation, transmission, and distribution classifications of electricity infrastructure come online.[91] In addition, the transregional nature of energy resources in the United States complicates jurisdictional questions about which electricity regulator(s) can address regional and interregional transmission issues.[92] Decarbonization's technological and

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[85] Klass, *supra* note 83.

[86] *Id.*

[87] *See supra* text accompanying note 6.

[88] *See generally Electric Sales, Revenue, and Average Price*, U.S. ENERGY INFO. ADMIN. (Oct. 6, 2020), https://perma.cc/6TUW-7HTY (providing summary tables for the United States electricity sector regarding number of consumers, sales, revenues, average retail prices, and consumer monthly bills).

[89] THE BIDEN PLAN TO BUILD A MODERN, SUSTAINABLE INFRASTRUCTURE AND AN EQUITABLE CLEAN ENERGY FUTURE, BIDEN-HARRIS, https://perma.cc/M6FE-96DQ (last visited Sept. 17, 2021) [hereinafter Biden Plan]; Infrastructure Investment and Jobs Act, Pub. L. No. 117-58 (2021); S. Con. Res. 14, 117th Cong. (2021).

[90] *See* JEFFERY S. DENNIS ET AL., LAWRENCE BERKELEY NAT'L LAB'Y, FEDERAL/STATE JURISDICTIONAL SPLIT: IMPLICATIONS FOR EMERGING ELECTRICITY TECHNOLOGIES 10–21 (2016), https://perma.cc/EY9Z-K9FT (discussing the historical and current jurisdictional issues still relevant for new and emerging energy technologies).

[91] *Id.* at 22.

[92] *See generally* INTERCONNECTIONS SEAM STUDY, NAT'L RENEWABLE ENERGY LAB'Y, https://perma.cc/R4HL-NSSD (last visited Oct. 22, 2021) (discussing the value of increased HVDC capacity between Eastern and Western U.S. grids).

jurisdictional uncertainty compound, making smart transmission planning and management especially important.

Advancing generation[93] and transmission technologies[94] will certainly be important to decarbonization and future electricity systems. But the future needs of the electricity grid will also substantially depend on the fate of a relative newcomer, electricity storage resources (ESRs).[95] How effectively grid operators can store electricity is directly related to the overall demand for transmission capacity and how transmission capacity can function optimally. As the D.C. Circuit Court of Appeals recently recognized, ESRs are emerging as "industry disruptors" because they "obliterate a foundational notion underpinning our electrical systems—that electricity cannot be efficiently stored for later use."[96] While storing energy for later dispatch is not a novel concept, many types of ESR, such as utility-scale batteries, have only recently seen large-scale deployment.[97]

ESRs provide a wide range of services to transmission systems.[98] Importantly for decarbonization, ESRs have the potential to pair with wind and solar farms to bridge the edges of intermittent power generation.[99] Combining ESRs with renewable energy technologies will likely be a key ingredient to achieving deep decarbonization without

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93 Meeting the 2035 carbon-free electricity goal will most likely require a combination of wind, solar, nuclear, hydropower, and biomass electricity generation technologies. *See generally Annual Energy Outlook 2021*, U.S. ENERGY INFO. ADMIN. (Feb. 3, 2021), https://perma.cc/ATP8-YHTP (analyzing U.S. electricity generation and share from selected fuels and renewable resources).

94 *See generally* ROB GRAMLICH, BRINGING THE GRID TO LIFE: WHITE PAPER ON THE BENEFITS TO CUSTOMERS OF TRANSMISSION MANAGEMENT TECHNOLOGIES, WORKING FOR ADVANCED TRANSMISSION TECHNOLOGIES COALITION 2 (2018), https://perma.cc/6CDJ-TXRX (discussing optimization of existing electric transmission systems through advanced technologies).

95 *See* Revesz & Unel, *supra* note 47, at 148–49 (describing how ESRs can benefit the transmission system through congestion relief, upgrade deferral, and performance improvements).

96 Nat'l Ass'n of Regul. Util. Comm'n v. FERC, 964 F.3d 1177, 1182 (D.C. Cir. 2020).

97 *See, e.g.*, Cal. Pub. Util. Comm'n, Rulemaking 10-12-007, Order Instituting Rulemaking Pursuant to Assembly Bill 2514 to Consider the Adoption of Procurement Targets for Viable and Cost-Effective Energy Storage Systems, Decision Adopting Energy Storage Procurement Framework and Design Programs 2, 29–30 (Dec. 16, 2010), https://perma.cc/JSD6-TGBS (imposing an energy storage procurement requirement for California investor-owned utilities which will result in 1,325 MW of storage deployment by 2024).

98 Revesz & Unel, *supra* note 47, at 148–49.

99 *See* Vox, *The 'Duck Curve' is Solar Energy's Greatest Challenge*, YOUTUBE (May 9, 2018), https://perma.cc/P5XC-NQ5S (discussing solar energy storage improvements as a means of reducing the magnitude of fossil fuel power plant demand dips during daylight hours and demand increases during non-daylight hours).

compromising grid reliability.[100] These "hybrid resources" are an active topic of FERC interest and stakeholder participation.[101]

Consideration of the Pacific Northwest can help illustrate ESRs' value in relation to renewable energy. With the region's abundance of hydropower and wind energy, electricity generation often outpaces demand.[102] From a reliability perspective, too much electricity threatens to overload the grid's balance and therefore presses the relevant grid manager to make one of three choices: transmit, curtail, or store the excess power.[103] Selling the power immediately might be a viable solution and is an increasingly available option with hydropower giant BPA joining a regional energy market.[104] But the availability of this option is limited at times due to transmission congestion.[105] In the past, BPA addressed risks of transmission system imbalance by curtailing electricity from other generators, particularly wind farms.[106] But curtailment precludes beneficial use of electricity and is thus wasteful. Now that ESRs are economically viable, the optimal choice for grid managers faced with the above trilemma may be to store the excess power and then dispatch the electricity when needed or when transmission lines open up.[107]

