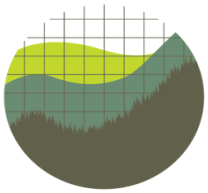

Institute *for*
Policy Integrity
NEW YORK UNIVERSITY SCHOOL OF LAW

December 20, 2023

To: Environmental Protection Agency

Subject: Supplemental Notice of Proposed Rulemaking for New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions from Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule, 88 Fed. Reg. 80,682 (proposed November 20, 2023)

The Institute for Policy Integrity at New York University School of Law[1] respectfully submits this comment letter to the Environmental Protection Agency (EPA) regarding its proposal to strengthen its regulations governing greenhouse gas (GHG) emissions from power plants (Proposed Rule).[2] Policy Integrity specifically submits these comments in response to EPA's supplemental notice soliciting comment on whether to include mechanisms to address potential reliability issues.[3] Policy Integrity is a nonpartisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy.

The Clean Air Act tasks EPA with reducing air pollution that endangers public health, including power plant emissions. While regulation of power sector emissions routinely affects the generation mix, EPA projects the effects of the Proposed Rule will be modest. Other economic, technological, climatological, and legislative forces, however, are driving much larger changes in the power sector. And these larger changes do pose reliability risks.

In these comments, we explain why EPA has engaged in reasoned rulemaking and developed a robust administrative record comporting with its mandate to reduce power sector pollution. EPA has adequately considered energy requirements and designed a rule with multiple compliance flexibilities supporting entities responsible for grid reliability in fulfilling their respective mandates. It remains the Federal Energy Regulatory Commission's (FERC's) responsibility to

[1] This document does not purport to represent the views, if any, of New York University School of Law.
[2] New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions from Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule, 88 Fed. Reg. 33,240 (proposed May 23, 2023) [hereinafter Proposed Rule].
[3] Supplemental Notice of Proposed Rulemaking for New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions from Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule, 88 Fed. Reg. 80,682 (proposed Nov. 20, 2023) [hereinafter Supplemental Rulemaking].

ensure reliable bulk-power system (BPS)[4] operations and to use its corresponding tools to address the wider reliability challenges of the clean energy transition, in coordination with other reliability-related entities. Specifically, we explain:

- **FERC has both the mandate, and greatest share of the corresponding tools, to ensure reliability of the BPS. FERC will need to coordinate with its governed reliability entities, utilities, state public utility commissions (PUCs), and other state actors to accomplish this goal. Given their respective roles, FERC and these other entities must continue working together to address the wider challenges facing grid reliability during this period of clean energy transition, irrespective of the Proposed Rule's stringency.** Given that EPA has the authority and mandate to reduce GHG emissions that endanger public health, EPA and FERC will also need to coordinate and leverage each other's expertise and respective tools to accomplish the clean energy transition, as they have done for many years to responsibly manage the power sector.

- **EPA does not need to reduce the stringency of the Proposed Rule to address reliability concerns.**

    - **EPA has appropriately considered resource adequacy and designed the Proposed Rule to provide flexibility for ensuring grid reliability during implementation.**

    - **EPA should additionally respond to substantive comments related to grid reliability and coordinate with the other entities responsible for grid reliability during the Proposed Rule's implementation, but does not have an independent responsibility to ensure grid reliability.**

    - **EPA can further discuss how compliance exemptions necessary for reliability could be granted through the Remaining Useful Life and Other Factors (RULOF) process and CAA Section 113(a) administrative orders.**

    - **If EPA believes further flexibilities are necessary, it can consider adding a reliability safety mechanism to the final rule and/or requirements for states to assess reliability effects during the state plan process.**

- **FERC and FERC-governed entities, together with state regulatory bodies and vertically integrated utilities, have developed tools to address both extreme weather impacts and clean energy resource integration, including mechanisms to enhance energy resource adequacy, grid capacity expansion, and reliable grid operations.** Regulators will continue to refine and supplement these tools in response to the energy transition that is already being driven forward by state policies and planning for grid reliability in light of current extreme weather impacts and decarbonization policies.

[4] 16 U.S.C. § 824o(a)(1) ("The term 'bulk-power system' means—(A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy.").

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I. Background

On November 9, 2023, FERC held its annual technical conference on reliability. It dedicated the afternoon to assessing whether the Proposed Rule would impact grid reliability.[5] On November 20, 2023, EPA issued a supplemental notice of proposed rulemaking, re-opening its comment period and "soliciting comment on whether to include mechanisms to address potential reliability issues."[6]

During the Proposed Rule's initial comment period, various commenters cited testimony and studies from reliability coordinators and government staffers that detail existing electric grid strains.[7] FERC and other entities are already taking actions to address these concerns while supporting the clean energy transition. For example, regulators and advocates have engaged in multiple rulemakings and proceedings designed to ensure that the electric grid can provide reliable and cost-effective energy, and ensure that the grid is resilient in the face of climate change impacts.[8] Congress has provided unprecedented financial incentives for accelerating the energy transition that are now being operationalized at all levels of government.[9] These actions are an important start, and further action is sorely needed. Additional support could potentially include some tools identified in recent legislative proposals, such as: additional statutory tools for interregional transmission planning, grid enhancing technologies, additional siting and

[5] Reliability Technical Conference and Notice Inviting Post-Technical Conference Comments, 88 Fed. Reg. 81,074 (Nov. 21, 2023) (inviting post-conference comments for its "annual Commissioner-led Reliability Technical Conference to discuss policy issues related to the reliability of the Bulk-Power System, and the impact of the Environmental Protection Agency's proposed rule under section 111 of the Clean Air Act on electric reliability").
[6] Supplemental Rulemaking, 88 Fed. Reg. at 80,682.
[7] *See, e.g.*, NERC, 2023 SUMMER RELIABILITY ASSESSMENT (2023), https://perma.cc/T9Z5-XCVJ (noting that much of the grid is at risk of energy shortages during a heat wave); NERC, 2023 STATE OF RELIABILITY TECHNICAL ASSESSMENT 3 (June 13, 2023), https://perma.cc/3VUB-S4D7 (noting the difficulty of ensuring reliable generation given extreme weather, increased demand, and changing resources); *Hearing Before the S. Comm. on Energy and Nat. Res.*, 118th Cong. (2023) (statement of Manu, Asthana, PJM CEO), https://perma.cc/PCZ7-C5CH (arguing that quick retirement of fossil-fuel generation, data center construction, and electrification are leading to increased risks of resource shortages), testimony of FERC Commissioners before the Senate, and testimony of the NERC CEO before the Senate); *Full Committee Hearing to Conduct Oversight of FERC*, 118th Cong. (2023) (testimony of the FERC Commissioners), https://www.energy.senate.gov/hearings/2023/5/full-committee-hearing-to-conduct-oversight-of-ferc (noting concerns about the impact of increased retirements on grid reliability); *The Reliability and Resiliency of Electric Service in the United States in Light of Recent Reliability Assessments and Alerts Before the S. Comm. on Energy and Natural Resources*, 118th Cong. (2023) (testimony of James Robb, CEO of NERC), https://perma.cc/UEW8-GUJC (expressing concern about grid reliability due to generation transformation, extreme weather events, and electrification).
[8] *See, e.g.*, NAT'L ACADS. OF SCIS., ENG'G, & MED., THE FUTURE OF ELECTRIC POWER IN THE UNITED STATES (2021); NAT'L ACADS. OF SCIS., ENG'G, & MED., ACCELERATING DECARBONIZATION OF THE U.S. ENERGY SYSTEM (2021); NAT'L ACADS. OF SCIS., ENG'G, & MED., ACCELERATING DECARBONIZATION IN THE UNITED STATES: TECHNOLOGY, POLICY AND SOCIETAL DIMENSIONS (2023); *Biden-Harris Administration Announces $13 Billion To Modernize And Expand America's Power Grid*, U.S. DEP'T OF ENERGY (Nov. 18, 2022), https://perma.cc/7LHQ-6A5W; *Joint Federal-State Task Force on Electric Transmission*, 175 FERC ¶ 61224 (2021); *Biden-Harris Administration Announces $3.5 Billion for Largest Ever Investment in America's Electric Grid, Deploying More Clean Energy, Lowering Costs, and Creating Union Jobs*, U.S. DEP'T OF ENERGY (Oct. 18, 2023), https://perma.cc/KV7K-U96Z.
[9] *See, e.g.*, Fred Krupp, *The Biggest Thing Congress Has Ever Done to Address Climate*, ENV'T DEF. FUND (Aug. 12, 2022), https://perma.cc/LV3K-R9RH.

condemnation authority for interregional transmission lines, and increased/accelerated coordination between FERC and DOE, among others.[10]

Understanding EPA's role in the grid reliability puzzle requires beginning with two distinct but related concepts: resource adequacy and operating reliability. Resource adequacy generally involves assessing whether there are enough energy resources to meet projected load and reserve requirements.[11] Relevant resources include "electricity generating and transmission facilities that produce and deliver electricity, and demand-response programs that reduce customer demand for electricity."[12] The second key component of grid reliability is operational reliability, which refers to the grid's ability to deliver electric supply to meet demand.[13]

II. EPA's and FERC's Respective Roles in Power Sector Governance

Advancing the clean energy transition will require both decarbonizing energy resources[14] and ensuring an operational grid with sufficient resources and reliability. Neither EPA nor FERC can wield its respective legal authority to achieve this independently. Instead, the agencies will need to coordinate and leverage each other's expertise, as they have done for many years, to responsibly manage the power sector's transition away from polluting resources and protect the power sector from extreme weather events.

