

The Honorable Jeff Duncan

- 1. At the hearing, you noted how critical natural gas-fired generation is for balancing the intermittency of renewable energy. If we are to move towards the goal of a “zero-carbon power grid by 2035” like the Biden Administration wants to achieve, can you please elaborate on the importance of natural gas for electric reliability and affordability?**

Dispatchable generation, which is to say a source of electricity that can provide power on demand (like gas-fired generation), is absolutely critical for electric reliability. Non-dispatchable, intermittent wind and solar resources are weather-dependent and the time and quantity of their output cannot be controlled. They are incapable, by themselves, of ensuring the stability of the bulk electric system. They cannot meet the demands of the electric system when the wind does not blow, or the sun does not shine. They cannot stabilize the system on a real-time basis when clouds cover a large or critical area or wind speed unexpectedly drops. Technologically and economically feasible large-scale and long duration battery storage does not now exist to meet these shortfalls.¹ Battery storage facilities have a four-hour limit and may be unable to store sufficient energy to meet demand between recharge periods.²

For these reasons, the North American Electric Reliability Corporation (NERC), the entity responsible for establishing and enforcing reliability standards for the bulk

¹ See New York Indep. Sys. Operator, Inc., *2023 Power Trends: A Balanced Approach to a Clean & Reliable Grid*, at 18 (2023), <https://www.nyiso.com/documents/20142/2223020/2023-Power-Trends.pdf/7f7111e6-8883-7b10-f313-d11418f12fbf> (“It is especially important to note that commercially available technologies to provide dispatchable, non-emitting supply do not exist at scale at this time.”) (NYISO Power Trends 2023).

² See NYISO Power Trends 2023 at 7 (“Energy Storage Resources (ESRs) offer great promise, but the amount of energy they can contribute to the grid, and the length of time they can perform, is limited today.”); ISO New England Inc., *2021 Economic Study: Future Grid Reliability Study Phase 1*, at 47 (July 29, 2022), https://www.iso-ne.com/static-assets/documents/2022/07/2021_economic_study_future_grid_reliability_study_phase_1_report.pdf (finding that in modeling certain future decarbonization scenarios, “the supply-and-demand mix . . . did not leave enough time for storage to recharge in the 2019 weather year, even though it was not a particularly severe winter”) (ISO-NE 2022 Study).

electric system, has stated that natural gas is the “fuel that keeps the lights on”³ and will remain so “until very large-scale and long duration battery deployments are feasible.”⁴ NERC has further advised that “natural gas policy must reflect this reality.”⁵

Even attempting to reliably operate the bulk electric system in the face of the rapid retirement of dispatchable generation would require a substantial build-out of variable generation, energy storage, and transmission. This would inevitably cause electricity to become much more expensive. In a study published last year, ISO New England Inc. (ISO-NE) determined that under a deep decarbonization scenario approximately “89,900 MW in total wind, solar and storage versus the ~5,600 MW in use today” would be needed “to meet reliability criteria.”⁶ ISO-NE also commented that a deep decarbonization scenario “would require such a large amount of wind and solar that it may present significant challenges [to] the transmission system and require an outsized amount of land or offshore areas to be sited and developed for the necessary wind and solar farms.”⁷ However, with dispatchable units, ISO-NE concluded that the amount of variable generation, energy storage, and transmission would be reduced significantly, stating that “the substitution of 3,000 MW of dispatchable units . . . would reduce the necessary new units of wind, solar, and storage by 19% (17,000 MW).”⁸

New York Intendent System Operator, Inc. (NYISO) has found similarly, stating that to meet the goals of the state’s decarbonization policies and expected peak demand “111-124 GW of generating capacity, or roughly three times the current capacity connected to the system” would be required by 2040 and that “27-45 GW of this capacity

³ James B. Robb, Written Testimony before the U.S. States Senate Committee on Energy & Nat. Resources, at 8 (June 1, 2023), <https://www.energy.senate.gov/services/files/D47C2B83-A0A7-4E0B-ABF2-9574D9990C11> (Robb Written Testimony); NERC, *2021 Long-Term Reliability Assessment*, at 5 (Dec. 2021), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2021.pdf (2021 NERC Long-Term Reliability Assessment).

⁴ Robb Written Testimony at 8-9.

⁵ 2021 NERC Long-Term Reliability Assessment at 5.

⁶ ISO-NE 2022 Study at 2-3.

⁷ *Id.* at 3.

⁸ *Id.*

must be from non-emitting resources capable of performing like today’s fossil fuel-fired generation fleet depending on the scenario.”⁹ In addition, NYISO stated that “extensive transmission investments will be necessary to deliver renewable energy across the state to consumers and address new constraints that appear across the electric system resulting from significant new resource additions.”¹⁰

- a. We keep hearing that we need to build a lot more transmission if we want to decarbonize and ensure that we still maintain a reliable grid. Should we also be talking about the need to build more gas pipeline transmission?**

Yes, policymakers should talk about how to build more natural gas pipelines to ensure the reliability of the bulk electric system. Policymakers should focus on both permitting *and* reforms to FERC-jurisdictional electric markets.

Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs) have stated that the bulk electric system is becoming increasingly dependent on natural gas generation.¹¹ In order for natural gas-generators to reliably perform and serve load, they must have access to natural gas when called upon—that is, there must be pipeline capacity available to transport natural gas to generator facilities when and at the rate that natural gas is needed. Both NERC and the RTOs/ISOs have stated that

⁹ NYISO Power Trends 2023 at 18; *see also* Midcontinent Indep. Sys. Operator, Inc., *2022 Regional Resource Assessment*, at 9 (Aug. 24, 2022), <https://cdn.misoenergy.org/20220824%20RASC%20Item%2006%20Regional%20Resource%20Assessment%20Presentation626035.pdf> (“Due to lower projected accreditation values [for non-dispatchable resources], significantly more nameplate capacity is required to supply reserve requirements and accommodate goals.”).

¹⁰ NYISO Power Trends 2023 at 18.

¹¹ In his written testimony filed with the Senate, PJM Interconnection, L.L.C. (PJM) CEO and President Manu Asthana stated, “we are becoming increasingly dependent on natural gas. Additional [natural gas] pipelines will need to be sited to meet our reliability needs.” Manu Asthana, *Written Testimony before the U.S. Senate Committee on Energy & Nat. Resources*, at 9 (June 1, 2023), <https://www.energy.senate.gov/services/files/2098C524-7B71-4D39-BFF1-295E6E75BDB7> (Asthana Written Testimony).

additional natural gas pipelines are required.¹² However, as NERC President and CEO Jim Robb observed, “few . . . pipelines are actually being planned and built.”¹³

Indeed, despite the abundance of domestic natural gas, round-the-clock access to the fuel is becoming ever more difficult. Not only has opposition to natural gas pipeline permitting intensified, federal agencies and state governments have actively obstructed infrastructure through delay and regulatory overreach.

States have also used the Clean Air Act permitting process to delay natural gas infrastructure in addition to using the Clean Water Act section 401 water quality certification process as a state veto. For instance, Iroquois Gas Transmission System, L.P.’s (Iroquois) air permits for its FERC-certificated Enhancement by Compression Project have been pending with the New York State Department of Environmental Conservation for over three years.¹⁴ If federal authorizations are not timely issued, pipeline companies often cannot begin and complete construction in time to avoid demand shortfalls.

FERC itself has played a major role in obstructing the development of natural gas pipeline infrastructure. Starting in 2021, FERC staff, working under the direction of the then-Chairman, increased the length of the environmental review process by adopting a default procedure of preparing a full Environmental Impact Statement for all projects that produced even minimal quantities of incremental emissions, instead of the much shorter

¹² Robb Written Testimony at 8 (“More transmission and natural gas infrastructure is required to improve the resilience of the electric grid.”); *Hearing to Examine the Reliability & Resiliency of Elec. Servs. in the U.S. in Light of Recent Reliability Assessments & Alerts Before the S. Comm. On Energy & Nat. Res.*, 118th Cong. (June 1, 2023), <https://www.energy.senate.gov/hearings/2023/6/full-committee-hearing-to-examine-the-reliability-and-resiliency-of-electric-services-in-the-u-s-in-light-of-recent-reliability-assessments-and-alerts> (in his opening statement, PJM President and CEO Manu Asthana testified that “while most new entry is likely to be renewable plus batteries given the composition of our queue, we will also need new natural gas resources. And so whatever we do we need to be able to enable those and the infrastructure that supports them.”).

¹³ Robb Written Testimony at 8.

¹⁴ See Marie J. French, *Pipeline owner pushes DEC to approve air permits in test of climate law*, POLITICO PRO (July 14, 2023).