ESRs, their affordability, and their impact on electricity systems will continue to change substantially.[108] For example, ESRs will play a critical role in the ongoing shift from fossil fuel-powered vehicles to electric

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100 PAUL DENHOLM ET AL., NAT'L RENEWABLE ENERGY LAB'Y, THE IMPACT OF WIND AND SOLAR ON THE VALUE OF ENERGY STORAGE 1 (2013); ETHAN N. ELKIND ET AL., THE POWER OF ENERGY STORAGE: HOW TO INCREASE DEPLOYMENT IN CALIFORNIA TO REDUCE GREENHOUSE GAS EMISSIONS 1 (2010) (describing how storage could help renewables integrate with the grid and maintain system reliability).

101 *See generally* FED. ENERGY REGUL. COMM'N, HYBRID RESOURCES WHITE PAPER 3 (2021) (summarizing contributions to a FERC 2020 hybrid resources technical conference focused on electricity generation and storage).

102 PATRICIA FLORESCU & JACK PEAD, REALIZING THE VALUE OF BONNEVILLE POWER ADMINISTRATION'S FLEXIBLE HYDROELECTRIC ASSETS, HARV. KENNEDY SCH. MOSSAVAR-RAHMANI CTR. FOR BUS. & GOV'T 13–14 (2018); *see* ABBAS A. AKHIL ET AL., SANDIA NAT'L LAB'Y, DOE/EPRI ELECTRICITY STORAGE HANDBOOK IN COLLABORATION WITH NRECA 11 (2013) (asserting that wind and PV sometimes outpace demand as well as sometime produce below demand); U.S. DEP'T OF ENERGY, GRID ENERGY STORAGE 25–26 (2013) (same).

103 David Schmitt & Glenn M. Sanford, *Energy Storage: Can We Get it Right?*, 39 ENERGY L.J. 447, 465–66 (2018).

104 *Energy Imbalance Market*, BONNEVILLE POWER ADMIN., https://perma.cc/3PL6-U5HD (last visited Oct. 7, 2021).

105 FLORESCU & PEAD, *supra* note 102; *see Annual Oversupply Review*, BONNEVILLE POWER ADMIN. (last visited Sept. 20, 2021), https://perma.cc/YFC7-RAHS (providing instances of oversupply management protocol events in 2017, 2018, and 2020).

106 Controversially, it did so without compensating those generators for a time. This solution was short-lived, however, as wind generators pushed back and eventually FERC held that BPA's approach to curtailing wind was impermissible. Iberdrola Renewables, Inc. v. Bonneville Power Admin., 137 FERC ¶ 61,185, at 27 (2011).

107 *See Levelized Cost of Energy and Levelized Cost of Storage 2019*, LAZARD (Nov. 7, 2019), https://perma.cc/YA97-778V (showing the cost-competitiveness of ESRs).

108 Revesz & Unel, *supra* note 47, at 141, 166.

vehicles.[109] Overall, the United States Department of Energy (DOE) maintains that new storage technologies can lead to improved performance and cost reductions within electricity systems.[110] But while ESRs *can* accelerate decarbonization and facilitate more renewable energy consumption, more ESR capacity does not guarantee such progress. In fact, under some scenarios, cheaper storage could actually increase fossil fuel usage and therefore undermine decarbonization policies.[111] Because the rise of ESRs could either have "beneficial or perverse results," the United States needs electricity system planning and coordination in line with decarbonization Public Policy Requirements.[112]

In 2018, FERC issued Order 841, which requires each ISO and RTO to come up with a participation model for ESRs no matter where those resources exist on the grid.[113] This storage rule is tremendously important to decarbonization and electrification efforts[114] and was recently upheld by the D.C. Circuit Court of Appeals.[115] The D.C. Circuit recognized such FERC action as the sort of permissible direct federal regulation of wholesale electricity sales authorized under the FPA.[116] Although Order 841 laid out important principles, its ultimate success will depend on its rollout within and outside of organized electricity markets. Compliance

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109 *See* ADVANCED ENERGY ECONOMY, EVS 101: A REGULATORY PLAN FOR AMERICA'S ELECTRIC TRANSPORTATION FUTURE 32 (2018), https://perma.cc/7AUP-4B27.

110 *See* U.S. DEP'T OF ENERGY, GRID MODERNIZATION INITIATIVE 7 (2015) (discussing the goals and outcomes resulting from nationwide electric grid modernization, including renewables and ESRs); U.S. DEP'T OF ENERGY, GRID MODERNIZATION MULTI-YEAR PROGRAM PLAN 20 (2015) (explaining DOE's plans for promoting electric grid modernization through energy storage systems).

111 *See* Revesz & Unel, *supra* note 47, at 143 (describing a scenario in which coal power could be economically stored for later use).

112 *Id.*

113 Electric Storage Participation in Markets Operated by Regional Transmissions Organizations and Independent System Operators, 83 Fed. Reg. 9580, 9631 (Mar. 6, 2018) (codified at 18 C.F.R. pt. 35).