In this section, we briefly review EPA's and FERC's distinct regulatory roles, and the relationship between those differing authorities and electric grid reliability. First, we summarize EPA's role as an environmental regulator congressionally charged with regulating air pollution. Second, we discuss FERC's authority as an economic and energy regulator congressionally

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[10] *See, e.g.*, H.R. 6747, 118th Cong. (2023).

[11] *See* EPA, RESOURCE ADEQUACY ANALYSIS TECHNICAL SUPPORT DOCUMENT 2 (2023), https://www.regulations.gov/document/EPA-HQ-OAR-2023-0072-0034 [hereinafter PROPOSED RULE RESOURCE ADEQUACY TSD] ("[T]he term resource adequacy is defined as the provision of adequate generating resources to meet projected load and generating reserve requirements in each power region, while reliability includes the ability to deliver the resources to the loads, such that the overall power grid remains stable.") NERC defines "adequacy" as "having sufficient resources to provide customers with a continuous supply of electricity at the proper voltage and frequency, virtually all of the time. Resources refer to a combination of electricity generating and transmission facilities that produce and deliver electricity, and demand-response programs that reduce customer demand for electricity. Maintaining adequacy requires system operators and planners to take into account scheduled and reasonably expected unscheduled outages of equipment, while maintaining a constant balance between supply and demand." N. AM. ELEC. RELIABILITY CORP., UNDERSTANDING THE GRID 2 (2023), https://perma.cc/W69D-U5JU [hereinafter NERC GRID FACTSHEET].

[12] NERC GRID FACTSHEET, *supra* note 11, at 2.

[13] *See id*. NERC's definition of reliability has evolved over time as electric grid operations have changed: "For decades, NERC and the electric industry defined system security as the ability of the BPS to withstand sudden, unexpected disturbances, such as short circuits or unanticipated loss of system elements due to natural causes. In today's world, the security focus of NERC and the industry has expanded to include BPS must be planned, designed, built, and operated in a manner that takes into account these modern threats, as well as more traditional risks to reliability." *Id.*; *see also* Inst. for Pol'y Integrity, Comments to FERC on the Technical Conference on Climate Change, Extreme Weather, and Electric System Reliability, Docket No. AD21-13-000 (Sept. 27, 2021), https://policyintegrity.org/documents/CORRECTED_Post-Tech_Conference_Comments.pdf.

[14] Exec. Order No. 14008 § 205, 86 Fed. Reg. 7619, 7624 (Jan. 27, 2021). *See also* U.S. OF AM., NATIONALLY DETERMINED CONTRIBUTION: REDUCING GREENHOUSE GASES IN THE UNITED STATES: A 2030 EMISSIONS TARGET 1 (2021), https://perma.cc/7X3N-8Q89 (articulating the United States' pledge under the Paris Agreement to "reduc[e] its net greenhouse gas emissions by 50–52 percent below 2005 levels in 2030").

charged with ensuring just and reasonable rates and reliable BPS operations. Consistent with these responsibilities, these two regulatory bodies should continue to coordinate and "accommodate the other's distinct statutory aims and missions"[15] to facilitate the clean energy transition.

A. The Clean Air Act requires EPA to reduce pollution from stationary sources

Congress issued the 1970 Clean Air Act Amendments to require comprehensive air pollution abatement. Recognizing that the "air pollution problem [was] more severe, more pervasive, and growing at a more rapid rate than was generally believed," Congress enacted the 1970 Amendments to "provide a much more intensive and comprehensive attack on air pollution" than the previous iterations of the Act.[16] Congress aimed to "broaden[]" "the requirements for State action," "greatly increase[]" "the obligation on polluters," and create a program "truly national in scope."[17] The 1970 Amendments served as "a drastic remedy to what was perceived as a serious and otherwise uncheckable problem of air pollution."[18] To accomplish these goals, Congress designed the Act with the broad purpose "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare."[19]

In keeping with this broad mandate, Section 111 requires EPA to regulate pollution from stationary source categories that "may reasonably be anticipated to endanger public health or welfare" from stationary sources.[20] In 2007, the Supreme Court held that EPA's obligation to reduce pollution includes GHG emissions if EPA finds that such emissions endanger the public.[21] Two years later, EPA issued such a finding.[22] Then in 2011, the Court further clarified that EPA has the authority under Section 111 to reduce GHG emissions specifically from fossil fuel-fired power plants.[23] In 2022, the Court reaffirmed EPA's authority under Section 111 to reduce GHG emissions from power plants, but held that EPA could not set emission limits that defined the "best system of emission reductions" (BSER) to include generation shifting from sources that emitted GHGs more intensively, like coal-fired power plants, to lower- or zero-emitting sources like renewables.[24]

West Virginia's focus on EPA tools other than generation shifting[25] reinforces earlier court holdings that "grid reliability is not a subject of the Clean Air Act and is not the province of EPA."[26] EPA neither has the mandate nor the proper tools to ensure grid reliability, but that does not curtail its ability to reduce air pollution in a manner that ultimately affects electric generation. As former FERC chairs and commissioners explained in briefing for *West Virginia,*

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[15] Brief for *Amicus Curiae* Former Commissioners of the Federal Regulatory Commission at 12, West Virginia v. EPA, 142 S. Ct. 2587 (2022), https://perma.cc/CJF9-U8N7 [hereinafter Former FERC Comm'rs Amicus Br.].
[16] S. Rep. No. 91-1196, at 4 (1970).
[17] *Id*. at 2.
[18] Union Elec. Co. v. EPA, 427 U.S. 246, 256 (1976).
[19] Pub. L. No. 91-604 § 101(b)(1), 42 U.S.C. § 1857 (1970).
[20] 42 U.S.C. § 7411(b)(1)(A).
[21] Massachusetts v. EPA, 549 U.S. 497 (2007).
[22] Endangerment and Cause or Contribute Findings for Greenhouse Gases, 74 Fed. Reg. 66,496 (Dec. 15, 2009).
[23] American Electric Power Co. v. Connecticut, 564 U.S. 410 (2011).
[24] West Virginia v. EPA, 142 S. Ct. 2587 (2022).
[25] *See id*. at 2611–12.
[26] Del. Dep't of Nat. Res. & Env't Control v. EPA, 785 F.3d 1, 18 (D.C. Cir. 2015).

"[t]he plain text of the Clean Air Act and the FPA makes clear that each reaches different aspects of electric generation—air pollution for the former and wholesale rates for the latter,"[27] and while "[c]ompliance with the regulation of air pollution from [electric generating units (EGUs)] may affect the cost of certain generators and therefore generator choice . . . [,] this impact is indirect and tangential to EPA's proper aim and target of reducing carbon emissions."[28] These former FERC commissioners clarify, "the FPA does not give the Commission a license to prevent other agencies from using their own authorities simply because their regulations may affect wholesale rates."[29] In fact, all EPA power sector regulations incidentally shift generation because they change generation costs. In *West Virginia,* the Supreme Court itself distinguished between indirectly causing a shift of generation and setting a BSER based on generation shifting.[30]

As former FERC commissioners emphasized, even during the energy crisis of the 1970s, Congress empowered EPA to issue air pollution rules that lawmakers understood would affect decisions to operate EGUs. Furthermore, Congress "crafted emergency provisions to override that authority only temporarily and under limited circumstances," highlighting that "energy and environmental regulators should work to accommodate the other's distinct statutory aims and missions."[31] While EPA should work with FERC to coordinate effective implementation of pollution reduction rules that do not undermine grid reliability, the onus to ensure grid reliability falls on FERC and state regulators.