Environmental Assessment which had sufficed previously.¹⁵ This change of policy added, on average, five months or 68 percent to the time it took to conduct environmental reviews for the projects under consideration.¹⁶ Further, FERC sought to completely rearrange the natural gas pipeline industry by imposing liability upon the pipeline companies for the downstream emissions caused by the end use of the natural gas that they transported and by changing the process by which project need would be established.¹⁷ Although the two policy statements that sought to impose those changes have now been converted to drafts,¹⁸ during the period of their pendency, natural gas pipeline companies operated under a cloud of profound regulatory uncertainty.¹⁹ Unfortunately, because FERC has declined to close those dockets, that regulatory uncertainty persists.²⁰

¹⁵ See Commissioner Danly November 29, 2021 Letter to Senator Barrasso, Docket Nos. CP20-27-000, et al., 8-13 (Accession No. 20211214-4001).

¹⁶ Staff informed me that the average time to process an NGA section 7 certificate application from application filing to order issuance was 15.4 months in 2022 and 10.5 months in 2021.

¹⁷ *Certification of New Interstate Nat. Gas Facilities*, 178 FERC ¶ 61,107 (2022) (Danly, Comm’r, dissenting); *Consideration of Greenhouse Gas Emissions in Nat. Gas Infrastructure Project Revs.*, 178 FERC ¶ 61,108 (2022) (Danly, Comm’r, dissenting).

¹⁸ *Certification of New Interstate Nat. Gas Facilities*, 178 FERC ¶ 61,197, at P 2 (2022) (Danly, Comm’r, concurring in part and dissenting in part).

¹⁹ See *Hearing to Review FERC's Recent Guidance on Nat. Gas Pipelines Before the S. Comm. on Energy and Nat. Res.* (March 3, 2022 Senate Hearing), 117th Cong. (2022) (Senator Barrasso quoted Alan Armstrong, the CEO of The Williams Companies, Inc., as stating the Interim GHG Policy Statement “has shrouded FERC certificate decisions in a fog of indecision.”).

²⁰ See, e.g., National Fuel Supply Corp., General Section 4 Rate Case Filing, Docket No. RP23-929 000, Ex. No. NFG-0074, at 133 of 144 (Accession No. 20230731-5076) (Prepared Direct Testimony of David J. Haag stating “[w]hile the draft policy statements remain pending before the Commission at this time, many of the changes contemplated would likely cause the construction of new or additional natural gas pipeline and storage facilities to become more difficult, requiring significantly longer lead times for review and approval. The uncertainty caused by these potential changes to

Permitting challenges are not the only reason that fewer pipelines serving gas generators have been completed. Gas-fired generators operating in RTOs and ISOs are effectively prohibited from procuring their gas through firm fuel contracts or signing precedent agreements necessary for pipelines to construct additional pipeline capacity. This is because markets do not ensure cost recovery for the acquisition of the total quantity of natural gas needed to maintain reliability. In the markets with capacity auctions, it would be probable that many (perhaps most) resources with round-the-clock firm fuel contracts would fail to clear the capacity auction because the competition from below-market (*i.e.*, government-subsidized) renewables would price them out of the market. The inevitable consequence of failing to clear the capacity auction would be that those generators would be deprived of the revenue needed to remain profitable and would be forced into retirement, notwithstanding the reliability benefits they provide.

Without the assurance of cost recovery, gas generators operating in RTOs and ISOs often rely on interruptible fuel contracts and capacity release contracts from local distribution companies. While such contracts may provide sufficient quantities of natural gas during normal conditions, they do not give gas-generators sufficient priority of service to ensure adequate supplies during periods of high demand (*i.e.*, times of scarcity). This is often the very time when gas-generation is most needed to maintain electric reliability.

b. How important is natural gas-fired generation for resource adequacy and electric reliability?

NERC, the entity charged with assessing the reliability and adequacy of the bulk power system in North America,²¹ has declared that “[n]atural gas is the reliability ‘fuel that keeps the lights on’”²² and “will remain essential to reliability for total energy and as a balancing resource . . . until very large-scale and long duration battery deployments are feasible or an alternative flexible fuel such as hydrogen, or small nuclear reactors can be

the existing 20-year-old policy has increased regulatory uncertainty and raise the business risk of regulated natural gas pipelines and storage facilities, which will in turn impact the returns required by the market for investments in the natural gas pipeline and storage industry.”).

²¹ See 16 U.S.C. § 824o(g).

²² 2021 NERC Long-Term Reliability Assessment at 5.

developed and deployed at scale.”²³ In addition, nearly every RTO and ISO has stated that dispatchable generation must be retained to meet expected peak demand and reliably operate the bulk electric system.²⁴

c. What are the obstacles to electric transmission projects that do not need federal subsidies or public funding?

The regulatory uncertainty created by the National Environmental Policy Act (NEPA) is a substantial barrier to transmission development needed for reliability and economic benefits. This is true everywhere, but it is particularly true in those parts of the

²³ Robb Written Testimony at 8-9.

²⁴ See NYISO Power Trends 2023 at 17 (“Increasing levels of intermittent generation combined with increasing demand in response to electrification are expected to result in at least 17,000 MW of existing fossil-fueled generating capacity *which must be retained* to continue to reliably serve forecasted ‘peak’ demand days in 2030.”) (emphasis added); *Hearing to Examine the Reliability & Resiliency of Elec. Servs. in the U.S. in Light of Recent Reliability Assessments & Alerts Before the S. Comm. On Energy & Nat. Res.*, 118th Cong. (June 1, 2023), <https://www.energy.senate.gov/hearings/2023/6/full-committee-hearing-to-examine-the-reliability-and-resiliency-of-electric-services-in-the-u-s-in-light-of-recent-reliability-assessments-and-alerts> (in his opening statement, PJM President and CEO Manu Asthana testified that “we will also need new natural gas resources”); ISO-NE 2022 Study at 56 (“If retired dispatchable generators are replaced by new non-dispatchable resources, this could create reliability issues.”); MISO, Comments on Proposed Good Neighbor Plan, at 3 (June 21, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0788> (“MISO is experiencing a trending decline in reserve margin, which is largely the result of the retirement of significant amounts of dispatchable generation.”); Southwest Power Pool, Inc., Comments on Proposed Good Neighbor Plan, at 4 (June 21, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0370> (“thermal resources continue to play a critical role in managing the variability of renewable resources and preserving system reliability.”); Elec. Reliability Council of Tex., Inc., Comments on Proposed Good Neighbor Plan, at 5 (June 21, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0434> (“Wind and solar generating units are, by definition, intermittent sources of generation. Solar energy dissipates fairly rapidly in the evening, creating a particular need for quick-ramping generation to offset the loss in solar power production. A sudden drop in wind in areas of the state heavy in wind generation can also create a need for substantial ramp capability. That capability must come from dispatchable forms of generation, such as gas and coal units.”).

country where it is nearly impossible to build a transmission project of any length without crossing federal land. I am concerned that recent efforts at permitting reform, while making some improvement, have failed to sufficiently address the main problem that NEPA creates—the back-end litigation risk presented in every case by the very real chance that the federal court that sits in review of a transmission project’s permits will vacate and remand those permits. Often, those vacatur and remands have been based on no more than the court’s perception that the federal agency insufficiently explained or explored some comparatively trivial issue in a complex infrastructure project.²⁵ Such flyspecking is virtually inevitable when all NEPA documents are subject to review under the Administrative Procedure Act’s default arbitrary-and-capricious standard, a low and inconsistently applied threshold that allows for what amounts to a judicial veto on federal agency decisions. Time limits for agency action and page limits for NEPA documents do not and *cannot* address this central problem. Ironically, such well-intended efforts may ultimately harm infrastructure development by exacerbating litigation risks. Federal agencies respond to the incentives that litigation risk creates, so the increasing length of NEPA documents and the longer times that agencies take to conduct environmental reviews are often no more than a sincere, if sometimes misguided, effort to address this risk. Enforcing arbitrary time or page limits will reduce the agencies’ ability to bulletproof the issuances that the agencies know will be subjected to the searching review that many federal courts apply to NEPA documents.

2. Has the reliability of our bulk power system improved or worsened over the past 5 years?

a. Please explain.

The reliability of our bulk power system is getting worse. Reliability failures are becoming more likely as dispatchable fossil fuel generation resources prematurely retire because of public policies and market failures resulting from skewed price signals. You do not have to take my word for it. In June, the Senate Energy and Natural Resources

²⁵ See, e.g., *Wild Virginia v. U.S. Forest Serv.*, 24 F.4th 915, 927-29 (4th Cir. 2022) (vacating the Forest Service permit for the Mountain Valley Project in part for failing to consider “real-world data suggesting increased sedimentation along the Pipeline route” and for failing to wait for FERC to study the conventional boring method even though information in Forest Service’s “supplemental [Environmental Impact Statement (EIS)] includes information about method, impact, safety, and environmental concerns related to convention boring”); *Sierra Club, Inc. v. U.S. Forest Serv.*, 897 F.3d 582 (4th Cir. 2018) (vacating Forest Service permit for the Mountain Valley Pipeline Project in part for failing to explain concern with sedimentation analysis).