114 *See* Jay Zoellner, *Appeals Court's Support for FE Rule Ramps Up the Need for Flex Energy Programs*, THE HILL (Aug. 20, 2020), https://perma.cc/C67D-A8RG (quoting the FERC chairman stating "FERC's Order 841 will be seen as the single most important act we could take to ensure a smooth transition to a new clean energy future" through decarbonization and further electrification). For example, where a city is considering building a fleet of electric busses, one of the factors in the economic viability of such a project is whether those bus batteries, aggregated, could participate as storage resources in the grid and receive compensation for those services. Lance Noel & Regina McCormack, *A Cost Benefit Analysis of a V2G-Capable Electric School Bus Compared to a Traditional Diesel School Bus*, 126 APPLIED ENERGY 246, 247–48 (2014).

115 *Nat'l Ass'n of Regul. Util. Comm'n*, 964 F.3d 1177, 1190 (D.C. Cir. 2020).

116 *Id.* at 1187.

with Order 841 is ongoing, with some ISO/RTOs, such as CAISO,[117] further along than others.[118]

FERC Order 841 also interacts with Order 2222[119] in important ways. Under these rules, an "aggregator" (a wholesale market participant, including but not necessarily a utility company) can bid a profile of "distributed energy resources" into RTO/ISO-administered electricity markets under Order 2222, and "heterogeneous . . . aggregations" under Order 2222 include ESRs which operate pursuant to Order 841.[120]

Because these FERC rules, and ESRs and distributed energy resources more broadly, will influence the optimal implementation of decarbonization policies, they will inevitably impact transmission systems. And uncertainty around the precise impact that decarbonization-enabling technologies will have on the Western Interconnection highlights the need for well-coordinated transmission planning to prevent cost inefficiencies. FERC has broad authority over transmission systems, and as discussed in Part III, FERC would be on firm legal footing in requiring transmission providers to adhere to new processes which prioritize achieving decarbonization goals in an adaptive manner.[121]

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117 *See* CALIFORNIA ISO, BUSINESS REQUIREMENTS SPECIFICATION: FERC 841-REQUESTED ADJUSTMENTS, CAISO 5 (2020) (documenting adjustments undertaken at FERC's request to comply with Order 841).

118 The effective date of tariff changes in compliance with Order 841 in SPP was August 5, 2021. MISO's Order No. 841 compliant ESR definition and participation model is currently scheduled to become effective in June 2022. On March 4, 2021, MISO filed a request to defer implementation of Order 841 compliance until March 1, 2025. That request was denied. *See Sw. Power Pool, Inc.*, 170 FERC ¶ 61,164, at 1 (Feb. 27, 2020) (providing an effective date of August 5, 2021 for SPP); *Midcontinent Indep. Sys. Operator, Inc.*, 169 FERC ¶ 61,137, at 1 (Nov. 21, 2019) (providing current effective date of June 6, 2022 for MISO); *Midcontinent Indep. Sys. Operator, Inc.*, 175 FERC ¶ 61,120, at 1 (May 17, 2021) (denying request for extension of MISO's effective date to March 1, 2025).

119 Order No. 2222, Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators, 172 F.E.R.C. 61247 (2020).

120 Stephen M. Spina et al., *FERC Breaks New Ground with DER Aggregation Order*, MORGAN LEWIS (Sept. 23, 2020), https://perma.cc/EA9C-YZTN (summarizing that Order 2222 opens "wholesale markets to distributed energy resource aggregations").

121 *See S.C. Pub. Serv. Auth.*, 762 F.3d 41, 63 (D.C. Cir. 2014) (holding that the regional transmission planning mandate of Order No. 1000 "fits comfortably within Section 201(b)'s grant of jurisdiction over 'the transmission of electric energy in interstate commerce,'" over which FERC has "relatively broader authority" than it has over electricity sales, and that this authority "has expanded over time because transmissions on the interconnected grids that have now developed 'constitute transmissions in interstate commerce'" (quoting New York v. F.E.R.C., 535 U.S. 1, 16–17 (2002))).

III. THE SLEEPING GIANT: ORDER 1000

"[I]n 2011, [FERC] issued Order 1000, a potentially game-changing rule" for the development of transmission systems in the United States.[122] Order 1000 built on FERC Order 890, which outlined basic requirements for local and regional transmission planning.[123] Order 1000 created regional and interregional processes that ostensibly still occur but sit largely dormant in the West.[124] To date, no interregional transmission project has been built under Order 1000.[125] Regional planning has been more successful,[126] but as a whole, Order 1000 has under-delivered to date.[127]

Order 1000 contains four main requirements.[128] First, transmission providers must engage in a regional transmission planning process responsive to needs driven by federal, state, and local public policies.[129] Second, Order 1000 mandates coordination among transmission planning regions to complement the planning process above by identifying potential operational and economic efficiency opportunities born from

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122 Melissa Powers, *Anticompetitive Transmission Development and the Risks for Decarbonization*, 49 ENV'T L. 885, 888 (2019).

123 Preventing Undue Discrimination and Preference in Transmission Service, 72 Fed. Reg. 12,266 (Mar. 15, 2007) (codified at 18 C.F.R. pts. 35, 37), *amended by* 73 Fed. Reg. 2984 (Jan. 16, 2008), *clarified by* 73 Fed. Reg. 39,092 (July 8, 2008), *clarified by* 74 Fed. Reg. 12,540 (Mar. 25, 2009), *clarified by* 74 Fed. Reg. 61,511 (Nov. 25, 2009).

124 *See* JOSEPH H. ETO & GIULIA GALLO, LAWRENCE BERKELEY NAT'L LAB'Y, INTERREGIONAL TRANSMISSION COORDINATION: A REVIEW OF PRACTICES FOLLOWING FERC ORDER NOS. 890 AND 1000, at 40 (Oct. 2019) (noting that in non-RTO/ISO regions, the majority of transmission planning takes place outside of the formal regional planning processes established by Order 1000).