B. FERC's Federal Power Act mandate focuses on ensuring reliable grid operations and just and reasonable wholesale rates

FERC has both the mandate, and greatest share of the corresponding tools, to ensure BPS reliability. Congress passed the Federal Power Act (FPA) in 1935, declaring "that the business of transmitting and selling electric energy for ultimate distribution to the public is affected with a public interest," and mandating that FERC[32] ensure just and reasonable rates for wholesale electricity sales, and interstate transmission.[33] But prior to 2005, electric grid operational reliability largely rested on industry-led, voluntary compliance.[34] Recognizing the critical need for robust and enforceable reliability standards for electric power, Congress amended the FPA to

[27] Former FERC Comm'rs Amicus Br., *supra* note 15, at 6.
[28] *Id*. at 9.
[29] *Id*. at 5–6.
[30] *West Virginia*, 142 S. Ct. at 2614 n.4 ("But there is an obvious difference between (1) issuing a rule that may end up causing an incidental loss of coal's market share, and (2) simply announcing what the market share of coal, natural gas, wind, and solar must be, and then requiring plants to reduce operations or subsidize their competitors to get there.").
[31] Former FERC Comm'rs Amicus Br., *supra* note 15, at 12.
[32] At the time Congress enacted the FPA, it was FERC's predecessor, the Federal Power Commission, that carried out this mandate. *See* New York v. FERC, 535 U.S. 1, 6 (2002).
[33] 16 U.S.C. § 824(b).
[34] *Keeping the Lights On—Are We Doing Enough to Ensure the Reliability and Security of the U.S. Electric Grid?: Hearing Before the S. Comm. on Energy and Nat. Res.*, 113th Cong. 8 (2014) (Statement of Former FERC Comm'r Cheryl LaFleur) https://perma.cc/9H93-NLRK (detailing how FPA Section 215 "marked the end of a system under which a group of reliability councils loosely structured under NERC developed reliability standards, with which the industry complied on a voluntary basis").

require mandatory and enforceable FERC-approved electric reliability standards for the BPS, enacting Section 215.[35]

As Commissioner Danly recently wrote to EPA:

> FERC is the agency Congress has charged with overseeing the promulgation of the mandatory standards that ensure the reliable operation of the bulk-power system. The Commission also has jurisdiction over the tariffs for wholesale power sales, among which are the tariffs that govern the capacity markets. Those markets play a vital role in providing the economic incentives necessary to ensure resource adequacy in many of the organized markets. In a word, FERC is the agency with the jurisdiction and knowledge necessary to ensure that the bulk electric system functions and that it has sufficient generation to meet demand.[36]

Commissioner Danly's summary of FERC's grid governance concisely and pointedly catalogs the many ways in which FERC ensures electric grid reliability, and FERC's broad jurisdiction to create regulations and policy guidance, which, alongside EPA's pollution reduction actions, will help the grid undergo a safe, cost-effective, and managed clean energy transition.

FERC carries out these responsibilities in conjunction with other entities through a complex regulatory landscape. Specifically, Congress required FERC to certify one organization as the Electric Reliability Organization (ERO) to submit BPS reliability standards for Commission approval, and mandated that all users, owners and operators of the BPS adhere to these enforceable standards.[37] Congress also empowered FERC to affirmatively direct the ERO to develop and submit reliability standards that FERC finds necessary for ensuring reliable BPS operations, but made clear that it did not authorize FERC or the ERO "to order the construction of additional generation or transmission capacity."[38] FERC operationalized and established procedures to implement Section 215's requirements in Order 672.[39] In 2006, FERC certified NERC as the ERO with authority to submit electric reliability standards for FERC's approval.[40] In turn, NERC works cooperatively with six regional entities, which have delegated authority to "develop and enforce Reliability Standards within the geographic boundaries described"[41] in their delegation agreements, as FPA Section 215 contemplates.[42]

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[35] 16 U.S.C. § 824o.
[36] Comm'r Danly, Comment to EPA on Proposed Rule (Aug. 8, 2023), https://www.regulations.gov/comment/EPA-HQ-OAR-2023-0072-0707.
[37] 16 U.S.C. § 824o(b).
[38] *Id.* § 824o(i)(2).
[39] *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, 114 FERC ¶ 61,104, *order on reh'g*, Order No. 672-A, 114 FERC ¶ 61,328 (2006) (interpreting Section 215 and setting out implementation methodology).
[40] *North American Electric Reliability Corp.*, 116 FERC ¶ 61,062, *order on reh'g and compliance*, 117 FERC ¶ 61,126 (2006) (affirmed by Alcoa, Inc. v. FERC, 564 F.3d 1342 (D.C. Cir. 2009)).
[41] N. Am. Elec. Reliability Corp., Amended and Restated Pro Forma Regional Delegation Agreement at 1, https://www.nerc.com/AboutNERC/RDAs/Pro%20Forma_RDA_2021_FERC_Revisions(CLEAN).pdf (last visited Dec. 19, 2023).
[42] 16 U.S.C. § 824o(e)(4). The states retain authority to ensure in-state electric reliability so long as their rules are not inconsistent with FERC-governed system reliability standards. *Id.* § 824o(i)(3) (although New York may impose

While FERC-approved and -enforced reliability standards are essential for reliable electric grid operations, beyond such standards, there are many other relevant rules, processes, and procedures supporting grid reliability. Grid operators must have access to adequate energy resources capable of providing power and essential reliability attributes to the grid, plus sufficient transmission capacity[43] to ensure power moves from where it is generated or stored to where it is consumed. Yet, as noted above, not only did Congress preclude FERC from ordering utilities or merchants to build generation or transmission, Congress also specifically excluded electric generation facilities from FERC's jurisdiction.[44] This means that many entities must work together to ensure grid reliability. FERC, FERC-governed entities, grid operators,[45] and state public utilities commissions use a wide array of other tools to support resource adequacy,[46] depending on jurisdictional availability and the entities' role within the grid.[47]

Adequate energy resources must also be connected to the grid through transmission lines with openly accessible capacity capable of carrying electricity to load centers. In large portions of the country, and as encouraged by FERC Orders 888, 889 and 2000,[48] transmission owners placed

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more stringent standards for in-state reliability if they do not impact out-of-state reliability). States are responsible for ensuring that in-state retail transmission and sale of electricity yield safe and adequate service for retail customers at just and reasonable rates. *See, e.g.*, N.J. STAT. ANN. § 48-2:21 (West 2023) (power to set just and reasonable rates); *id.* § 48-2:23 (power to ensure safe and adequate service in a manner conserving and protecting the environment).

[43] Congress recently bolstered FERC's limited "backstop" authority to site interstate transmission lines that satisfy pertinent statutory criteria if states, which have primary siting authority, fail to approve essential lines. 16 U.S.C. § 824p(b) (setting out contours of FERC's backstop siting authority). These comments will not further address the pressing needs for additional transmission infrastructure to interconnect queues of renewable and other energy resources to the grid, for modeling guidance to support long term transmission planning, or for interregional transmission.

[44] 16 U.S.C. § 824(b)(1); *see also Reliability Explainer*, FERC (Aug. 16, 2023), https://perma.cc/R84Y-SXFC (noting that "long-term resource planning, which includes deciding on what is a sufficient resource mix for a reliable electric system - not just for today but for the future - is not under FERC's authority") [hereinafter FERC Reliability Explainer].

[45] Besides ERCOT, the regional transmission operator for Texas' electric grid, other RTOs and ISOs are FERC-jurisdictional. (Not all interstate transmission is operated by RTOs or ISOs, however.)

[46] SYLWIA BIALEK ET AL., INST. FOR POL'Y INTEGRITY, RESOURCE ADEQUACY IN A DECARBONIZED FUTURE 1 (2018) (citing *Planning Resource Adequacy Assessment Reliability Standard*, 134 FERC ¶ 61,212, P 6 (2011) ("'Resource Adequacy,' [] is defined as the ability of supply-side and demand-side resources to meet the aggregate electrical demand (including losses)."). As renewable or energy-limited resources increasingly penetrate the grid, and as end uses electrify, resource adequacy measures and metrics are changing accordingly. *See, e.g.*, ENERGY SYS. INTEGRATION GRP., REDEFINING RESOURCE ADEQUACY FOR MODERN POWER SYSTEMS 2 (2022), https://perma.cc/2QWD-QFHF ("These new resources are being utilized not only for energy, but also for the grid services required to maintain grid reliability. The increased role of wind, solar, storage, and load flexibility requires the industry to rethink reliability planning and resource adequacy methods and to reconsider analytical approaches."); *see also infra* Section IV.A.

[47] These tools can include short- and long-term transmission planning mandates, creating and operating well-designed energy, capacity, and ancillary services markets, resource procurement oversight, long-term resource adequacy planning, and many others. *See infra* Section IV.A; Comments of Susan F. Tierney to FERC at attach. 1, *Annual Reliability Technical Conference – Fall 2023*, Docket No. AD23-9 (Dec. 15, 2023) (Accession No. 20231205-5105) (presenting tables summarizing reliability entities, processes and tools).

[48] *See Regional Transmission Organizations*, Order 2000, 89 FERC ¶ 61,285 (1999) (discussing Orders 888, 889, and the history of industry restructuring for open access transmission and the formation of competitive wholesale markets).

their transmission facilities under operating agreements with regional transmission operators (RTOs) and independent system operators (ISOs), who then assumed responsibility for reliably operating regional electric grids.[49] FERC's Order 2000 was motivated in part by the need to reduce transmission inefficiencies from increased competition in wholesale generation.[50] In addition to dispatching resources and operating transmission, RTOs and ISOs also administer wholesale markets providing critical mechanisms for ensuring reliability; these can include energy markets, capacity markets,[51] and ancillary services markets, with varying products across regions.[52]

Many entities work collaboratively to support grid reliability against the backdrop of federal and state laws and policies designed to ensure economy-wide decarbonization and air pollution reduction.[53] Federal and state environmental regulators, as well as state energy and utility regulators, have put many rules and policies in place that affect EGUs in myriad ways.[54] EPA's Proposed Rule is no exception to this well-established framework. As noted above, "Congress recognized that air pollution rules would affect decisions to operate EGUs and signaled that,

[49] *See, e.g.*, *Governing Documents*, PJM Interconnection LLC, https://www.pjm.com/library/governing-documents (last visited Dec. 20, 2023) (collecting PJM's Open Access Transmission Tariff, Operating Agreement, and Reliability Assurance Agreement).