Committee held a hearing on reliability. During this hearing, Jim Robb, the head of the North American Electric Reliability Corporation (NERC), in his opening testimony made the following statements:

- “the electric grid is operating ever closer to the edge where more frequent and more serious disruptions are increasingly likely;”
- “the foundation upon which the grid operates is out of balance;”
- “we are not making the required investments for reliability as the system transforms;”
- and there is “a general decline in the reliable generating capacity.”²⁶

²⁶ *Hearing to Examine the Reliability & Resiliency of Elec. Servs. in the U.S. in Light of Recent Reliability Assessments & Alerts Before the S. Comm. On Energy & Nat. Res.*, 118th Cong. (June 1, 2023), <https://www.energy.senate.gov/hearings/2023/6/full-committee-hearing-to-examine-the-reliability-and-resiliency-of-electric-services-in-the-u-s-in-light-of-recent-reliability-assessments-and-alerts> (opening statement of NERC President & CEO Jim Robb); *see also* Robb Written Testimony at 10 (“The transmission system is indeed highly reliable, yet the aggregate electric system is threatened by a deteriorating risk profile.”); NERC, *2023 Summer Reliability Assessment*, at 6 (May 2023), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SRA_2023.pdf (showing that much of North America has an elevated potential for shortfalls during the summer in “above-normal conditions”); Naureen S. Malik, *Summer Blackout Risks Extend to US Southeast for First Time*, BLOOMBERG LAW, (May 17, 2023), <https://news.bloomberglaw.com/environment-and-energy/summer-blackout-risks-extend-into-us-southeast-for-first-time> (quoting NERC’s Director of Reliability Assessment, John Moura, as stated that “[g]oing back at least five years, the reliability assessments have noted a steady deterioration in the risk profile of the grid” and now, “[w]inter and summer assessments show ‘the system is close to its edge’”).

In addition, when asked if he agreed that “the United States is headed for a reliability crisis,”²⁷ Jim Robb replied, “I do.”²⁸ PJM CEO Manu Asthana, at the same hearing, when asked whether he agrees that “the United States is heading for a reliability crisis,”²⁹ stated that “I do think there is an increasing risk of that.”³⁰

Other RTO/ISOs have also warned of declining reliability margins:

- NYISO in its recently published *Power Trends 2023* report stated that “[t]he retirement of fossil fueled resources driven by public policies is currently outpacing the development of new renewable energy and other dispatchable, emissions-free resources” the effect of which “is that reliability margins have thinned to concerning levels”³¹ “most acutely in New York City.”³²

²⁷ *Hearing to Examine the Reliability & Resiliency of Elec. Servs. in the U.S. in Light of Recent Reliability Assessments & Alerts Before the S. Comm. On Energy & Nat. Res.*, 118th Cong. (June 1, 2023), <https://www.energy.senate.gov/hearings/2023/6/full-committee-hearing-to-examine-the-reliability-and-resiliency-of-electric-services-in-the-u-s-in-light-of-recent-reliability-assessments-and-alerts> (statement of Senator Hoeven citing FERC Commissioners Mark Christie and James Danly).

²⁸ *Id.* (statement of NERC President & CEO Jim Robb).

²⁹ *Id.* (statement of Senator Hoeven citing FERC Commissioners Mark Christie and James Danly).

³⁰ *Id.* (statement of PJM President & CEO Manu Asthana); *see* Asthana Written Testimony at 6 (“If the rate of premature retirements continues to outpace the installation of replacement generation with the attributes necessary to maintain grid reliability, the nation may well face challenges with maintaining adequate supply to meet electric power demand.”).

³¹ NYISO Power Trends 2023 at 30.

³² *Id.* at 8.

- Southwest Power Pool, Inc. (SPP) in its *2023 SPP Resource Adequacy Report* stated, “[t]he SPP BA Area Planning Reserve Margin is 20.1% for the 2023 Summer Season and decreases to 9.7% by planning year 2028.”³³
- Midcontinent Independent System Operator, Inc. (MISO) in its 2023 survey with Organization of MISO States (OMS) projected “a capacity deficit of 2.1 GW” in planning year 2025/26 and growing to a deficit of 9.5 GW in planning year 2028/2029.³⁴

Both the head of NERC, the entity responsible for promulgating the nation’s mandatory reliability standards, and wholesale electric markets agree with me: the current pace at which dispatchable generation is retiring threatens resource adequacy and system stability.³⁵

³³ SPP, *2023 SPP Resource Adequacy Report*, at 3 (June 15, 2023), <https://www.spp.org/documents/69529/2023%20spp%20june%20resource%20adequacy%20report.pdf>.

³⁴ OMS & MISO, *2023 OMS-MISO Survey Results*, at 2, 6 (July 14, 2023), <https://cdn.misoenergy.org/20230714%20OMS%20MISO%20Survey%20Results%20Presentation629607.pdf>.

³⁵ *Hearing to Examine the Reliability & Resiliency of Elec. Servs. in the U.S. in Light of Recent Reliability Assessments & Alerts Before the S. Comm. On Energy & Nat. Res.*, 118th Cong. (June 1, 2023), <https://www.energy.senate.gov/hearings/2023/6/full-committee-hearing-to-examine-the-reliability-and-resiliency-of-electric-services-in-the-u-s-in-light-of-recent-reliability-assessments-and-alerts> (NERC President & CEO, Jim Robb, when asked by Senator Hoeven if he agreed with FERC Commissioners Mark Christie and James Danly that that “the United States is headed for a reliability crisis,”³⁵ Jim Robb replied, “I do.”); *id.* (PJM CEO Manu Asthana when asked if he agreed that “the United States is heading for a reliability crisis,” stated that “I do think there is an increasing risk of that.”).

b. If there are issues with the reliability of our grid, what policy decisions need to be made to improve reliability?

It is unquestionable that there are issues with the reliability of the bulk electric system. As stated by NERC President and CEO Jim Robb, “reliability needs to be prioritized in policy decisions.”³⁶ What can and should FERC do?

First, the Commission should take immediate action under section 206 of the Federal Power Act (FPA)³⁷ to require RTOs/ISOs to show cause as to how their existing market structures are just and reasonable given existing price distortions and growing reliability concerns, and to impose replacement rates in those markets where the current rates are found to be unjust and unreasonable.

Second, the Commission should open inquiries to explore (1) alternative mechanisms to ensure generators are compensated for the actual costs of providing power—including the cost of fuel to maintain reliability; and (2) potential market reforms that compensate generators only for the actual reliability benefits they provide.

Third, the Commission must not lose sight of a limits of our authority under the Natural Gas Act’s (NGA) public convenience and necessity standard, nor should we lose sight of the how narrow the limits of our ratemaking powers are under the FPA. The Supreme Court has explained that the inclusion of the term “public interest” in the NGA and FPA is not “a broad license to promote the general public welfare”—instead, it “take[s] meaning from the purposes of the regulatory legislation.”³⁸ The purpose of the Acts, as the Supreme Court has instructed us, is “to encourage the orderly development of plentiful supplies of electricity and natural gas at reasonable prices.”³⁹ Efforts to expand

³⁶ *Hearing to Examine the Reliability & Resiliency of Elec. Servs. in the U.S. in Light of Recent Reliability Assessments & Alerts Before the S. Comm. On Energy & Nat. Res.*, 118th Cong. (June 1, 2023), <https://www.energy.senate.gov/hearings/2023/6/full-committee-hearing-to-examine-the-reliability-and-resiliency-of-electric-services-in-the-u-s-in-light-of-recent-reliability-assessments-and-alerts> (opening statement of NERC President and CEO Jim Robb).

³⁷ 16 U.S.C. § 824e.

³⁸ *NAACP v. FPC*, 425 U.S. 662, 669 (1976) (*NAACP*).

³⁹ *Id.* at 669-70 (citations omitted); *accord Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1307 (D.C. Cir. 2015) (quoting *NAACP*, 425 U.S. at 669-70). I note that the Supreme Court has also recognized the Commission has authority to

our jurisdiction beyond that narrow remit should be abandoned, except where Congress has declared otherwise. It is evident both from the text of the statute (and the Supreme Court’s gloss) that the NGA does not confer the authority upon FERC to conduct backdoor environmental regulation from wellhead to burner tip. In order to restore regulatory certainty to the natural gas pipeline and electric industries we should immediately close the dockets on several of our open proceedings, including the now-draft Updated Certificate Policy and Interim GHG Policy Statements, both of which have been in draft form for well over a year.⁴⁰

Although outside of FERC’s authority, a final step that policymakers should immediately take is to repeal the subsidies upon which intermittent generators rely to remain profitable. Those subsidies are so lucrative that intermittent wind and solar generators typically offer into the capacity markets at a price of zero, in order to ensure that they clear the market. These artificially low offers suppress the capacity prices across the market, causing the market to clear at a lower capacity price, making it impossible for dispatchable fossil-fuel generators to clear if they bid their actual costs. The market thereby sends skewed price signals that make rational investment impossible and remove the very incentives the markets is supposed to rely upon to ensure resource adequacy. The inevitable result is the premature retirement of the dispatchable generators that actually support the reliable operation of the bulk electric system. Reliability crises and resource adequacy failures will follow.

consider “other subsidiary purposes,” such as “conservation, environmental, and antitrust questions.” *NAACP*, 425 U.S. at 670 & n.6 (citations omitted). But all subsidiary purposes are, necessarily, subordinate to the statute’s primary purpose.