125 *Order No. 1000 Interregional Compliance Orders*, FERC (last updated June 8, 2020) https://perma.cc/4HJG-4J77; *see* Order Providing Clarification and Accepting for Filing Compliance Filings, 151 FERC ¶ 61,189, at 2 (containing filings by CAISO, Avista Corporation, MATL LLP, and Puget Sound Energy, Inc. (collectively, ColumbiaGrid); Deseret Generation & Transmission Co-operative, Inc., Idaho Power Company, NorthWestern Corporation, PacifiCorp, and Portland General Electric Company (collectively, NTTG); Arizona Public Service Company, Black Hills Power, Inc., Black Hills Colorado Electric Utility Company, LP, Cheyenne Light, Fuel & Power Company, El Paso Electric Company, NV Energy, Public Service Company of Colorado, Public Service Company of New Mexico, Tucson Electric Power Company, and UNS Electric, Inc. (collectively, WestConnect), "on behalf of the CAISO, ColumbiaGrid, NTTG, and WestConnect transmission planning regions, respectively, to comply with the interregional transmission coordination . . . requirements of Order No. 1000").

126 *See* ETO & GALLO, *supra* note 124, at 4 (noting that "ISO/RTO regions routinely led formal region-wide transmission planning activities," which included "operation of the regional bulk power system, operation of one or more centralized wholesale electricity markets, and a variety of transmission planning activities, such as generator interconnection, that do not involve or lead to selection of transmission projects for regional cost allocation.").

127 *See supra* text accompanying note 16 (discussing the failure of Order 1000 to live up to its potential).

128 *S.C. Pub. Serv. Auth.*, 762 F.3d 41, 52–53 (D.C. Cir. 2014).

129 Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 76 Fed. Reg. 49,842, 49,845 (Aug. 11, 2011) (codified at 18 C.F.R. pt. 35).

interregional efforts.[130] Third, Order 1000 removed the federal "right of first refusal," a policy that gave incumbent utilities preferential rights to construct new transmission infrastructure.[131] And fourth, Order 1000 required changes to *ex ante* cost allocation methodologies to ensure that costs of new transmission infrastructure would fairly spread among all beneficiaries.[132] This Comment focuses on the first of these two requirements and their relevance to decarbonization policies.

FERC recognizes twelve groups of transmission providers, or "Transmission Planning Regions," that must comply with Order 1000.[133] Originally, four such regions existed within the Western Interconnection: CAISO, ColumbiaGrid, Northern Tier Transmission Group, and WestConnect, collectively known as the Western Planning Regions.[134] In 2020, FERC approved the creation of a new planning region, Northern Grid, to replace ColumbiaGrid and Northern Tier Transmission Group.[135]

Prior to Order 1000, the Western Planning Regions each had distinct transmission planning processes.[136] FERC disrupted this regional variation and required the Western Planning Regions to amend or create new agreements as necessary to comply with Order 1000.[137] WECC aided this transition, thanks in part to a DOE grant awarded in 2009 which enabled WECC to retain high-quality consultants, develop robust analytical models, support diverse stakeholder participation, and develop interconnection-wide transmission plans through 2014.[138] Accordingly, for the first few years after Order 1000's issuance, WECC and the Western Planning Regions had reached a "previously unachieved pinnacle" in regional planning and interregional coordination.[139]

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130 *Id.* at 49,842.

131 *Id.*

132 *Id.* at 49,929. FERC relies on the "cost causation principle" to determine fair cost allocation processes. *Cf.* BNP Paribas Energy Trading GP v. F.E.R.C., 743 F.3d 264, 268–69 (D.C. Cir. 2014) ("[T]he cost causation principle itself manifests a kind of equity. This is most obvious when we frame the principle (as we and the Commission often do) as a matter of making sure that burden is matched with benefit."); Pub. Serv. Co. of Colo., 163 FERC ¶ 61,204, at 14 (2018) (recognizing that "feasibility" is part of ratemaking, such that the FERC may appropriately "balance maximally reflecting cost causation with other competing policy goals," such as promoting more efficient or cost-effective regional transmission planning).

133 *Order No. 1000 Transmission Planning Regions*, FERC (last visited Sept. 29, 2021), https://perma.cc/D67K-MGK2.

134 JOHNSON, *supra* note 17, at 27.

135 Order Accepting Tariff Revisions, 170 FERC ¶ 61,298 (2020); FERC Gives Go Ahead for NorthernGrid, BONNEVILLE POWER ADMIN. (Apr. 29, 2020), https://perma.cc/B9VM-GLJW.