[50] KENNETH W. COSTELLO & ROBERT E. BURNS, NAT'L REGUL. RSCH. INST., REGIONAL TRANSMISSION ORGANIZATIONS AND THE COORDINATION OF REGIONAL ELECTRICITY MARKETS: A REVIEW OF FERC ORDER 2000 (2000), https://pubs.naruc.org/pub/FA860A98-9F87-51CE-66CB-99061504D141#:~:text=General%20Order%202000%20represents%20the,regional%20transmission%20organizations%20(RTOs).

[51] Specifically, four of the RTOs operate centralized capacity markets: ISO-NE, ISO-NY, MISO, and PJM. *An Introductory Guide to Electricity Markets regulated by the Federal Energy Regulatory Commission*, FERC (Nov. 29, 2023), https://perma.cc/64NQ-D8N6; *see also* U.S. GOV. ACCOUNTABILITY OFF., GAO-18-131, ELECTRICITY MARKETS: FOUR REGIONS USE CAPACITY MARKETS TO HELP ENSURE ADEQUATE RESOURCES, BUT FERC HAS NOT FULLY ASSESSED THEIR PERFORMANCE (2017), https://www.gao.gov/products/gao-18-131 (summarizing FERC's ability to approve and oversee capacity markets before detailing differences between regional capacity markets at the time). These capacity markets can provide a significant portion of generators' revenue, by compensating them for being available to generate electricity, in addition to other compensation they receive for generating energy. *See* Chen Guo et al., *Incentivizing Investment and Reliability: A Study on Electricity Capacity Markets* (2023), https://optimization-online.org/2023/12/incentivizing-investment-and-reliability-a-study-on-electricity-capacity-markets/.

[52] *See* Y. SUN ET AL., U.S. DEP'T OF ENERGY, RESEARCH PRIORITIES AND OPPORTUNITIES IN UNITED STATES COMPETITIVE WHOLESALE ELECTRICITY MARKETS (2021), https://www.nrel.gov/docs/fy21osti/77521.pdf.

[53] JENNIFER DANIS ET AL., TRANSMISSION PLANNING FOR THE ENERGY TRANSITION: RETHINKING MODELING APPROACHES (2023), https://perma.cc/MJ58-HCK8 (discussing how transmission planning modeling principles must be updated to reflect the clean energy transition, so they can support grid reliability).

[54] These comments focus on EGU operations; siting restrictions may also impact EGUs' ability to provide grid resources at a particular location, and are also generally within state jurisdiction. FERC staffers recently pushed back on Congressional efforts to give FERC more oversight over other agencies' regulations. Recently proposed legislation, the Guaranteeing Reliable Infrastructure Development Act, would mandate FERC reviews of federal agency actions to ensure grid reliability is not impacted. H.R. 6195, 118th Cong. (2023). Testifying before Congress, the Director of FERC's Office of Electric Reliability noted that FERC does not currently have the resources to properly analyze potential impacts of agency actions on grid reliability and that such a role would be better handled by RTOs or DOE's national labs. Nico Portuondo, *FERC official rejects Republican bill targeting Biden rules*, E&E NEWS, (Sept. 14, 2023), https://subscriber.politicopro.com/article/eenews/2023/09/14/ferc-official-rejects-republican-bill-targeting-biden-rules-00115695.

absent an emergency, energy and environmental regulators should work to accommodate the other's distinct statutory aims and missions."[55]

FERC and the entities it governs have long coordinated with EPA on environmental regulations as part of their responsibility to ensure grid reliability. FERC and EPA should continue to coordinate on implementing the Proposed Rule, drawing upon processes and procedures created to navigate past regulatory and technology-driven changes.

III. EPA Can Fulfill Its Limited Coordination-Related Responsibilities for Grid Reliability Without Reducing the Proposed Rule's Stringency

As explained in Section II, ensuring grid reliability is the interlocking responsibility of FERC, ISOs/RTOs, state PUCs, state environmental/energy regulators, and utilities. Section 111 contains no explicit requirement to address grid reliability effects, but it does obligate EPA to more generally consider energy requirements when it sets air emissions limits that reflect "the *best system of emission reduction* [(BSER)]" that "the Administrator determines has been adequately demonstrated."[56] As summarized in the following section, EPA has appropriately considered "energy requirements" in the Proposed Rule, including through its resource adequacy assessment, and use of design elements that provide flexibility for reliability-related entities to plan for and sustain reliable grid operations.

Independent of its BSER obligations, EPA should additionally respond to substantive comments related to grid reliability and continue coordinating with the other entities responsible for grid reliability during the Proposed Rule's implementation phase. But EPA need not reduce the Proposed Rule's stringency to demonstrate it has adequately responded to commenters' reliability concerns. Should it find that reliability-related entities have raised legitimate reliability issues stemming from the Proposed that cannot be otherwise addressed, EPA can adopt additional reliability safety mechanisms in its final rule.

A. EPA has appropriately considered resource adequacy and designed the Proposed Rule with flexibilities to support reliability-related entities' work during implementation

Consistent with its responsibility to select a BSER that achieves maximum emissions reductions after considering energy requirements, EPA conducted a resource adequacy analysis for the Proposed Rule. This resource adequacy analysis predicts minimal impacts on the power supply will result from the Proposed Rule.[57] Furthermore, it shows no expected decrease in target reserve margin levels.[58] EPA looks into general regional impacts by estimating net transfers between regions and concludes that "the percentage changes in the proposed rules are below 2%, highlighting that reserve transfers under the proposal scenario are very similar to baseline

[55] Former FERC Comm'rs Amicus Br., *supra* note 15, at 12.
[56] 42 U.S.C. § 7411(a)(1) (emphasis added).
[57] PROPOSED RULE RESOURCE ADEQUACY TSD, *supra* note 11, at 4 ("Total operation capacity remains similar between the base and policy scenarios.").
[58] *Id.* ("Projected reserve margins remain at or above target reserve margins under the baseline and proposal modeling for all years within the forecast period."). As discussed in Section IV, resource planners have many available tools to incent additional resource entry or blunt retirement impacts if these projections change.

levels."[59] Given these incremental effects on resource adequacy, the incremental reliability effects of the Proposed Rule appear quite small relative to the wider transformation of the power sector. EPA's choice to conduct a resource adequacy assessment is consistent with its past practice under other major power sector rules.[60]

Some commenters on the Proposed Rule argue that EPA's analysis ignores localized reliability concerns,[61] but they overlook that "grid reliability is not a subject of the Clean Air Act" nor "the province of EPA."[62] Any reliability effects of the Proposed Rule will depend on state implementation of the Proposed Rule and the work of the entities tasked with more broadly ensuring reliability as discussed in Sections II and IV. Modeling such grid reliability effects is intensely technical and better suited to grid operators with expertise in conducting supporting analyses and access to the relevant data. State regulators governing specific generating resources also have an important role to assist planners and modelers.

Consistent with EPA's role of coordinating with other entities responsible for grid reliability, EPA has designed the rule with flexibilities intended to "[p]reserv[e] the ability of power companies and grid operators to maintain system reliability."[63] EPA notes that such elements include: "subcategories of new natural gas-fired combustion turbines that allow for the stringency of standards of performance to vary by capacity factor; subcategories for existing steam EGUs that are based on operating horizons and fuel reflecting the request of industry stakeholders; compliance deadlines for both new and existing EGUs that provide ample lead time to plan; and proposed State plan flexibilities."[64] EPA further notes its "intention to exercise its enforcement discretion where needed to address any potential instances in which individual EGUs may need to temporarily operate for reliability reasons."[65]

In sum, EPA lacks the proper mandate or tools to directly ensure grid reliability, but it has appropriately played its central role of reducing pollution in a way that supports grid reliability entities and lays a basis for successful cooperation with them on implementation.

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[59] *Id.* at 6–7.

[60] EPA, TECHNICAL SUPPORT DOCUMENT (TSD) FOR THE FINAL FEDERAL GOOD NEIGHBOR PLAN FOR THE 2015 OZONE NATIONAL AMBIENT AIR QUALITY STANDARDS (2023), https://www.epa.gov/system/files/documents/2023-03/Resource%20Adequacy%20and%20Reliability%20Analysis%20TSD.pdf; EPA, TECHNICAL SUPPORT DOCUMENT: RESOURCE ADEQUACY AND RELIABILITY ANALYSIS (2015), https://www.epa.gov/sites/default/files/2015-11/documents/tsd-cpp-adequacy-reliability.pdf; EPA, RESOURCE ADEQUACY AND RELIABILITY IN THE IPM PROJECTIONS FOR THE MATS RULE (2011), https://www.epa.gov/sites/default/files/2016-03/documents/revised_RESOURCE_adequacy_tsd.pdf; EPA, RESOURCE ADEQUACY AND RELIABILITY IN THE IPM PROJECTIONS FOR THE TRANSPORT RULE TSD (2011), https://www.epa.gov/sites/default/files/2017-06/documents/epa-hq-oar-2009-0491-4455.pdf.