⁴⁰ See *Consideration of Greenhouse Gas Emissions in Nat. Gas Infrastructure Project Revs.*, 178 FERC ¶ 61,108 (2022) (Interim GHG Policy Statement); *Certification of New Interstate Nat. Gas Facilities*, 178 FERC ¶ 61,107 (2022) (Updated Certificate Policy Statement); *Certification of New Interstate Nat. Gas Facilities*, 178 FERC ¶ 61,197, at P 2 (2022) (making the Updated Certificate Policy Statement and Interim GHG Policy Statement drafts).

c. Will interregional transmission lines improve the reliability of our electric grid?

As NERC stated in its *2022 Long-Term Reliability Assessment*, “most [transmission] project miles are initiated to support grid reliability.”⁴¹ However, NERC also stated that “projects for renewable integration are increasing.”⁴² This trend toward projects initiated for renewable integration will only continue—likely at an ever-increasing rate. Asset managers seeking to harvest the subsidies for renewable generation contained in the Inflation Reduction Act of 2022⁴³ cannot do so without the ability to interconnect their remotely located facilities to load. The National Renewable Energy Laboratory found that between 1,400 and 10,100 miles of additional new high-capacity lines *per year* would need to be added to transition to a generation fleet based on renewables.⁴⁴ To place that number in context, currently there are cumulatively 15,495 miles of transmission in construction or stages of development over the next 10 years.⁴⁵ It is worth repeating that weather dependent renewable generation does not have the reliability attributes necessary to ensure long-term system stability.

3. How are ISOs/RTOs and wholesale electricity markets impacting the price and availability of dispatchable electricity generation?

Wholesale electricity markets, with FERC’s complicity, have suppressed prices and are driving existing dispatchable generation to early retirement. Because of this price suppression, there is little incentive for the entry of new generation with necessary reliability attributes. This situation is the result, in part, of the elimination of rules that

⁴¹ NERC, *2022 Long-Term Reliability Assessment*, at 22 (Dec. 2022), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2022.pdf (2022 Long-Term Reliability Assessment).

⁴² *Id.*

⁴³ Pub. L. No. 117-169, 136 Stat. 1818 (2022).

⁴⁴ National Renewable Energy Laboratory, *Examining Supply-Side Options to Achieve 100% Clean Electricity by 2035*, at xi (2022), <https://www.nrel.gov/docs/fy22osti/81644.pdf>.

⁴⁵ 2022 Long-Term Reliability Assessment at 22.

protected the market against market manipulation by subsidized renewable resources.⁴⁶ These resources use the subsidies to dump their “supply” into the market at artificially low prices (at an offer price of zero, in fact), thereby manipulating the downward-sloping demand curve to produce lower prices for all other supply.

If the price signals are distorted by external, price-suppressing subsidies, the capacity markets will be unable to send the accurate price signals needed to create incentives for a sufficient quantity of new capacity to meet system demand. Even worse, the external subsidies are designed to favor a particular category of resources (largely wind and solar) which do not have the reliability attributes necessary to ensure long-term system stability. To see the price-warping effects of government subsidies, one need to only look at the fact that although PJM has begun warning of impending generation scarcity, the prices in its most recent procurement auction went *down*.⁴⁷ Prices should increase as supply decreases under the downward-sloping demand curve, and they would be increasing if the market were not being manipulated to artificially reduce prices.⁴⁸

⁴⁶ See, e.g., *ISO New England Inc.*, 179 FERC ¶ 61,139 (2022) (Danly, Comm’r, dissenting) (evisceration of minimum offer price rule); *N.Y. Indep. Sys. Operator, Inc.*, 179 FERC ¶ 61,102 (2022) (Danly, Comm’r, concurring in part and dissenting in part) (evisceration of buyer side mitigation); FERC Staff, September 29, 2021 Notice of Filing Taking Effect by Operation of Law, Docket No. ER21-2582-000 (Accession No. 20210929-3009); see also Statement of Commissioner James P. Danly, Docket No. ER21-2582-000 (Oct. 27, 2021) (Accession No. 20211027-4003) (opposing the evisceration of the Minimum Offer Price Rule).

⁴⁷ See PJM Interconnection, L.L.C., PJM Capacity Auction Procures Adequate Resources, at 1 (Feb. 27, 2023), <https://www.pjm.com/-/media/about-pjm/newsroom/2023-releases/20230227-pjm-capacity-auction-procures-adequate-resources.ashx> (“The auction produced a price of \$28.92 MW-day for much of the PJM footprint, compared to \$34.13/MW-day for the 2023/2024 auction in May 2022 . . .”).

⁴⁸ See, e.g., FERC Staff, September 29, 2021 Notice of Filing Taking Effect by Operation of Law, Docket No. ER21-2582-000 (Accession No. 20210929-3009); see also Statement of Commissioner James P. Danly, Docket No. ER21-2582-000 (Oct. 27, 2021) (Accession No. 20211027-4003) (opposing the evisceration of the Minimum Offer Price Rule); *PJM Interconnection, L.L.C.*, 178 FERC ¶ 61,020 (2022) (Danly, Comm’r, dissenting) (opposing elimination of 10% adder in modeling energy market offers); Statement of Commissioner James P. Danly, Docket Nos. EL19-58-006, et al. (Jan. 20, 2022) (Accession No. 20220120-3114) (dissenting to order *PJM Interconnection, L.L.C.*,

Although we have yet to see the full effects of these policy decisions, they will inevitably have real-world consequences as the markets experience ever greater scarcity and are unable to attract the investment in the generation assets required to ensure that the electric system remains stable. Reliability failures will ultimately result, which is why FERC must act now to ensure the integrity of our markets by protecting them from the effects of subsidies.

a. What actions should Congress take to address that situation?

Congress should repeal market warping subsidies.

b. Are dispatchable generation, such as natural gas, coal, and nuclear, correctly valued in these wholesale electricity markets?

No, prices are too low for the markets to retain the existing (or attract new) dispatchable generation that is necessary to ensure reliability.⁴⁹ Wholesale electricity markets are allowing subsidized renewables to drive dispatchable generation out of business. This is most evident in PJM. Despite PJM's warnings of the impending scarcity of generation, the prices in its most recent procurement auction went *down*.⁵⁰ Prices should be increasing as supply decreases under the downward-sloping demand

177 FERC ¶ 61,209 (2021), reversing recently approved reserve market reforms); *Indep. Mkt. Monitor for PJM v. PJM Interconnection, L.L.C.*, 176 FERC ¶ 61,137 (2021) (Danly, Comm'r, dissenting), *order addressing arguments raised on reh'g*, 178 FERC ¶ 61,121 (2022) (Danly, Comm'r, dissenting) (opposing unit-specific mitigation review of all seller capacity offers).

⁴⁹ See *PJM's capacity-auction results signal continuation of troubling trends*, PJM Power Providers Group (June 22, 2022), <https://www.p3powergroup.com/siteFiles/News/C90C8C039CF428BB732F77623B2E98FE.pdf>.

⁵⁰ See *PJM Interconnection, L.L.C., PJM Capacity Auction Procures Adequate Resources*, at 1 (Feb. 27, 2023), <https://www.pjm.com/-/media/about-pjm/newsroom/2023-releases/20230227-pjm-capacity-auction-procures-adequate-resources.ashx> (“The auction produced a price of \$28.92 MW-day for much of the PJM footprint, compared to \$34.13/MW-day for the 2023/2024 auction in May 2022 . . .”).

curve, and they would be increasing if the market was not being manipulated by subsidized resources to artificially reduce prices.⁵¹

In addition, market rules are not structured to compensate generators for the actual costs of providing power—such as the cost of fuel. Gas-fired generators, by and large, are effectively prohibited from procuring their gas through firm fuel contracts. Assuming the gas-fired generators were permitted by the markets to offer their full costs, including the costs of their firm fuel contracts, it would be probable that, in the markets with capacity auctions, many (perhaps most) resources with round-the-clock firm fuel contracts would fail to clear the capacity auction because the competition from below-market renewables would price them out of the market.

The Honorable Michael Burgess, M.D.