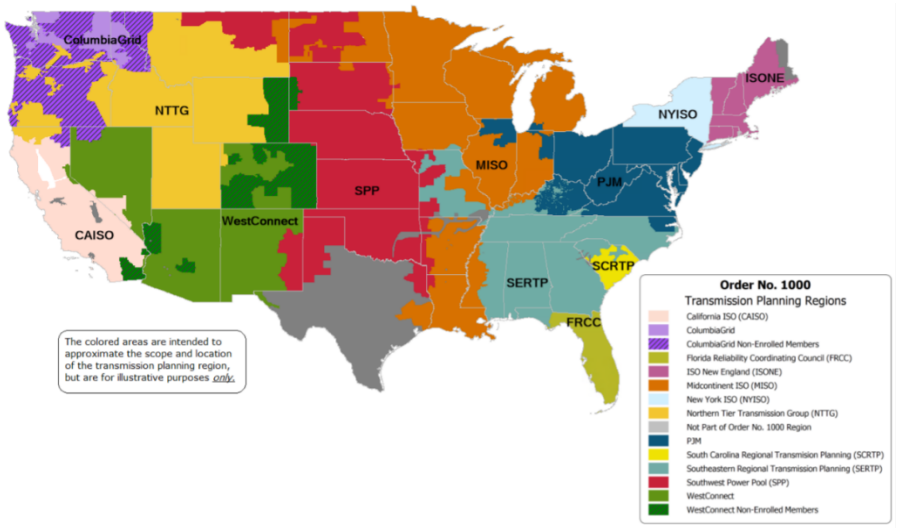
136 *Id.*

137 *Id.*

138 FED. ENERGY REG. COMM'N, POST-TECHNICAL CONFERENCE COMMENTS OF PUBLIC INTEREST ORGANIZATIONS 3 (2016).

139 *Id.*

However, in recent years, a significant shift away from transmission providers' genuine efforts to comply with Order 1000 has left Western Planning Regions with stunted, "check-the-box" compliance procedures.[140] While transmission investment has grown significantly in recent years, most of that investment occurred outside of Order 1000's planning process.[141] In addition, stakeholder consultation under Order 1000 is "not occurring in meaningful ways."[142] This Part describes the



Transmission Planning Regions (FERC)

current state of Order 1000 regional planning and interregional coordination and how FERC intended these processes to be responsive to transmission needs driven by Public Policy Requirements. Then, considering that the wave of decarbonization policies will fundamentally change electricity systems across the West, this Comment argues that now is an apt time for FERC to breathe new life into Order 1000.

A. Coordinated Regional and Interregional Transmission Planning

Transmission providers that comprise the Western Planning Regions develop Order 1000-compliant plans for 1) parts of the country served by vertically integrated utilities, and 2) service areas of RTO/ISOs.[143] Regional planning is a recent development in non-RTO/ISO areas, where

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[140] *Id.* at 3–4.

[141] *See* BURCIN UNEL, A PATH FORWARD FOR THE FEDERAL ENERGY REGULATORY COMMISSION 12–14 (2020), https://perma.cc/3WC2-5BP2.

[142] FED. ENERGY REG. COMM'N, *supra* note 138, at 2.

[143] JOSEPH H. ETO, LAWRENCE BERKELEY NAT'L LAB'Y, PLANNING ELECTRIC TRANSMISSION LINES: A REVIEW OF RECENT REGIONAL TRANSMISSION PLANS vi (Feb. 2017), https://perma.cc/P79U-2TEV.

many planning procedures were created for the first time.[144] RTO/ISO planning regions generally built on existing practices, making changes to comply with Order 1000.[145]

In non-RTO/ISO areas of the Western Interconnection, the combined local plans of individual transmission providers generally form the baseline against which the relevant Western Planning Region considers alternative transmission proposals.[146] By contrast, in CAISO, the local plans of individual transmission providers may also serve as a starting point, but then stakeholder input and analysis by CAISO staff ultimately identify regional transmission needs and solutions.[147] As explained further in Part III.B, stakeholder input is particularly important for effective planning in response to transmission needs driven by decarbonization policies.

Regional planning and interregional coordination under Order 1000 are two sides of the same coin. Interregional coordination focuses on selecting transmission projects for regional cost allocation after the relevant Western Planning Regions evaluate the proposed project within their existing regional planning processes.[148] Order 1000 contains no requirement to produce an interregional transmission plan or engage in interconnection-wide planning. Instead, Order 1000 requires only interregional "coordination."[149] The Western Planning Regions have completed multiple rounds of interregional coordination under Order 1000, none of which produced an interregional project.[150]

In addition, some regional and interregional needs can be met more cost-effectively and efficiently by means that do not require cost allocation under Order 1000.[151] Thus, understanding the Western Interconnection's transmission needs requires a "holistic perspective" that considers all relevant transmission and non-transmission activities, not only those the Western Planning Regions select for purposes of regional or interregional cost allocation.[152] As discussed further below, FERC does not currently require Order 1000 planning to incorporate such a holistic perspective.

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144 *See id.* at 6 (demonstrating the recent regional planning responsibilities vested with regional entities).

145 *Id.* at vii.

146 *Id.* at 23.

147 *Id.*; ETO & GALLO, *supra* note 124, at 7.

148 ETO & GALLO, *supra* note 124, at 17.

149 *Id.* at v.

150 *See* UNEL, *supra* note 141, at 13 (discussing the need for stronger FERC requirements because of the lack of major interregional projects post Order 1000); *Interregional Transmission Coordination*, CAISO, https://perma.cc/M54Z-9BZ7 (last visited Dec. 19, 2020) (listing proposals for interregional projects that were all ultimately declined); *Interregional Coordination*, WESTCONNECT (last visited Dec. 19, 2020), https://perma.cc/6F2P-CKHD (listing proposals for interregional projects, all of which were ultimately declined).

151 ETO & GALLO, *supra* note 124, at 40.

152 *Id.*

B. Transmission Needs Driven by Decarbonization Public Policy Requirements

In promulgating Order 1000, FERC found that transmission planning in the United States failed to adequately account for federal, state, and local laws and regulations in reflecting future needs.[153] Thus, Order 1000 requires transmission planning regions to 1) identify transmission needs driven by Public Policy Requirements, and 2) evaluate potential solutions to meet those needs.[154] FERC conceded that transmission providers are not "obligated to proactively identify" policy-driven transmission needs but are simply required to "consider" such needs brought up by "other stakeholders."[155] In practice, Western Planning Regions consider transmission needs driven by Public Policy Requirements with varying degrees of seriousness, and in some regions, those needs receive little to no substantive attention relative to reliability and economic considerations.[156] Giving short shrift to public policies is contrary to the spirit of Order 1000, where FERC clearly directed transmission providers to consider policy-driven needs in a fair and nondiscriminatory manner as compared to economic or reliability needs.[157]