[61] *See, e.g.*, Electric Reliability Council of Texas, Inc. et al., Comments to EPA on the Proposed Rule (Aug. 8, 2023), https://www.regulations.gov/comment/EPA-HQ-OAR-2023-0072-0673.

[62] *Del. Dep't of Nat. Res. & Env't Control*, 785 F.3d at 18.

[63] Proposed Rule, 88 Fed. Reg. at 33,415; *see also* Comments of U.S. EPA Off. of Air & Radiation to FERC, *Annual Reliability Technical Conference – Fall 2023*, Docket No. AD23-9 (Nov. 29, 2023) (Accession No. 20231205-4000), https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20231205-4000&optimized=false ("The proposed rule was constructed with reliability considerations in mind by incorporating timeframes and design features that promote planning and flexibility.") [hereinafter EPA OAR Comments on 2023 FERC Technical Conference].

[64] Proposed Rule, 88 Fed. Reg. at 33,415.

[65] *Id.*

B. EPA will need to address relevant and significant comments related to grid reliability and should continue to coordinate with reliability-related entities

While EPA does not have an independent responsibility to address grid reliability, it should still respond to substantive comments on grid reliability consistent with its responsibilities under the Administrative Procedure Act. In a ruling concerning EPA's 2013 action updating emission requirements for backup generators (specifically Reciprocating Internal Combustion Engines),[66] the D.C. Circuit found that EPA's responsibility to respond to "relevant and significant" comments on grid reliability existed independent of a responsibility to address grid reliability.[67] EPA should be careful to respond to commenters' concerns in the final rule.

In responding to commenters' concerns about reliability, EPA can identify any cases where commenters inappropriately attribute facility retirements or costs to the Proposed Rule that are due to other forces.[68] Additionally, as EPA already notes in its Resource Adequacy TSD, there are processes in place to ensure that facility retirements do not jeopardize grid reliability.[69] Furthermore, PUCs in states with vertically integrated utilities can deny a request for retirement if the facility is deemed to be reliability-critical.[70] EPA can reference these processes in responding to commenters' concerns. However, EPA may wish to acknowledge that there may not be the same processes in place for deregulated states, and explain that other financial tools are available to encourage specific generators identified as essential for locational reliability concerns to stay in service.[71]

EPA can also explain how any remaining localized reliability challenges can be mitigated through a variety of CAA-related implementation instruments. First, as EPA noted in the

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[66] Such generators are those used in "industrial, commercial, and institutional facilities for power generations and CHP [combined heat and power]." EPA, CATALOG OF CHP TECHNOLOGIES: SECTION 2. TECHNOLOGY CHARACTERIZATION—RECIPROCATING INTERNAL COMBUSTION ENGINES 2-2 (2015), https://www.epa.gov/sites/default/files/2015-07/documents/catalog_of_chp_technologies_section_2._technology_characterization_-_reciprocating_internal_combustion_engines.pdf.

[67] *See Del. Dep't of Nat. Res. & Env't Control*, 785 F.3d at 1.

[68] In previous power sector regulations, EPA has grappled with this situation. For example, in the Mercury & Air Toxics Standards, EPA explained how industry and NERC studies referenced by commenters relied on flawed estimates of costs and inappropriately attributed some power plant retirements to the rule for sources that were already scheduled to retire. *See* National Emission Standards for Hazardous Air Pollutant Emissions From Coal-and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units, 77 Fed. Reg. 9304, 9408 (Feb. 16, 2012) ("[M]ost of these studies make assumptions about the requirements of the EPA rules that are inconsistent with, and dramatically more expensive than, the EPA's actual proposals or final rules . . . in reporting the number of retirements, many analyses fail to differentiate between plant retirements attributable to the EPA rules and retirements of older, smaller, and less efficient plants that are already scheduled for retirement."). Notably, none of these reliability concerns were borne out in implementation of EPA's previous power sector actions.

[69] *See* PROPOSED RULE RESOURCE ADEQUACY TSD, *supra* note 11, at 2.

[70] *See, e.g.*, KY. REV. STAT. ANN. § 278.264 (West 2023).

[71] These include tools like system support resource designations, and reliability must run agreements. *See, e.g.*, Filing of Midcontinent Independent System Operator, Inc., *Midcontinent Independent System Operator, Inc. submits tariff filing per 35.13(a)(2)(iii)*, Docket No. ER23-630 (Dec. 14, 2022) (Accession No. 20221214-5131), https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20221214-5131; DAVID EGAN, PJM INTERCONNECTION LLC, GENERATION DEACTIVATION INFORMATIONAL ITEM IDENTIFYING RMR UNITS, https://perma.cc/ZXF9-Q597.

Proposed Rule's Preamble, it can use enforcement discretion. For example, in the MATS regulatory regime, EPA issued an enforcement response policy for use of CAA 113(a) administrative orders (AOs) to allow for a limited period of noncompliance for sources that must run to address a documented reliability need,[72] and FERC released a policy statement explaining how it would advise EPA on how to rule on requests for these AOs.[73] As EPA has highlighted under the Remaining Useful Life and Other Factors (RULOF) provision of CAA Section 111(d)(1), states retain discretion to apply performance standards to individual sources that are less stringent under select circumstances.[74] EPA can also highlight the option for operators to seek permission from DOE under the FPA to run in noncompliance temporarily under emergency circumstances.[75] Lastly, EPA could point to any additional reliability safety mechanisms it chooses to develop in the final rule.[76]

EPA should also continue to coordinate with DOE, FERC, and other stakeholders that contribute to grid reliability as it finalizes and later implements the rule. When designing the Clean Power Plan, much of this coordination occurred after EPA's June 2014 proposal. For example, in early 2015, FERC held a series of technical conferences related to the Clean Power Plan (CPP),[77] following which, EPA and FERC corresponded regarding how to ensure reliability.[78] In August 2015, EPA, DOE, and FERC signed a MOU describing how they would "coordinate efforts to help ensure continued reliable electricity generation and transmission during the implementation of the CPP."[79] EPA is on track to continue similar coordination following its MOU with DOE specifically focused on reliability[80] and participation in the initial FERC technical conference on November 9, 2023. EPA has committed to continue working with FERC and other grid reliability stakeholders[81] and can continue to build on this foundation in planning coordination for rule implementation.

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[72] EPA Off. of Enf't & Compliance Assurance, *The Environmental Protection Agency's Enforcement Response Policy For Use Of Clean Air Act Section 113(a) Administrative Orders In Relation To Electric Reliability And The Mercury and Air Toxics Standard* (Dec. 16, 2011), https://www.epa.gov/sites/default/files/documents/mats-erp.pdf (describing EPA's plan to use administrative orders under CAA Section 113(a) to allows sources that must operate in noncompliance for up to a year to address a specific and documented reliability concern); *see also* 42 U.S.C. § 7413.

[73] Statement of Policy, *The Commission's Role Regarding The Environmental Protection Agency's Mercury And Air Toxics Standards*, 139 FERC ¶ 61,131 (2012), https://perma.cc/MDJ2-FJRJ.

[74] Proposed Rule, 88 Fed. Reg. at 33,276.

[75] *See* 16 U.S.C. § 824a(c); 42 U.S.C. § 7151(b). DOE granted such a request during Winter Storm Elliot in December 2022. *See Federal Power Act Section 202(c): PJM December 2022*, U.S. DEP'T OF ENERGY, https://www.energy.gov/ceser/federal-power-act-section-202c-pjm-december-2022 (last visited Dec. 20, 2023).

[76] *See infra* Section III.C.

[77] EPA, U.S. Dep't of Energy, & FERC, EPA-DOE-FERC Coordination on Implementation of the Clean Power Plan (Aug. 3, 2015), https://perma.cc/67QF-58D5 [hereinafter EPA-DOE-FERC MOU for CPP].

[78] *See, e.g.*, Letter from Janet McCabe, EPA Acting Assistant Administrator to Norman Bay, FERC Chairman (May 6, 2015), https://perma.cc/C6E6-BMKQ; Letter from Norman Bay, FERC Chairman to Janet McCabe, EPA Acting Assistant Administrator (May 15, 2015), https://perma.cc/X73D-DJ32 (discussing "how the Commission can continue to fulfill its responsibility on Bulk-Power System reliability after EPA releases any final rule").

[79] EPA-DOE-FERC MOU for CPP, *supra* note 77, at 1.

[80] U.S. Dep't of Energy & EPA, Joint Memorandum on Interagency Communication and Consultation on Electric Reliability (Mar. 9, 2023) https://www.epa.gov/system/files/documents/2023-03/DOE-EPA%20Electric%20Reliability%20MOU.pdf.