- 1. Are you concerned that the EPA Good Neighbor Rule that requires retrofits of many compressor engines in 20 states all before May 1, 2026, with only limited ability to request additional time could jeopardize the reliability of the grid?**

Yes, I am concerned that the implementation of the EPA's Good Neighbor Plan will contribute to the decline of the reliability of the nation's bulk electric system. The Good Neighbor Plan is one of several policies forcing the early retirement of flexible,

⁵¹ See, e.g., FERC Staff, September 29, 2021 Notice of Filing Taking Effect by Operation of Law, Docket No. ER21-2582-000 (Accession No. 20210929-3009); see also Statement of Commissioner James P. Danly, Docket No. ER21-2582-000 (Oct. 27, 2021) (Accession No. 20211027-4003) (opposing the evisceration of the Minimum Offer Price Rule); *PJM Interconnection, L.L.C.*, 178 FERC ¶ 61,020 (2022) (Danly, Comm'r, dissenting) (opposing elimination of 10% adder in modeling energy market offers); Statement of Commissioner James P. Danly, Docket Nos. EL19-58-006, et al. (Jan. 20, 2022) (Accession No. 20220120-3114) (dissenting to order *PJM Interconnection, L.L.C.*, 177 FERC ¶ 61,209 (2021), reversing recently approved reserve market reforms); *Indep. Mkt. Monitor for PJM v. PJM Interconnection, L.L.C.*, 176 FERC ¶ 61,137 (2021) (Danly, Comm'r, dissenting), *order addressing arguments raised on reh'g*, 178 FERC ¶ 61,121 (2022) (Danly, Comm'r, dissenting) (opposing unit-specific mitigation review of all seller capacity offers).

dispatchable generation without thoughtful consideration of when the retired generation will be replaced and with the necessary reliability attributes.⁵²

The rule requires that by 2030 electric generating units (EGU) without selective catalytic reduction (SCR) controls must either install them or reduce generation during the five-month ozone season.⁵³ Based on the EPA’s supporting analysis, some have projected that 79 coal-fired units totaling 42 GW of energy capacity (that is, over a fifth of existing coal generation)⁵⁴ do not have SCR technology.⁵⁵

As EPA states, installing SCR technology is a “substantial investment.”⁵⁶ Indeed, PacifiCorp estimated that “an SCR will cost from \$150-200 million per unit . . . translat[ing] to nearly \$1.5-2.0 billion dollars for the ten PacifiCorp units

⁵² See, e.g., MISO, *Improvements to Att. Y Retirement Process*, at 2 (Apr. 27, 2022), <https://cdn.misoenergy.org/20220427%20PAC%20Item%2005%20Improvements%20to%20Att%20Y%20Retirement%20Process%20Presentation624202.pdf> (stating that “[a]mong other factors, Environmental Protection Agency (EPA) regulations” specifically the Coal Ash Regulations and the “Good Neighbor” Rule “are also rushing generation to retirement”); New York Indep. Sys. Operator, Inc., *2023 Power Trends: A Balanced Approach to a Clean & Reliable Grid*, at 11 (2023), <https://www.nyiso.com/documents/20142/2223020/2023-Power-Trends.pdf/7f7111e6-8883-7b10-f313-d11418f12fbf> (“Adding to the challenge is pressure to eliminate fossil fuel generating resources from the grid, which has the net effect of causing generation to exit the grid faster than new resources can be added. The most pressing example of these forces is the New York State Department of Environmental Conservation’s “Peaker Rule” . . . impacting approximately 3,300 megawatts (MW) of dispatchable and flexible electricity generation.”).

⁵³ 88 Fed. Reg. 36,654, 36,762 (June 5, 2023).

⁵⁴ Energy Information Administration, *As U.S. coal-fired capacity and utilization decline, operators consider seasonal operation* (Sept. 1, 2020) (stating that closures decreased the capacity to less than 200 GW).

⁵⁵ The National Rural Electric Cooperative Association, Comments on Proposed Good Neighbor Plan, at 15 (June 21, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0409>.

⁵⁶ 88 Fed. Reg. at 36,771.

potentially subject to the 2026 SCR requirement.”⁵⁷ While some owners may install this technology, I am concerned (as have been nearly every Regional Transmission Organization (RTO) operating in affected states)⁵⁸—that most will not. I find it hard to imagine that it would be economic to invest \$150 million per unit when the next pollution control requirement—such as the recently issued proposed rulemaking requiring coal and

⁵⁷ Berkshire Hathaway Energy Co., Comments on Proposed Good Neighbor Plan, at 29 n.78 (June 21, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0554>.

⁵⁸ MISO, Comments on Proposed Good Neighbor Plan, at 4 (June 21, 2023), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0788> (“MISO is concerned that the Proposed Rule could cause generator retirements due to the limitations on operations and/or the cost of installing Selective Catalytic Reduction (“SCR”) and other technology improvements that may otherwise be required. Furthermore, to the extent units do not retire, their ability to operate could be limited by the Proposed Rule, which depending on the region and level of flexibility within the rule, could present a distinct reliability challenge.”); Southwest Power Pool, Inc., Comments on Proposed Good Neighbor Plan, at 2 (June 21, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0370> (“The Proposed Rule may impact approximately 40,000 MW of coal and gas generation in six states with assets operating in the SPP footprint.”) (SPP Proposed Good Neighbor Plan Comments); *id.* (“SPP has concerns that any reduction in operations will pose a threat of reliability in the form of reduced generation capacity. Even without the impacts of the Proposed Rule, SPP has experienced scarce supply conditions and is predicting that those conditions will worsen over the coming planning horizon.”); Elec. Reliability Council of Tex., Inc., Comments on Proposed Good Neighbor Plan, at 4-5 (June 21, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0434> (“ERCOT understands that as much as 10,8000 MW of capacity in the ERCOT region—8,200 MW of coal-fired generation and 2,600 MW of gas-fired generation—is at risk of retirement due to the SCR mandate. . . . A significant increase in retirements of thermal generating units due to the Transport FIP will increase the likelihood that the generation supply in the ERCOT region will not be sufficient to serve customer load.”); PJM, Comments on Proposed Good Neighbor Plan, at 14 (June 21, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0412> (“The concurrent risk, however, is that units may choose to retire (deactivate) or be unable to operate due to an emissions-related operational limitation.”) (PJM Proposed Good Neighbor Plan Comments).

gas-fired power plants to limit greenhouse gases⁵⁹—will shut down operations within ten years. What does this mean? Reduced dispatchable generation capacity, either from outright retirement or forced reduced output, when most of the country is already, or soon will be, experiencing severe shortages of generation capacity.

Based on false assumptions, the EPA denies that the Good Neighbor Plan “would threaten resource adequacy or otherwise degrade electric system reliability”⁶⁰ and declines to establish a reliability safety valve to address short-term declared system emergencies.⁶¹ The EPA *assumes* the retired or reduced generation will be adequately replaced by 2030.⁶² This is highly unlikely. It takes significant time to obtain regulatory approvals to construct new generation and needed transmission facilities. SPP stated that in its footprint, “it can take up to *ten years or more* to plan, approve, and construct

⁵⁹ 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) (to be codified at 40 CFR part 60, subpart UUUUb); *see also* Patrick O’Loughlin, President and Chief Executive Office for Buckeye Power, Inc. and Ohio Rural Electric Cooperatives, Before the U.S. House Committee on Energy and Commerce, Hearing on Clean Power Plan 2.0: EPA’s Latest Attack on America’s Electric Reliability, at 3 (June 6, 2023), https://d1dth6e84htgma.cloudfront.net/06_06_23_Testimony_O_Loughlin_a1b32514ac.pdf?updated_at=2023-06-05T13:27:30.695Z (“If enacted, [the rule] will jeopardize nearly every coal-fired power plant by 2039 and most by 2030. . . . Buckeye Power will be required to shut down all of our coal-fired units by 2030 with no hope of nearly replacing this energy within that timeframe.”).

⁶⁰ 88 Fed. Reg. at 36,771.

⁶¹ *Id.* at 36,774 (“The EPA is not adopting the suggestion to replicate the so-called ‘safety valve’ mechanism . . .”).

⁶² *Id.* at 36,771 (“[S]ome EGU owners will conclude that, all else being equal, retiring a particular EGU and replacing it with cleaner generating capacity is likely to be a more economic option from the perspective of the unit’s customers and/or owners than making substantial investments in new controls at the unit.”); *id.* at 36,772 (“where an EGU would prefer to *retire and replace* an uncontrolled EGU rather than to install new controls”) (emphasis added).

transmission facilities that would be required for new generation.”⁶³ Moreover, as the Commission’s recently issued Interconnection Rule acknowledges, generating facilities that were built in 2022 had to wait “*roughly five years*” to interconnect to the transmission system.⁶⁴

EPA further *assumes* that “any resulting unit retirements will be carried out through an orderly process in which RTOs, balancing authorities, and state regulators use their powers to ensure that electric system reliability is protected.”⁶⁵ There is *no* basis for such an assumption. As PJM informed the EPA, “PJM cannot direct the construction or operation of particular generating units nor require upgrades to those generation units” and that “[r]egardless of whether deactivating the generating unit would adversely affect the reliability of the transmission system, the generator may deactivate its generating unit, subject to the notice requirements in the PJM Tariff.”⁶⁶ As for state regulators, some state public utility commissions have limited to no authority over merchant generators.⁶⁷ While the operators of the bulk electric system are extremely capable and will doubtless do their best to minimize disorder as they lose the dispatchable generation assets upon which they depend to ensure reliability, they cannot be expected to do the impossible. Depending on the pace of retirements, the situation facing balancing authorities across the country is akin to that of the crew of the Titanic attempting to ensure an orderly evacuation of a ship with insufficient lifeboat capacity—at some point, the problem becomes insoluble.