Decarbonization policies are becoming more prevalent, ambitious, and technology-inclusive in the United States.[158] Out of 153 clean energy policies enacted between 1983 and 2020, 67% were adopted after 2016.[159] Further, many western states and municipalities have committed to achieving 100% clean energy before 2050.[160] In sum, the majority of electricity customers across the Western Interconnection now live in jurisdictions with some sort of decarbonization mandate.[161]

Under the current Order 1000 process to address policy-driven transmission needs in non-RTO/ISO areas, the Western Planning Regions generally combine the local plans of the participating transmission providers and deem the combination to sufficiently address such needs.[162] In other words, the Western Planning Region assumes that policy-driven transmission needs have been adequately considered and

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153 Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 77 Fed. Reg. 32,184, 32,217–18, 32,236 (May 31, 2012) (codified at 18 C.F.R. pt. 35).

154 *Id.*

155 *Id.* at 32,234 n.363.

156 FED. ENERGY REG. COMM'N, *supra* note 138, at 13.; ETO & GALLO, *supra* note 124, at 12, 16, 18.

157 77 Fed. Reg. at 32,220.

158 Farah Benahmed et al., *Clean Energy Targets Are Trending*, THIRD WAY (Dec. 1, 2020), https://perma.cc/6MZT-KWLR.

159 *Id.*

160 *Id.*

161 *See* U.S. CENSUS BUREAU, *supra* note 34 (indicating a total population of 231,481,752 people located in states with decarbonization commitments).

162 ETO & GALLO, *supra* note 124, at 16.

are reflected in the local plans.[163] In these areas of the Western Interconnection, Order 1000 then provides a regional forum for additional consideration of transmission needs driven by Public Policy Requirements.[164] Typically, stakeholders have at least some opportunity to suggest such needs, and the Western Planning Region must then consider whether to plan accordingly.[165] Generally, this consideration leans on the state and local decision-making processes that approved the original local transmission plans.[166] Plans are thus preordained, "with minimal opportunity for stakeholder review" because the analysis of such plans in the regional transmission planning process is limited mainly to reliability considerations.[167]

If the Western Planning Region confirms that a public policy requirement creates a transmission need suitable for consideration in the regional planning process, the Western Planning Region determines how to meet that need.[168] The Western Planning Region then assesses whether a regional transmission solution, either proposed by developers or stakeholders, or identified by the region, is more efficient or cost-effective than other adequate alternatives.[169] The practices and procedures by which the Western Planning Regions carry out these assessments vary from region to region, as detailed by each participating transmission provider in their filings with FERC.[170]

In RTO/ISO regions, Order 1000 processes for considering transmission needs in light of Public Policy Requirements differ in one key respect. Several RTO/ISO processes explicitly include state-level stakeholders in determining which transmission needs driven by Public Policy Requirements are appropriate for consideration in the regional transmission planning process.[171] CAISO, for example, has a formal arrangement with the California Public Utilities Commission to identify these needs.[172] In planning regions with multi-state RTO/ISOs, such arrangements exist with representatives of the relevant states.[173]

While planning regions do consider Public Policy Requirements, Order 1000 does not mandate particular outcomes or consideration of every policy-driven transmission need.[174] Instead, planners need to "only create procedures to 'identify, out of the larger set of potential

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163 *Id.*

164 *Id.*

165 *Id.*

166 *Id.*

167 Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, 86 Fed. Reg. 40,266, 40,270 (July 27, 2021) (codified at 18 C.F.R. pt. 35).

168 ETO & GALLO, *supra* note 124, at 16.

169 *Id.* at 16–17.

170 *Id.* at 17.

171 *Id.*

172 *Id.* at 9.

173 *Id.*

174 Order 1000-A, 77 Fed. Reg. 32,183 ¶¶ 320–21 (May 17, 2012).

transmission needs . . . those transmission needs for which transmission solutions will be evaluated in the . . . regional transmission planning process.'"[175] So far, FERC's loose design of Order 1000 has done little to improve transmission development to address policy-driven needs. Order 1000's true impact is nebulous because while regional processes have had measured success, interregional transmission development under Order 1000 remains dormant.[176]

C. Justifying a Stronger Order 1000

Smart transmission planning is important to avoid overbuilding or underbuilding transmission infrastructure, and to ensure approved projects will provide long-term value. But Order 1000 is too loosely designed to ensure the Western Planning Regions adequately address transmission needs driven by decarbonization policies. Thus, as explained below, FERC can and should promulgate rules to improve regional transmission planning and cost allocation, and generator interconnection processes.[177]

Section 201 of the FPA grants FERC exclusive jurisdiction over "the transmission of electric energy in interstate commerce" and "the sale of electric energy at wholesale in interstate commerce."[178] Pursuant to sections 205 and 206, FERC is responsible for ensuring that the rates, terms, and conditions for transmission of electricity in interstate commerce are just, reasonable, and not unduly discriminatory or preferential.[179] Section 206 also empowers FERC to take action to ensure that no "rule, regulation, practice, or contract affect[ing] such [a] rate" runs contrary to the fairness and nondiscrimination mandates prescribed in section 205.[180]

FERC issued Order 1000 upon finding a "theoretical threat"[181] to "just and reasonable rate[s]."[182] FERC reasoned that transmission planning that failed to account for the impacts of federal, state, or local public policy requirements on transmission systems "would not adequately reflect future needs."[183] In revisiting Order 1000, FERC has

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175 *S.C. Pub. Serv. Auth.*, 762 F.3d 41, 89 (D.C. Cir. 2014) (quoting NorthWestern Corp., 143 FERC ¶ 61,056, at 24).