[81] *See, e.g.*, EPA OAR Comments on 2023 FERC Technical Conference, *supra* note 63, at 2 ("As we move towards a final rule, I look forward to staying in closer, more regular contact with each of you. Similarly, my technical staff

C. EPA can rely on the RULOF provision or include additional reliability safety mechanisms in the Final Rule to offset additional concerns

Consistent with its pollution reduction mandate, EPA must select a BSER reflecting the *maximum* emission reductions achievable after accounting for the relevant factors. To this end, even if it believes that commenters have raised legitimate concerns about reliability challenges faced by the grid, EPA should not automatically seek to reduce the stringency of its emissions limits or delay its implementation timeline without first considering whether its existing compliance flexibilities are sufficient to address concerns. As noted above, EPA's Proposed Rule is expected to have only an incremental effect on the much larger reliability challenge. In our initial comments, we emphasized that EPA does not need to regulate less stringently simply because the oldest and highest-emitting coal plants already have plans to retire or particularly tight economic margins.[82] EPA is not responsible for solving broader reliability challenges for which it lacks the appropriate tools and jurisdiction.

As discussed above, EPA has tools to grant flexibility to meet reliability challenges during implementation of the Proposed Rule, should they be necessary. These include the RULOF provision of CAA Section 111(d)(1) and enforcement discretion through CAA Section 113(a) administrative orders. In the final rule, EPA could provide further, explicit direction on how states can use the RULOF provision to address reliability needs. EPA could alternatively or additionally issue a policy statement clarifying its intended use of Section 113(a) administrative orders in relation to electric reliability, as it previously did for the Mercury & Air Toxics Standards.

These EPA-jurisdictional tools may sufficiently equip states with the needed flexibility during implementation to protect grid reliability–in conjunction with the grid reliability work of other entities discussed in Sections II and IV. If, after reviewing the full record, EPA is concerned that further flexibility is needed, it can consider adding additional reliability safety mechanisms to the final rule. For example, in the final CPP, EPA added provisions for a "reliability safety valve" that could be triggered during unexpected events, allowing reliability-critical EGUs to operate without adhering to the standard and without counting the associated emissions towards the state's overall compliance.[83] This type of mechanism provides the flexibility necessary for reliability in emergencies and unforeseen conditions without unnecessarily sacrificing emissions reductions when reliability does not require doing so. The CPP also contained a requirement that states verify that they "considered electric system reliability in developing their state plans."[84] Here again, EPA can support reliability goals at the implementation stage by ensuring continued assessment during state planning, when states will have better opportunities to identify localized reliability challenges. EPA could adopt similar mechanisms in the final rule—although it is worth noting that even though the CPP was never implemented, the power sector exceeded the CPP's emissions reduction targets ahead of schedule and without needing any additional

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will seek to work in a coordinated fashion with FERC technical staff moving forward, just as they have done during prior rulemaking efforts impacting the power sector.").

[82] *See* Inst. for Pol'y Integrity, Comments on the Proposed Rule 8–10 (Aug. 8, 2023), https://perma.cc/KUL8-HLZH.

[83] Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,877–79 (Oct. 23, 2015).

[84] *Id*. at 64,676.

reliability safety mechanisms or causing a reliability problem (despite some commenters initially expressing concerns about reliability).[85]

IV. FERC, Other Reliability-Related Entities, and States have the Tools to Support Grid Reliability, and Must Continue to Employ and Improve Them

EPA should not weaken the Proposed Rule due to any incremental effect on reliability, because these effects occur against the backdrop of larger reliability challenges that FERC and other reliability-related entities must address. As discussed in Section III, EPA has fulfilled its responsibility to design a rule that allows the reliability-related entities to do their jobs. FERC, DOE, states, and other reliability-related entities must continue to coordinate to provide grid reliability as economy-wide decarbonization[86] increases electricity demand and worsening extreme weather events, exacerbated by climate change, both increase demand and add new challenges. These efforts include: (1) supporting resource adequacy through tools like wholesale electricity markets redesigns, and other updated energy resource procurement mechanisms, to blunt generator retirement impacts and ensure adequate energy resource entry; (2) updating reliability standards; and (3) supporting transmission buildout and grid efficiency. FERC and other reliability-related entities must work with EPA and the states to ensure implementation of the Proposed Rule in coordination with these efforts. By taking these wider actions to address reliability, the entities with the responsibility and tools to address grid reliability can help relieve the reliability concerns raised by commenters in the rulemaking.

A. Support resource adequacy by updating wholesale markets and procurement mechanisms, and modernizing resource adequacy measures and metrics

As discussed in Sections II & III, EPA is not charged with maintaining resource adequacy. FERC, RTOs/ISOs, PUCs, state environmental/energy commissions, and vertically integrated utilities all play complementary roles in supporting resource adequacy. In this subsection, we first discuss market tools and other procurement mechanisms that entities may use to support resource adequacy. Then we review other state tools to support resource adequacy. Finally, we explain how metrics and measures of resource adequacy that are used to guide both market and other resource procurement mechanisms are being rethought to support energy sufficiency in the face of modern grid challenges. By using, and innovating, this set of resource adequacy tools, FERC, RTOs/ISOs, state PUCs, and utilities can help mitigate challenges to grid reliability.

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[85] *See, e.g.*, ENERGY INNOVATION POL'Y & TECH., LLC, MAINTAINING A RELIABLE GRID UNDER EPA'S PROPOSED 111 RULES RESTRICTING POWER PLANT EMISSIONS 9 (2023), https://perma.cc/8CZZ-G9EX ("The last time the EPA issued a rule meaningfully limiting GHG emissions from existing power plants—the Clean Power Plan—numerous stakeholders protested on reliability grounds. The same can be said for many other rules addressing conventional air pollution from power plants. However, the power sector achieved the Clean Power Plan's 2030 goal by 2020 without risking reliability as states collaborated in unprecedented ways to propose regional compliance strategies, even though the rule never entered force.").

[86] *See, e.g.*, U.S. DEP'T OF STATE AND THE U.S. EXEC. OFF. OF THE PRESIDENT, THE LONG-TERM STRATEGY OF THE UNITED STATES: PATHWAYS TO NET-ZERO GREENHOUSE GAS EMISSIONS BY 2050 (2021) https://perma.cc/2F9A-KKUS.

Market and other procurement mechanisms to support resource adequacy

While FERC does not have jurisdiction over long-term resource planning, "which includes deciding on what is a sufficient resource mix for a reliable electric system,"[87] it does have a wide arsenal of tools it uses to support resource or energy adequacy, including overseeing RTO/ISO-administered electricity markets. Electricity markets play a critical role in supporting resource adequacy and creating economic incentives for resource entry and exit.[88] RTO/ISO-administered electricity markets, such as capacity markets (and other market mechanisms), help ensure that the necessary resources are developed on appropriate time horizons. Capacity markets are a tool that help prevent and address reliability challenges by appropriately valuing energy resources and compensating them for their availability to provide energy in times of need.[89] To the extent that the Proposed Rule will further incentivize any particular generators to retire earlier than they had otherwise planned, the scarcity of future capacity would lead to higher prices in the capacity market and thus incentivize the entry of new generation.

For jurisdictions that do not have capacity markets, but administer energy-only markets (like the non-FERC jurisdictional RTO, ERCOT), if the generation resource retirement leads to energy scarcity, it will result in higher energy prices that will incentivize new generation resources. Finally, for other regions not part of RTOs or ISOs, "(like most of the West), vertically integrated utilities, cooperatives and municipal electric companies add needed capacity by proposing and building their own project and/or through soliciting offers from other competitive suppliers. In any event, the overall resource need is forecasted (and, if relevant, a local/zonal requirement is further identified), and some combination of regulated and/or market process brings forth proposals to satisfy the need."[90]

State work to support resource adequacy

Against this varied resource adequacy procurement backdrop, states' decarbonization and clean energy laws are already affecting the generation mix, and state environmental regulators will need to continue working with state public utilities commissions to help ensure resource adequacy as certain existing generators retire, and others need to be appropriately sited. State public utilities commissions, often in conjunction with RTO/ISO support, may require retail electric utilities to conduct integrated resource planning to ensure they meet all reliability

[87] FERC Reliability Explainer, *supra* note 44.

[88] *See, e.g.*, *PJM Files Changes to Capacity Market To Promote Reliability: Federal Energy Regulatory Commission Proposal Responds to Resource Adequacy Needs of Evolving Grid*, PJM INTERCONNECTION LLC (Oct. 13, 2023), https://perma.cc/5EXM-9YXV (describing PJM capacity market reform filings with FERC that "will help PJM do what we do best—operating markets that attract critical investment in the resources we need to keep the lights on," as "[m]aintaining enough resources that can support reliability are crucial to PJM's ability to serve demand through the transition to a less carbon-intensive grid").