⁶³ SPP Proposed Good Neighbor Plan Comments at 4 (emphasis added).

⁶⁴ *Improvements to Generator Interconnection Procedures & Agreements*, 184 FERC ¶ 61,054, at P 39 (2023) (emphasis added); *see also* Evergy, Inc., Comments on Proposed Good Neighbor Rule, at 11 (June 20, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0302> (commenting on long RTO backlogs to approve new generation additions).

⁶⁵ 88 Fed. Reg. at 36,771.

⁶⁶ PJM Proposed Good Neighbor Plan Comments at 4.

⁶⁷ National Association of Regulatory Utility Commissioners, *Resource Adequacy Primer for State Regulators*, at 50 n.61 (July 2021), <https://pubs.naruc.org/pub/752088A2-1866-DAAC-99FB-6EB5FEA73042> (“Some state public utility commissions have authority only over [investor-owned utilities], whereas other states do have jurisdiction over publicly owned utilities.”).

To make matters worse, the Good Neighbor Plan will constrain (in some regions, further constrain) the natural gas system, limiting access to fuel for gas-fired generators. The rule requires that certain non-electric compressor units used to transport gas through the interstate pipeline system—which the Interstate Natural Gas Association of America (INGAA) estimated in its comments on the proposed rule amounts to 1,380 units⁶⁸—*all* have new pollution controls installed by 2026. The rule does not stagger compliance. It does not permit pipelines to coordinate when units will be taken offline.

Put simply, pipelines will have to take affected units offline *simultaneously*, reducing throughput throughout the nation because the natural gas pipeline system is highly integrated. As stated by a natural gas pipeline company, “[w]ith pipeline engines for multiple companies being off-line at the same time, the options for temporarily re-routing the flow of natural gas to end users could be severely limited and threaten the overall reliability of our nation’s pipeline grid.”⁶⁹

Throughput will not simply be reduced for a short duration during non-peak periods. Pipeline companies informed the EPA that there are “very few manufacturers [that are] capable of retrofitting units”⁷⁰ and that one of the manufacturers “indicated that it would only be able to modify 20 or 30 Engines a year, across all of industry.”⁷¹ One pipeline company identified data from a past EPA rulemaking that “demonstrates that only about 75 engines a year can be retrofitted on a sustained basis.”⁷² If there are 1,380 affected units and only 75 can be retrofitted each year, that would mean it would take *over 18 years* to retrofit all of the affected compressor units, extending over 34 peak

⁶⁸ INGAA, Comments on Proposed Good Neighbor Plan, at 9 (June 21, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0501>. In its Motion for Stay of the final Good Neighbor Plan, INGAA stated that its “members believe that approximately 1,220 pipeline engines will require controls to comply with the Final Rule.” INGAA & American Petroleum Institute Motion for Stay, Yager Dec. ¶ 9, No. 23-1193, July 27, 2023 (INGAA Motion for Stay).

⁶⁹ *See id.* Tarr Dec. ¶ 11.

⁷⁰ *See, e.g.,* Kinder Morgan, Comments on Proposed Good Neighbor Plan, at 36 (June 21, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0350>.

⁷¹ *Id.* at 28.

⁷² TC Energy, Comments on Proposed Good Neighbor Plan, at 2 (June 21, 2022), <https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0668-0380>.

winter and summer seasons. Pipeline companies, however, do not have 18 years to come into compliance. The Good Neighbor Plan requires compliance within 31 months, by May 1, 2026, with some extensions given on a case-by-case basis.⁷³ If pipelines cannot comply by the deadline, hundreds of compressor units are expected to remain idle for over a decade. The effect of throughput reduction will be most acutely felt in regions already experiencing supply constraints. Areas like New England are already severely constrained and cannot afford to have *any* capacity taken offline.

Moreover, the Good Neighbor Plan's effects on residential natural gas customers (71.9 million in 2021)⁷⁴ cannot be overlooked. According to Kinder Morgan, Inc. (Kinder Morgan), in order to comply with the rule on just one segment of its Natural Gas Pipeline Company of America LLC pipeline, which "provides approximately 60 percent of the natural gas to the Chicago market," it would have to fail to provide 587,000 Dekatherms per day of natural gas that "equates to an inability to provide the natural gas necessary to heat approximately 1,761,000 homes" and would result in a "20 percent overall deficit in meeting the Chicago market peak demand on winter days."⁷⁵ Again, the effect of this throughput will be most acutely felt in regions already experiencing supply constraints.⁷⁶

Although EPA responds to arguments regarding how the EGU portion of its rule affects electric reliability, to my knowledge, the EPA does not ever consider the impacts that the timeline for compliance for non-EGUs would have on electric reliability or

⁷³ 88 Fed. Reg. at 36,760 (discussing how first and second compliance extension requests will be evaluated).

⁷⁴ Energy Information Administration, Number of Natural Gas Consumers, https://www.eia.gov/dnav/ng/ng_cons_num_a_EPG0_VN3_Count_a.htm.

⁷⁵ INGAA Motion for Stay, Grubb Dec. ¶ 66.

⁷⁶ For example, during Winter Storm Elliot, the local distribution companies serving New York City requested that customers reduce natural gas usage because of interstate natural gas pipeline disruptions. *See* Con Edison, *Con Edison Urges Customers to Conserve Energy Due to Heavy Demand on Interstate Gas Pipelines* (Dec. 24, 2022), <https://www.coned.com/en/about-us/media-center/news/2022/12-24/con-edison-urges-customers-to-conserve-energy--due-to-restrictions-on-interstate-gas-pipelines>; National Grid, *National Grid Asks All Customers in Downstate New York to Immediately Reduce Gas Usage* (Dec. 24, 2022), <https://www.nationalgridus.com/News/2022/12/National-Grid-Asks-All-Customers-in-Downstate-New-York-to-Immediately-Reduce-Gas-Usage/>.

residential uses. EPA’s failure to do so runs counter to Executive Order 13211 which directs agencies to consider the effects of their regulations on “the supply, distribution, and use of energy.”⁷⁷

2. Did EPA consult with the FERC on impacts to reliability from the Good Neighbor Rule?

Consultation and communication between FERC and other federal agencies typically occur at the FERC staff level, as supervised by the Chairman.⁷⁸ At my request, FERC staff informed me that its only contact with the EPA regarding the Good Neighbor Plan was in 2022 to discuss comments received by affected RTOs and Independent System Operators. The EPA did not ask any question about how requiring nearly 1,400 natural gas compressor stations to be replaced or retrofitted within a narrow window could reduce already constrained capacity and affect electric reliability. I am also not aware of the Office of Management and Budget’s Office of Information and Regulatory Affairs consulting with FERC on the consequences the rule would have on the supply, distribution, and use of energy as required by Executive Order 13211.⁷⁹

FERC recently announced it will convene a technical conference on November 9, 2023, to discuss the projected electric reliability consequences of the EPA’s proposed rulemaking requiring coal and gas-fired power plants to limit greenhouse gases.⁸⁰ My hope is that as part of those conferences, reliability effects of the Good Neighbor Plan will be evaluated, and solutions identified.

⁷⁷ E.O. 13211 (May 21, 2001).

⁷⁸ *See* 42 U.S.C. § 7171(c) (“The Chairman shall be responsible on behalf of the Commission for the executive and administrative operation of the Commission, including . . . the supervision of personnel employed by or assigned to the Commission.”).

⁷⁹ E.O. 13211, § 2(c).

⁸⁰ FERC, Notice of Reliability Technical Conference, Docket No. AD23-9-000 (Aug. 3, 2023); *see also* U.S. Senators John Barrasso & Shelley Moore Capito, June 30, 2023 Letter to FERC Chairman Phillips and Commissioners (Accession No. 20230703-4000) (requesting FERC convene a technical conference).

The Honorable Bill Johnson

1. **It appears that all interstate pipelines other than water pipelines are subject to one of three federal laws. The (1) Natural Gas Act provides FERC jurisdiction over the interstate transportation of “natural gas,” 15 U.S.C. § 717, the (2) Interstate Commerce Act provides FERC jurisdiction over the interstate transportation of “oil,” 49 U.S.C. app. §§ 1, et seq. (1988), and the (3) Interstate Commerce Commission Termination Act provides the Surface Transportation Board with jurisdiction over the interstate transportation of “commodit[ies] other than water, gas, or oil.” 49 U.S.C. § 15301(a).**
 - a. **There is a substantial amount of precedent interpreting each of these statutory terms, both from the agencies and the courts. Which of these statutes do you believe applies to interstate hydrogen pipelines, and why?**

As a FERC Commissioner, I am not well situated to offer counsel on the precedent regarding the Surface Transportation Board’s (STB) jurisdiction under the Interstate Commerce Commission Termination Act.