176 Herman K. Trabish, *Has FERC's Landmark Transmission Planning Effort Made Transmission Building Harder?*, UTILITY DIVE (July 17, 2018), https://perma.cc/4H7U-YDJ9.

177 Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, 86 Fed. Reg. 40,266, 40,267 (July 27, 2021) (codified at 18 C.F.R. pt. 35).

178 16 U.S.C. § 824(b)(1) (2018); Hughes v. Talen, 578 U.S. 150, 153 (2016); Nantahala Power & Light Co. v. Thornburg, 476 U.S. 953, 966 (1986).

179 16 U.S.C. § 824d(d)–(e).

180 *Id.* § 824e(a).

181 *S.C. Pub. Serv. Auth.*, 762 F.3d 41, 64 (D.C. Cir. 2014).

182 16 U.S.C. § 824e(a).

183 *S.C. Pub. Serv. Auth.*, 762 F.3d at 89; *see* Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 77 Fed. Reg. 32,184, 32,217–18,

signaled reliance on its authority under sections 205 and 206 again.[184] Notably, the Supreme Court recently recognized that FERC has not just the ability—but the affirmative "*duty*—to ensure that rules or practices 'affecting' wholesale rates are just and reasonable."[185]

Order 1000 was one step in FERC's incremental approach to regulating transmission systems. Prior to Order 1000, FERC issued Order 888 to open up transmission system access.[186] FERC then issued Order 890, outlining general requirements for local and regional transmission planning.[187] Order 1000 followed—where FERC laid out requirements for regional planning and interregional coordination regarding transmission systems.[188] Similar to how FERC identified general deficiencies in Order 890 to justify the issuance of Order 1000,[189] FERC has identified flaws in Order 1000 and has started the process of providing a remedy.[190]

But in the decade that preceded the ANOPR, FERC had not actively followed up on Order 1000. There are real costs associated with the "no-action alternative" of letting Order 1000 planning continue under the status quo. FERC's decision not to revitalize Order 1000 should consider the costs and benefits associated with designing new solutions to achieve Order 1000's still relevant purposes. In the past, FERC has embraced cost-benefit analysis in fulfilling its responsibilities to protect the public interest.[191] During the market restructuring of the 1990s, the last major transition in United States electricity systems, FERC used cost-benefit analysis to design the modern open access transmission system,[192] to

32,236 (May 31, 2012) (codified at 18 C.F.R. pt. 35) ("[T]he transmission planning process and the resulting transmission plans would be deficient if they do not provide an opportunity to consider transmission needs driven by Public Policy Requirements.").

184 Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, 86 Fed. Reg. 40,266, 40,267 (July 27, 2021) (codified at 18 C.F.R. pt. 35).

185 F.E.R.C. v. Elec. Power Supply Ass'n, 577 U.S. 260, 277 (2016) (emphasis added).

186 Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540 (May 10, 1996) (codified at 18 C.F.R. pts. 35, 385).

187 Preventing Undue Discrimination and Preference in Transmission Service, 74 Fed. Reg. 61,511 (Nov. 25, 2009) (codified at 18 C.F.R. pt. 37); ETO & GALLO, *supra* note 124, at v, 1.

188 ETO & GALLO, *supra* note 124, at v.

189 *S.C. Pub. Serv. Auth.*, 762 F.3d 41, 52 (D.C. Cir. 2014).

190 Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, 86 Fed. Reg. 40,266, 40,267 (July 27, 2021) (codified at 18 C.F.R. pt. 35).

191 Avi Zevin, *Regulating the Energy Transition: FERC and Cost-Benefit Analysis*, 45 COLUM. J. ENV'T L. 419, 423 (2020).

192 Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilties, 61 Fed. Reg. 21,540, 21,541 (May 10, 1996) (codified at 18 C.F.R. pts. 35, 385).

encourage the formation of RTOs,[193] and to evaluate specific RTO proposals.[194] But FERC has strayed from its use of cost-benefit analysis.[195] Nonetheless, decarbonization policies necessitate transmission development and complex regulatory decisions where FERC will require transmission providers to modify their regional transmission planning and cost allocation processes. To reform Order 1000 properly, FERC should again embrace cost-benefit analysis in considering suggestions such as the following.

D. Regional Transmission Planning Processes Should Be More Inclusive, Interregional, and Linked to Decarbonization Public Policy Requirements

Because of the cooperative federalism inherent in interstate transmission development, a revamped Order 1000 should explicitly require planning regions to include state representatives in the planning process, as already occurs voluntarily in multiple RTO/ISO planning regions.[196] But the ideal transmission planning process is even more collaborative. FERC should structure the process to ensure meaningful participation by transmission providers, project developers, state commissions, and other stakeholders with expertise regarding optimal facility locations, the topography of the transmission network, and Public Policy Requirements. With agreements in place to address security and privacy concerns, FERC should obligate planning regions to share data and information sufficient to allow robust involvement from national laboratories, universities, environmental justice advocates, technology providers, and other stakeholder groups. Opening the data sets relevant to transmission planning and coordination processes to diverse stakeholders would enable better regional and interregional consideration of transmission needs driven by Public Policy Requirements.[197]

Stronger stakeholder inclusion requirements would be especially impactful in the Western Interconnection, where most Western Planning Regions function outside of an RTO/ISO.[198] Without an inclusive planning

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193 Regional Transmission Organizations, 65 Fed. Reg. 810, 810–13, 831 (Jan. 6, 2000) (codified at 18 C.F.R. pt. 35).