[89] SYLWIA BIALEK & BURÇIN ÜNEL, INST. FOR POL'Y INTEGRITY, CAPACITY MARKETS & EXTERNALITIES: AVOIDING PROBLEMATIC AND UNNECESSARY REFORMS 5 (2018) ("Capacity auctions choose the generators with the lowest offers to meet the necessary level of capacity to ensure resource adequacy—capacity amounts that are close to the predicted maximum demand plus a reference reserve margin. All of the cleared generators receive the same per-MW price, equal to the bid of the last-clearing generator.").

[90] Comments of Susan F. Tierney to FERC at attach. 1, *Annual Reliability Technical Conference – Fall 2023*, Docket No. AD23-9 (Dec. 15, 2023) (Accession No. 20231205-5105) (presenting tables summarizing reliability entities, processes and tools).

standards.[91] One thing is uniformly true for understanding who has "control" over energy resource entry or exit in electric grid services: There is no uniform answer. There is significant variation between states' levels of retail utility deregulation, and there can even be tensions between similarly-regulated utilities across states within RTO/ISO regions when those states have wide-ranging energy policies.[92] Coordinated planning efforts are key.

Updated thinking for measuring resource adequacy

For whatever prevailing resource sufficiency processes govern a particular region, there are ongoing technical and rulemaking proceedings designed to update resource adequacy principles for the energy transition, to ensure that resource need forecasting is accurate and robust to meet increasing demand. The ongoing transition, from grids heavily reliant on fossil-fuel-fired resources to grids relying on high levels of variable energy resources and storage, requires thinking about not only the amount of energy resources provide, but also their differing operational characteristics and reliability contributions.[93] In short, as the kinds of energy resources shift from conventional, emitting fossil capacity to variable energy resources, the grid services that those resources provide changes as well.[94] How planners measure resource adequacy is changing accordingly, from tools designed to meet single peak load periods occurring during one season, to resource adequacy tools that account for weather-induced correlated risks of failure and highest system risks becoming decoupled from peak load.[95] Grid planners and other policymakers are already thinking about these needed resource adequacy updates in wholesale markets and energy procurement proceedings, and the Proposed Rule's marginal impact to thermal generation resources highlights the importance of continuing to engage in these energy/resource adequacy assessment reforms.[96]

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[91] *See, e.g.*, SANDIA NAT'L LAB'YS, ISSUE BRIEF: ENERGY STORAGE & RESOURCE ADEQUACY (2020), https://perma.cc/HG4P-K2NJ (discussing lack of uniformity in resource adequacy markets and responsibility across the U.S.); *CPUC Continues Efforts to Ensure Grid Reliability*, CA. PUB. UTILS. COMM'N (Oct. 12, 2023) (announcing a California Public Utilities Commission Resource Adequacy proceeding to ensure CAISO has adequate energy supplies), https://perma.cc/9ZFJ-6WBK.

[92] *See* KATHRYNE CLEARY & KAREN PALMER, RES. FOR THE FUTURE, US ELECTRICITY MARKETS 101 (2022) https://perma.cc/T8PR-JZP7 (reviewing the many iterations of energy adequacy oversight across the country, and detailing how states with either deregulated electric utilities or vertically integrated electric utilities interact with grid operators, including RTO/ISO participation). RTO-member states are already working to more efficiently synchronize their state procurement goals with RTO-run markets, or to supplement those markets, where conflicts have previously arisen. *See, e.g.*, N.J. BD. OF PUB. UTILS., 2022 PROGRESS REPORT ON NEW JERSEY'S RESOURCE ADEQUACY ALTERNATIVES: UPDATE REGARDING STAFF'S INVESTIGATION OF RESOURCE ADEQUACY ALTERNATIVES, DOCKET #EO20030203 (2022) https://perma.cc/79BB-Z8GX (examining how PJM supports or is at odds with New Jersey's resource adequacy efforts); *see also* Nat'l Ass'n of Regul. Util. Comm'rs, Resource Adequacy Primer for State Regulators 61 (2021), https://perma.cc/54LT-74RP (discussing the tension and interplay between state and regional planning for resource adequacy).

[93] *See, e.g.*, Notice of Technical Conference on Resource Adequacy in the Evolving Electricity Sector, FERC Docket No. AD21-10-000 (Feb. 18, 2021) (Accession No. 20210218-3091).

[94] *See* ENERGY SYS. INTEGRATION GROUP, REDEFINING RESOURCE ADEQUACY FOR MODERN POWER SYSTEMS 4-7 (2022), https://perma.cc/RAK8-7C59.

[95] *Id.*

[96] *See, e.g.*, NAT'L ASS'N OF REGUL. UTIL. COMM'RS, *supra* note 92, at 60 ("These changes have caused consideration, and in some cases, adoption of additional approaches for assessing resource adequacy to capture the characteristics of more variable resources (wind and solar generation) on the system, increased participation of demand-side resources, and more extreme events (weather, supply interruptions, etc.)").

EPA cannot set out a national, one-size-fits-all plan for measuring or ensuring resource adequacy. As NERC's 2023 Long Term Reliability Assessment recently noted:

> [T]o reliably grow the BPS, generator retirements over the 10-year assessment period of this *2023 LTRA* need to be carefully evaluated. State and provincial resource adequacy stakeholders and policymakers need to ensure that resource plans account for growing electricity demand and load profiles as well as the future resource portfolio's capabilities to provide essential grid reliability services. They must have effective measures that can be implemented to prevent loss of resources that are needed for resource and energy adequacy, grid reliability, and system restoration.[97]

EPA has designed the Proposed Rule to provide significant implementation flexibility that helps ensure that resource adequacy entities can carry out this job.[98]

B. Update reliability standards and planning processes, including for extreme weather events

By ensuring that proper reliability standards are in place, FERC, NERC, and EROs can further support grid reliability.[99] FERC has emphasized the importance of its role in updating reliability standards to support the energy transition:

> FERC can advance reliability improvements by directing NERC to develop new or modified reliability standards to address emerging grid issues such as certain power plant retirements and integration of renewable energy resources. FERC has also taken action to assure that the electric grid is prepared to reliably operate during more frequent and more extreme weather events.[100]

In particular, NERC has been working on updating reliability standards and planning practices to ensure that grid operators can plan for reliable grid operations in the face of extreme weather events.[101] These endeavors are, in part, based on analyses revealing that fossil-fuel-fired generators have underperformed during past extreme weather events. For example, both the PJM and joint FERC-NERC reports on Winter Storm Elliot conclude that gas-fired electric generators experienced unplanned outages that threatened system reliability during extreme weather events.[102] Accordingly, planners are updating their thinking about these resources' contribution

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[97] N. AM. ELEC. RELIABILITY CORP., 2023 LONG-TERM RELIABILITY ASSESSMENT (2023), https://perma.cc/TT96-TMYN [hereinafter NERC 2023 LONG-TERM RELIABILITY ASSESSMENT].

[98] *Supra* Section II.

[99] NERC 2023 LONG-TERM RELIABILITY ASSESSMENT, *supra* note 97, at 133 (summarizing ERO Actions "underway to monitor, assess, and reduce long-term BPS reliability risks' and concluding that "[t]he selected ERO activities . . . will result in new or enhanced Reliability Standards requirements, reliability guidelines, resources, or significant findings and actionable steps for stakeholders to address reliability risks").

[100] FERC Reliability Explainer, *supra* note 44.

[101] *See, e.g.*, *Transmission System Planning Performance Requirements for Extreme Weather*, Order 896, 183 FERC ¶ 61,191 (2023).

[102] *See* FERC, NERC, & REGIONAL ENTITIES, WINTER STORM ELLIOTT REPORT: INQUIRY INTO BULK-POWER SYSTEM OPERATIONS DURING DECEMBER 2022 (2023), https://perma.cc/5TUM-Z3TG (additionally cataloging gas-fired electric generation failures during four prior extreme cold events); *see also* Daniel Moore, *Gas-Fired Power*

to reliable grid operations.[103] Moreover, planners are now focusing on the difficulties of projecting future reliability risks by using historical weather data that will not reflect future conditions given climate change.[104]

C. Foster transmission buildout to better ensure that new energy resources interconnect on a sufficiently rapid timeline

FERC, RTOs/ISOs, and other non-RTO grid operators[105] must also continue to reform generator interconnection, cost allocation, and long-term transmission planning rules to support resource adequacy and operational reliability. FERC is well-positioned to ensure that its jurisdictional grid operators support the energy transition by providing consistent and uniform guidance for each of these tasks. First, as aging and inefficient fossil-fuel generators continue to retire, new energy resources must replace both lost generation capacity and reliability services from those facilities. Those new energy resources must be able to connect to and deliver power to the existing grid. Doing so requires multiple complex steps, beginning with the proposed resource's submitting an interconnection request to the RTO/ISO, entering into the relevant interconnection cycle/queue with other waiting resources, awaiting a system impact study, then an interconnection facilities study, and finally, proceeding to a generation interconnection agreement.[106] Interconnection rules vary between RTOs/ISOs. As state and federal decarbonization and clean energy policies are implemented, interconnection queues have become lengthy, with renewable energy and storage projects waiting to serve the grid.[107] RTOs/ISOs are in various stages of tackling generation interconnection reforms consistent with FERC's recent Order 2023.[108] These reforms are essential mechanisms under FERC's direct control, which will support resource adequacy and reliability by ensuring that resource entry can occur at the needed scale and pace.[109]

Reliability Scrutinized Ahead of Winter Season, BLOOMBERG L. (Sept. 8, 2023), https://news.bloomberglaw.com/environment-and-energy/gas-fired-power-reliability-scrutinized-ahead-of-winter-season ("Gas accounted for 72% of outages attributable to fuel during Winter Storm Elliott last December that hit the mid-Atlantic and Southeast states, according to the regional grid operator PJM Interconnection.").