As for the applicability of the Interstate Commerce Act (ICA) or the Natural Gas Act (NGA) to hydrogen pipelines, the Commission has not had occasion to evaluate the issue directly. In my view, hydrogen pipelines are unlikely to be subject to either statute and the Commission very probably lacks jurisdiction.

To evaluate whether the Commission has jurisdiction under the ICA, the Commission would have to determine whether the hydrogen pipeline “engaged in . . . [t]he transportation of oil or other commodity, except water and except natural or artificial gas, by pipe line, or partly by pipe line and partly by railroad or by water.”⁸¹ The Commission makes this finding by evaluating “(1) whether the commodity is a fuel source in that it has heating value and is used for energy-related purposes; (2) whether the

⁸¹ 49 U.S.C. § 1(1). Congress subsequently passed the Department of Energy Organization Act (DOE Act) in 1977, which transferred to FERC “such functions set forth in the [ICA] and vested by law in the Interstate Commerce Commission or the Chairman and members thereof as relate to transportation of oil by pipeline.” Pub. L. No. 95-91, § 306, 91 Stat. 565, 581 (1977); *see also* 49 U.S.C. § 60502; *see also CF Indus., Inc. v. FERC*, 925 F.2d 476 (D.C. Cir. 1991) (discussing FERC’s authority under the DOE Act).

cost of transportation will have an impact on energy markets; and (3) whether the commodity will compete with oil or other refined products for capacity in the pipeline.”⁸²

The Department of Energy states that hydrogen is currently transported by pipeline in its gaseous state in regions with substantial demand and by truck in either its liquid or gaseous state in regions where demand is smaller or emerging.⁸³ The most recent jurisdictional determination came from the former Interstate Commerce Commission (ICC) which held that “Congress intended to exclude from [its] jurisdiction [under the ICA] all gas types regardless of origin or source.”⁸⁴ Hydrogen, if transported by pipeline, would be virtually certain to be transported as a gas—to do so as a liquid would require it (assuming standard pressures) to be cooled to and kept below -423°F (20° K).⁸⁵ Under the ICC’s holding, therefore, hydrogen transportation by pipeline would be non-jurisdictional.

Nevertheless, if the transportation of hydrogen by pipeline is found to fall within the jurisdiction conferred by the ICA, hydrogen pipelines would become common carriers, meaning that hydrogen pipelines would have to offer to transport hydrogen at the same rates and terms to all interested shippers. Hydrogen pipelines could not agree to negotiated rates for specific shippers. In addition, the Commission would only have authority to regulate the rates and services of hydrogen pipelines; the Commission would have no power to site hydrogen pipelines or authorize a certificate for a hydrogen pipeline that conveys eminent domain authority.

To determine whether hydrogen pipelines are jurisdictional under the NGA, the Commission would have to determine whether the pipeline engaged in the “transportation of natural gas in interstate commerce.”⁸⁶ The NGA defines “natural gas” as meaning

⁸² *Palmetto Prods. Pipe Line LLC*, 151 FERC ¶ 61,090, at P 30 (2015) (discussing *Gulf Cent. Pipeline Co.*, 50 FERC ¶ 61,381 (1990), *aff’d*, *CF Indus., Inc. v. FERC*, 925 F.2d 476).

⁸³ *Hydrogen Delivery*, DEPARTMENT OF ENERGY, <https://www.energy.gov/eere/fuelcells/hydrogen-delivery> (last visited Aug. 1, 2023).

⁸⁴ *Cortez Pipeline Co.*, 45 Fed. Reg. 85,177, 85,178 (Dec. 24, 1980).

⁸⁵ *Liquid Hydrogen Delivery*, DEPARTMENT OF ENERGY, <https://www.energy.gov/eere/fuelcells/liquid-hydrogen-delivery> (last visited Aug. 1, 2023).

⁸⁶ 15 U.S.C. § 717(b).

“natural gas unmixed, or any mixture of natural and artificial gas.”⁸⁷ The Commission does not have jurisdiction over pipelines transporting purely artificial gas, that is, when “the product gas is artificially created by the agency of man.”⁸⁸ Hydrogen is an artificial gas.⁸⁹

Further, the Commission only assumes jurisdiction over pipelines when doing so would advance a goal or purpose of the NGA⁹⁰—that is, when it would be consistent with the NGA’s objective of “encourag[ing] the orderly development of plentiful supplies of . . . natural gas at reasonable prices.”⁹¹ Based on this analysis, FERC has found that a pipeline transporting predominantly carbon dioxide in interstate commerce which produced a small amount of methane that was never separated or sold was not within its jurisdiction.⁹² A similar analysis would likely apply to hydrogen pipelines and the Commission would, therefore, likely lack jurisdiction under the NGA.

If, however, the Commission is found to have jurisdiction over hydrogen pipelines under the NGA, the transportation and sale of hydrogen will be considered as “affected with a public interest.”⁹³ In addition, the Commission will have authority to conduct

⁸⁷ *Id.* § 717a(5).

⁸⁸ *Nat. Gas Pipeline Co. of Am.*, 53 FPC 802, 804 (1975).

⁸⁹ *Hydrogen Production*, Department of Energy, <https://www.energy.gov/eere/fuelcells/hydrogen-production> (last visited Aug. 1, 2023) (stating that hydrogen “doesn’t typically exist by itself in nature and must be produced from compounds that contain it.”).

⁹⁰ *See Cortez Pipeline Co.*, 7 FERC ¶ 61,024, at 61,041 (1979) (stating that the issue of how to define “natural gas” “should be determined primarily by reference to the goals and purposes of the NGA”) (citations omitted). The Supreme Court counsels that “[i]n determining the meaning of the statute, [one] look[s] not only to the particular statutory language, but to the design of the statute as a whole and to its object and policy.” *Crandon v. United States*, 494 U.S. 152, 158 (1990) (citations omitted).

⁹¹ *NAACP v. FPC*, 425 U.S. 662, 669-70 (1976) (citations omitted).

⁹² *Cortez Pipeline Co.*, 7 FERC ¶ 61,024.

⁹³ 15 U.S.C. § 717(a).

hearings concerning the lawfulness of rates,⁹⁴ investigate market manipulation in connection with the purchase or sale of hydrogen or transportation services,⁹⁵ fix rates and charges,⁹⁶ regulate the construction of hydrogen pipeline facilities and abandonment of transportation and service,⁹⁷ facilitate price transparency in those markets,⁹⁸ and subject pipelines to penalties of up to \$1,000,000 per day per violation of “any rule, regulation, restriction, condition, or order made or imposed by the Commission.”⁹⁹ Hydrogen pipelines, once certificated, would also be accorded the right to acquire land by the exercise of eminent domain—a formidable power.¹⁰⁰

I acknowledge that there is interest in hydrogen given the subsidies in the Inflation Reduction Act¹⁰¹ and the Environmental Protection Agency’s recently published proposed rulemaking on New Source Performance Standards for Greenhouse Gases that in effect mandates the installation of carbon sequestration technology or the co-firing of hydrogen.¹⁰² However, many have stated that the transportation of hydrogen in interstate gas pipelines is not without its challenges. The Congressional Research Service (CRS) has described how hydrogen, due to its molecular size, is more prone to leaking from pipelines than methane and can also cause “embrittlement” of the materials from which

⁹⁴ *Id.* § 717c.

⁹⁵ *Id.* § 717c-1.

⁹⁶ *Id.* § 717d.

⁹⁷ *Id.* § 717f(b), (c).

⁹⁸ *Id.* § 717t-2.

⁹⁹ *Id.* § 717t-1(a).

¹⁰⁰ *Id.* § 717f(h).

¹⁰¹ Pub. L. No. 117-169, 136 Stat. 1818 (2022).

¹⁰² 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) (to be codified at 40 CFR part 60, subpart UUUUb).

natural gas pipelines are commonly constructed.¹⁰³ This embrittlement “can lead to acute pipeline failure or may generally reduce the service life of a pipeline.”¹⁰⁴ While there may be ways to develop new pipelines that are suited to a hybrid role, the CRS concludes that “[w]hen hydrogen is introduced into pipelines originally designed to transport natural gas . . . [it] can create greater safety risks than those in dedicated hydrogen pipelines.”¹⁰⁵

As a final matter, it is worth noting that hydrogen has a number of physical characteristics that may make it impractical as a replacement for natural gas or other hydrocarbons in the economy, at least on a significant scale. “Hydrogen has the highest energy content of any common fuel by weight . . . , but it has the lowest energy content by volume.”¹⁰⁶ This has serious implications for the practicality (and commercial viability) of transporting large volumes of hydrogen over substantial distances. Pipeline capacity is scarce and therefore valuable. The opportunity costs of transporting a low energy density fuel, necessarily displacing higher energy density fuel in the process, would likely raise the overall cost of energy significantly.