194 *See* JOSEPH H. ETO & DOUGLAS R. HALE, A REVIEW OF RECENT RTO BENEFIT-COST STUDIES: TOWARD MORE COMPREHENSIVE ASSESSMENTS OF FERC ELECTRICITY RESTRUCTURING POLICIES 3, 7–8 (2005), https://perma.cc/YA7C-Y7N6 (noting the use of cost-benefit analysis to evaluate the formation of RTOs).

195 Zevin, *supra* note 191, at 424.

196 *Id.* at 422, 441. E.g., the SPP's Regional State Committee which provides collective state regulatory agency input in areas under the Committee's primary responsibilities and on matters of regional importance related to the development and operation of the grid. FERC, SOUTHWEST POWER POOL, INC./GOVERNING DOCUMENTS TARIFF § 7.2 (2020), https://perma.cc/Y6KT-DSNE.

197 FED. ENERGY REG. COMM'N, *supra* note 138, at 1, 3–4; JOHNSON, *supra* note 17, at 40.

198 FERC, *supra* note 47, at 68–69.

forum, Western Planning Regions are less equipped to consider aggregate impacts of decarbonization policies and thus less likely to discern the benefits of regional and interregional transmission projects.

Because of the fragmented nature of the grid in non-RTO/ISO areas, FERC should also require joint planning processes, rather than simply joint coordination, for neighboring transmission planning regions.[199] Joint planning in the Western Interconnection could integrate Western Planning Region processes with other regional efforts such as the Northwest Power Pool's Resource Adequacy Program[200] and the Northwest Power and Conservation Council's Power Plan.[201] Broader stakeholder involvement enables more thorough reality checks. Therefore, joint planning could better identify geographic zones with development potential and more reasonably model future resource mix scenarios.[202]

FERC should also require transmission plans to include timelines directly linked to decarbonization Public Policy Requirements. For example, where a plan includes Oregon transmission providers, it must explicitly comport with the mandate that Oregon utilities "eliminate greenhouse gas emissions associated with serving Oregon retail electricity consumers by 2040."[203] In the future, FERC should require each transmission planning region to 1) explicitly link transmission plans to the timelines under relevant decarbonization Public Policy Requirements, and 2) periodically report on progress toward meeting the transmission needs of a 100% decarbonized grid.

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199 *See* JOHNSON, *supra* note 17, at 3, 5, 9 (describing how joint planning in the form of regional markets and multilateral agreements will address the inefficiencies inherent in ad hoc coordination).

200 N.W. POWER POOL, NWPP RESOURCE ADEQUACY PROGRAM – DETAILED DESIGN 8–9 (July 2021), https://perma.cc/C5NK-622L.

201 *Seventh Northwest Conservation and Electric Power Plan*, NW. POWER AND CONSERVATION COUNCIL 1-1 (Feb. 2016), https://perma.cc/NRV5-5MYH (click "see more," and it will give access to the whole report).

202 As FERC points out, transmission providers currently rely on baseline reliability models, which only account for generators that have completed facilities studies and may only account for generation that will come online in the short term:

> As a result, the generator interconnection process appears to be the principal means by which infrastructure is built to accommodate new generators. That process, however, focuses on a single interconnection request (or cluster of requests). In other words, the generator interconnection process is not designed to consider how to address anything beyond the reliability interconnection-related network upgrades required for a specific interconnection request or group of interconnection requests. . . . The generator interconnection process may not adequately consider whether it may be more efficient or cost-effective to consider the interconnection-related network upgrades needed for multiple anticipated future generators that are not in the same cluster or are not yet in the interconnection queue in areas that have abundant wind or solar attributes that could support multiple future generators.

Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection, 86 Fed. Reg. 40,266, 40,272 (July 27, 2021) (codified at 18 C.F.R. pt. 35).

203 H.B. 2021-C, 81st Leg. Assemb., Reg. Sess. (Or. 2021).

In short, Order 1000 fell flat. But the rulemaking it led to has the potential to ensure that transmission infrastructure is not the bottleneck for meeting decarbonization goals. Order 1000 was noteworthy in its attempt to coalesce transmission planning across the balkanized Western Interconnection. Now, with the support of existing statutory mechanisms[204] and robust stakeholder participation, FERC is poised to retool Order 1000 in a manner that facilitates decarbonization pursuant to Public Policy Requirements in the western United States.[205]

IV. CONCLUSION

In the Western Interconnection, the next iteration of Order 1000 has the potential to integrate regional and interregional electricity grids. Where no RTO/ISO manages the grid, Western Planning Regions are less equipped to respond appropriately to decarbonization policies which will continue to drive major changes in electricity systems across the West. These underserved areas lack the institutional capacity to appropriately respond to the uncertainty inherent in deep decarbonization pathways. Thus, in much of the Western Interconnection, transmission planning under Order 1000 still fails to adequately incorporate transmission needs driven by Public Policy Requirements.

FERC should revamp Order 1000 by promulgating rules which require regional transmission planning processes to be more 1) inclusive, 2) interregional, and 3) explicitly linked to decarbonization Public Policy Requirements. The next FERC rule may create an Independent Transmission Monitor or some other regulatory entity to facilitate a 100% decarbonized United States grid with just and reasonable rates. Whatever the eventual solution, to regulate holistically, FERC should give special consideration to the circumstances in the Western Interconnection. Because, by reforming the processes of Order 1000, FERC could wake this sleeping giant to benefit ratepayers, bolster grid reliability, and ensure cost-efficient decarbonization across the western United States.

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[204] AVI ZEVIN ET. AL., BUILDING A NEW GRID WITHOUT NEW LEGISLATION: A PATH TO REVITALIZING FEDERAL TRANSMISSION AUTHORITIES 10–11 (Dec. 2020).
[205] 86 Fed. Reg. at 40,275–76, 40,291.