[103] *See* Mark Specht, *How Reliable Are Gas Power Plants? What ICAP, UCAP, and ELCC Tell Us*, UNION OF CONCERNED SCIENTISTS (Aug. 23, 2023), https://perma.cc/TGN3-L4EA (discussing ongoing efforts to update accreditation methods to more accurately reflect gas-fired electric generators' contribution to grid reliability).

[104] ENERGY SYS. INTEGRATION GROUP, WEATHER DATASET NEEDS FOR PLANNING AND ANALYZING MODERN POWER SYSTEMS 7–9 (2023); Nicholas Rivers & Blake Shaffer, *Stretching the Duck: How Rising Temperatures will Change the Level and Shape of Future Electricity Consumption*, 41 ENERGY J. 33 (2020).

[105] *See Understanding RTOs: the West*, NAT'L CAUCUS OF ENV'T LEGISLATORS (Dec. 13, 2023), https://perma.cc/HLU3-EYRK.

[106] *See, e.g.*, PJM INTERCONNECTION LLC, GENERATOR INTERCONNECTION (Nov. 17, 2023), https://perma.cc/VM8D-U8J6.

[107] *See* Emma Penrod, *US grid interconnection backlog jumps 40%, with wait times expected to grow as IRA spurs more renewables*, UTILITYDIVE (Apr. 11, 2023), https://perma.cc/6CG7-AXUR.

[108] *Improvements to Generator Interconnection Procedures and Agreements*, Order 2023, 184 FERC ¶ 61,054 (2023).

[109] *Id*. at P 2 (Comm'r Clements, dissenting) ("Ultimately, the dysfunction of the interconnection process harms consumers. It prevents low-cost generation from coming online that could have reduced the cost of electricity, and it harms reliability. Several of the nation's largest grid operators have stated that they could face resource adequacy problems if new resource entry does not occur rapidly enough to match the pace of resource retirements." (footnote omitted)); *see also* Jeff St. John, *The clean energy backlog barely budged this year. What's the way forward?*, CANARY MEDIA (Dec. 18, 2023), https://perma.cc/HU99-4C9M (emphasizing the importance of interconnection reform for the clean energy transition).

Currently, these interconnection proceedings have acted as a substitute for robust, long-term transmission planning with consistent cost allocation principles and holistic benefits considered.[110] This has resulted in inefficient, reactive transmission builds versus forward-looking and proactive planning. It has also yielded time consuming cost allocation conflicts that can ultimately scuttle transmission buildout.[111] FERC is in the process of addressing these challenges, with a (hopefully) forthcoming rule designed to catalyze ongoing long-term regional transmission planning and cost allocation reform efforts.[112] Increased regional and interregional transmission expansion can dampen the need for new generation resources, increase reliability, and help build resilience. Grid efficiency measures, like grid enhancing technologies and reconductoring[113] can help do the same, and reliability-related entities are working on tools supporting those efforts.[114]

DOE has a role to play in supporting transmission expansion as well;[115] its Grid Deployment Office has been immersed in efforts to support grid reliability.[116] On December 19, 2023, DOE finalized its guidance and process for designating national interest transmission corridors to help accelerate this key grid reliability tool.[117] Collectively, these rules, proceedings and tools are essential for accelerating the clean energy transition and improving grid reliability in the face of increasing extreme weather events, and all reliability-related entities must continue advancing them to bolster grid reliability.

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[110] *Improvements to Generator Interconnection Procedures and Agreements*, Order 2023, 184 FERC ¶ 61,054, at P 13 (2023) (Comm'r Clements, dissenting) ("Interconnection processes are overloaded in part because they are being relied on to build out core transmission system infrastructure that should be considered in regional planning processes. We know interconnection processes were not intended for, and are ill suited to perform, this task.").

[111] *See, e.g.*, Miranda Willson, *'Latest battleground': How politics seized the electric grid*, E&E NEWS (Dec. 19, 2023), https://www.eenews.net/articles/latest-battleground-how-politics-seized-the-electric-grid/.

[112] *See Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection*, 179 FERC ¶ 61,028 (2022).

[113] Chojkiewicz Et Al., *Accelerating Transmission Expansion by Using Advanced Conductors in Existing Right-of-Way* (Energy Institute Working Paper No. 343, 2023), https://perma.cc/WJ8A-RQAK (reporting findings that reconductoring can meet over 80% of the transmission needed to reach 90% clean power by 2035).

[114] *See, e.g.,* U.S. DEP'T OF ENERGY, REPORT ON GRID-ENHANCING TECHNOLOGIES: A CASE STUDY ON RATEPAYER IMPACT (2022), https://perma.cc/3D32-Q8R6; SRISHTI SLARIA ET AL., RES. FOR THE FUTURE, EXPANDING THE POSSIBILITIES: WHEN AND WHERE CAN GRID-ENHANCING TECHNOLOGIES, DISTRIBUTED ENERGY RESOURCES, AND MICROGRIDS SUPPORT THE GRID OF THE FUTURE? 13 (2023), https://perma.cc/5ZRK-4G35 ("Overall, the zero-emission DERs described may . . . partially displace the need for transmission expansion in a renewables-dependent grid.").

[115] *Grid and Transmission Program Conductor Guide*, U.S. DEP'T OF ENERGY, https://www.energy.gov/gdo/grid-and-transmission-program-conductor-guide (describing DOE "transmission and grid resilience financing programs, as well as other existing DOE transmission and grid programs"); 16 U.S.C. § 824p(a)(1) (requiring DOE to conduct a triennial nationwide study of transmission capacity constraints and congestion); U.S. DEP'T OF ENERGY, NATIONAL TRANSMISSION NEEDS STUDY (2023) (2023 Needs Study).

[116] *See, e.g.*, U.S. DEP'T OF ENERGY, NATIONAL TRANSMISSION NEEDS STUDY; *National Transmission Planning Study*, U.S. DEP'T OF ENERGY, https://perma.cc/N2GQ-6X8X.

[117] *See* U.S. Dep't of Energy, Grid Deployment Office Guidance on Implementing Section 216(a) of the Federal Power Act to Designate National Interest Electric Transmission Corridors (Dec. 19, 2023) https://perma.cc/R3MC-YJUA.

A recent Energy Innovation report summarized key recommended actions (many of which are underway, and most of which focus on transmission reforms) to support grid reliability with reduced emissions that we replicate below:[118]

1. Transmission system planners and electricity market operators should go beyond the requirements of recent Federal Energy Regulatory Commission (FERC) orders to modernize interconnection processes and accelerate clean energy deployment.

2. RTOs and monopoly utilities should examine the potential for grid-enhancing technologies and use these technologies to quickly increase transmission capacity.

3. RTOs and monopoly utilities should proactively plan transmission needs to enable coal retirement. In organized markets, RTOs and utilities should cooperatively align generation procurement plans with reliability needs and transmission plans to reduce costs and ensure timely reliable replacement.

4. RTOs should update rules enabling transmission owners to re-use existing interconnection rights at retiring fossil plants to encourage rapid economic replacement. State regulators and utilities should proactively develop generator replacement plans leveraging these interconnection points.

5. State regulators should proactively set specific timelines for retirements and retrofits, while undertaking proactive resource planning and procurement that incorporates compliance with the proposed rules.

These recommendations emphasize transmission capacity's role in bolstering grid reliability, and also highlight the states' role in ensuring adequate resource planning.

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The network of reliability-related entities have developed a toolbox to guide generators' operating and retirement decisions, bolster resource adequacy, and maintain operational reliability. They will continue to build upon this foundation to meet the challenges of the clean energy transition and to increase grid resilience to extreme weather events and reliably support growing industrial demand. The Proposed Rule appropriately contains several design elements to allow flexibility during implementation to better support the work of reliability-related entities in meeting this challenge while fulfilling EPA's statutory mandate to reduce air pollution.

[118] *See* MIKE O'BOYLE ET AL., ENERGY INNOVATION POL'Y & TECH., LLC, MAINTAINING A RELIABLE GRID UNDER EPA'S PROPOSED 111 RULES RESTRICTING POWER PLANT EMISSIONS 5 (2023), https://perma.cc/8CZZ-G9EX (finding that utilities have ample existing tools to comply with the rules and maintain system reliability, that utilities and system operators have plenty of flexibility to maintain real-time reliability under the rules, and that major utilities have already planned to transition their system in a way that would comply with EPA's Proposed Rule).

Respectfully Submitted,

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