Also, “it takes more energy to produce hydrogen (by separating it from other elements in molecules) than hydrogen provides when it is converted to useful energy.”¹⁰⁷ This raises profound questions about the practicality of producing the quantities of hydrogen that would be needed for a “hydrogen economy.” A vast amount of surplus energy would be needed to supply enough hydrogen to replace natural gas.¹⁰⁸

¹⁰³ Congressional Research Service, *Pipeline Transportation of Hydrogen: Regulation, Research, and Policy*, at 3 (Mar. 2, 2021), <https://crsreports.congress.gov/product/pdf/R/R46700>.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 4.

¹⁰⁶ *Hydrogen explained*, U.S. ENERGY INFORMATION ADMINISTRATION, <https://www.eia.gov/energyexplained/hydrogen/> (last visited Aug. 1, 2023).

¹⁰⁷ *Id.*

¹⁰⁸ For more on the practical limitations of hydrogen see Michael Liebreich, *The Unbearable Lightness of Hydrogen*, BloombergNEF (Dec. 12, 2022), <https://about.bnef.com/blog/liebreich-the-unbearable-lightness-of-hydrogen/>.

Since it appears, at best, questionable that hydrogen pipelines would be jurisdictional under either the NGA or the ICA, if Congress wants hydrogen pipelines to be subject to federal regulation, it should consider legislation to unambiguously assign that jurisdiction to some agency.

b. Additionally, what is FERC’s jurisdiction for intrastate hydrogen pipelines today?

While FERC has not been presented with such issue, it is unlikely that FERC would have jurisdiction over intrastate hydrogen pipelines. As I discuss above, it is at best questionable that the transportation of pure hydrogen would be jurisdictional under either the NGA or the ICA. Furthermore, the NGA specifically excludes the transportation of natural gas in intrastate commerce from FERC’s jurisdiction.¹⁰⁹ Similarly, “there is no dispute that FERC lacks a general regulatory power over oil in intrastate commerce” under the ICA.¹¹⁰

2. You wrote in September 2021, you discussed your quote, “lingering apprehension that the Commission may not actually have authority to oversee the safety of liquefied natural gas (LNG) facilities under section 3 of the Natural Gas Act (NGA)...” And you noted that quote “there is no language in the NGA that explicitly grants power to either the Commission or the Department of Energy to take responsibility for LNG safety.”

a. Can you share with the committee your perspective on FERC’s authority for LNG safety and the cause of your apprehension? Are you still concerned about the Commission’s interpretation of its authority?

¹⁰⁹ 15 U.S.C. § 717(b) (“The provisions of this chapter . . . shall not apply to any other transportation or sale of natural gas or to the local distribution of gas”); *Associated Gas Distributors v. FERC*, 899 F.2d 1250, 1255 (D.C. Cir. 1990) (“FERC lacks jurisdiction over the transportation of gas in intrastate commerce; the states regulate such transportation”).

¹¹⁰ *Tesoro Alaska Co. v. FERC*, 778 F.3d 1034, 1039 (D.C. Cir. 2015).

I am concerned about duplication of efforts from multiple federal agencies here.

I continue to have misgivings regarding the Commission's claim of ongoing jurisdiction over the safety of liquefied natural gas (LNG) facilities.¹¹¹ Like you, I am concerned that the Commission is either duplicating the efforts, or unilaterally assuming the statutory responsibilities, of the Department of Transportation to which Congress has granted unambiguous authority to regulate the safety of LNG facilities.¹¹²

Before I further explain the cause of my apprehension, it may be helpful to provide an overview of the statutory authority up which I *assume* the Commission bases its wide ranging and comprehensive LNG safety program. I emphasize "assume" as there is no language in the Natural Gas Act (NGA) that explicitly grants power to either the Commission or the Department of Energy (which delegates authority to the Commission)¹¹³ to take responsibility for LNG safety, and to my knowledge, the Commission has never explained why it believes it can exercise this jurisdiction in any of its orders.

¹¹¹ See *Freeport LNG Dev., L.P.*, 180 FERC ¶ 61,055 (2022) (Danly, Comm'r, concurring at P 5) ("I have continued misgivings regarding the Commission's claim of ongoing jurisdiction over the safety of liquefied natural gas facilities") (citation omitted); *EcoEléctrica, L.P.*, 180 FERC ¶ 61,054 (2022) (Danly, Comm'r, concurring at P 2) ("I write separately to express my continued misgivings regarding the Commission's claim of ongoing authority to oversee the safety of LNG facilities) (citation omitted); *EcoEléctrica, L.P.*, 179 FERC ¶ 61,038 (2022) (Danly, Comm'r, concurring) ("I write separately to express my continued misgivings regarding the Commission's authority to oversee the safety of liquefied natural gas facilities") (citation omitted); *EcoEléctrica, L.P.*, 177 FERC ¶ 61,164 (2021) (Danly, Comm'r, concurring at P 1) ("I have a lingering apprehension that the Commission may not actually have the authority it has exercised over the safety of LNG facilities under section 3 of the NGA").

¹¹² See 49 U.S.C. § 60103.

¹¹³ See DOE, Delegation to the Fed. Energy Regulatory Comm'n, Delegation Order No. S1-DEL-FERC-2006, § 1.21A (May 16, 2006).

Presumably, the Commission asserts jurisdiction over the safety of LNG terminals¹¹⁴ from the language in NGA section 3 which gives the Commission “exclusive authority to approve or deny an application for the siting, construction, expansion, or operation of an LNG terminal”¹¹⁵ “with such modifications and upon such terms and conditions as the Commission find necessary or appropriate.”¹¹⁶ The Commission also asserts jurisdiction over the safety of LNG peak shaving facilities,¹¹⁷ presumably under NGA section 7 which provides that “a certificate shall be issued . . . if it is found that . . . the proposed . . . operation . . . is or will be required by the present or future public convenience and necessity” and that the Commission may “attach to the issuance of the certificate . . . reasonable terms and conditions as the public convenience and necessity may require.”¹¹⁸

In my view, basing the Commission’s LNG safety program on these provisions is, at best, questionable. If the provision in NGA section 3 is indeed the provision of the statute upon which we rely to regulate the safety of LNG terminals, it simply cannot be that Congress intended the Department of Energy or the Commission to have “exclusive authority” over all aspects of LNG terminal operations, including safety, because Congress has explicitly conferred jurisdiction over LNG safety upon the Department of Transportation.¹¹⁹

¹¹⁴ The NGA defines LNG Terminal as natural gas facilities that “receive, unload, load, store, transport, gasify, liquefy, or process natural gas that is imported to the United States from a foreign country, exported to a foreign country from the United States or transported in interstate commerce by waterborne vessel.” 15 U.S.C. § 717a(11).

¹¹⁵ *Id.* § 717b(e)(1) (emphasis added).

¹¹⁶ *Id.* § 717b(e)(3)(A).

¹¹⁷ Peak shaving LNG facilities typically have less capacity than an import and export LNG terminal and are located along the pipeline system to ensure adequate supplies of natural gas when demand is at its peak. *See LNG Facility Siting*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMINISTRATION, <https://www.phmsa.dot.gov/pipeline/liquified-natural-gas/lng-facility-siting> (last visited Aug. 1, 2023).

¹¹⁸ 15 U.S.C. § 717f(e).

¹¹⁹ *See* 49 U.S.C. § 60103.

Likewise, the Commission interprets NGA section 7 differently depending upon the facility at issue. LNG peak shaver facilities are NGA section 7 facilities over which the Commission asserts jurisdiction for operational safety.¹²⁰ However, the Commission does not consider NGA section 7 as empowering it to regulate the operational safety of interstate natural gas pipeline facilities.¹²¹ How can the same language be applied differently based on the type of facilities at issue when the statute itself makes no distinction?

¹²⁰ See *Chattanooga Gas Co.*, 51 F.P.C. 1278, 1279 (1974).

¹²¹ See *Mountain Valley Pipeline, LLC*, 171 FERC ¶ 61,047, at P 21 n.62 (2020) (“We also note that the U.S. Department of Transportation’s Pipeline and Hazardous Material Safety Administration’s (PHMSA) has the exclusive authority to promulgate and enforce safety regulations and standards for ‘the design, installation, construction, initial inspection, initial testing, operation, and maintenance of facilities used in the transportation of natural gas.’”) (citing Memorandum of Understanding Between the Department of Transportation and the Federal Energy Regulatory Commission Regarding Natural Gas Transportation Facilities, <http://www.ferc.gov/legal/mou/mou-9.pdf>).