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FEDERAL ENERGY REGULATORY COMMISSION

Reliability Technical Conference Docket No. AD23-09-000

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INTRODUCTION

EKPC

East Kentucky Power Cooperative (EKPC), on behalf of NRECA, appreciates the opportunity to participate in today's technical conference regarding the reliability and security of the Bulk-Power System and the impact of the Environmental Protection Agency's (EPA) Proposed Rule under section 111 of the Clean Air Act on electric reliability.[1]

EKPC is a not-for-profit generation and transmission electric utility with headquarters in Winchester, Kentucky. The cooperative is owned and governed by 16 owner-member electricity distribution co-ops. EKPC's vital mission is to safely generate and transmit affordable, reliable power to these cooperatives serving more than one million Kentuckians. As a registered member of the Cooperative sector within the North American Electric Reliability Corporation (NERC), EKPC complies with applicable NERC reliability standards and operates within SERC.

[1] 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 (May 23, 2023) (Proposed Rule).

EKPC serves a substantial number of end-users of electricity in its service territory that live in substantial poverty. These communities place a high value on affordable energy costs. EKPC's service territory includes rural areas with some of the lowest economic demographics in the United States. Of the eastern Kentucky counties that EKPC's owner-member cooperatives serve, 40 counties experience persistent poverty. EKPC has a strong interest in keeping energy rates competitive to assist our 16 owner-member cooperatives in serving people facing the harsh realities of today's economy and recent inflation.

NRECA

The National Rural Electric Cooperative Association (NRECA) is the national trade association representing 900 not-for-profit local electric cooperatives and other rural electric utilities. America's electric cooperatives are built and owned by the people that they serve and comprise a unique sector of the electric industry. From growing regions to remote farming communities, electric cooperatives power one in eight Americans and serve as engines of economic development for 42 million Americans across 56 percent of the nation's landmass. Electric cooperatives operate at cost and without a profit incentive.

NRECA's member cooperatives include 63 generation and transmission (G&T) cooperatives and 832 distribution cooperatives. The G&T cooperatives generate and transmit power to distribution cooperatives that provide it to the end-of-line co-op consumer-members. Collectively, G&T cooperatives generate and transmit power to nearly 80 percent of the distribution cooperatives in the nation. The remaining distribution cooperatives receive power directly from other generation sources within the electric utility sector. Both distribution and G&T cooperatives share an obligation to serve their members by providing safe, reliable, and affordable electric service.

These remarks are provided through the lens of NRECA's members: As is the case with EKPC's owner-members, many cooperative consumers are among those least able to afford higher electricity rates. In 2022, the average (mean) household income for electric cooperative consumers was 12 percent below the national average. That is unsurprising, given that electric cooperatives serve 92 percent of persistent poverty counties in the United States.[2] Since electric cooperatives serve areas with low population density, costs are borne across a base of fewer consumers and by families that spend more of their limited resources on electricity than do comparable municipal-owned or investor-owned utility customers.

AFTERNOON SESSION PANEL 2: EPA'S "CLEAN POWER PLAN 2" AND RELIABILITY

EKPC and NRECA's overall position is that EPA's proposal is unlawful and unworkable. The Proposed Rule exceeds EPA's authority under the Clean Air Act, hinges on widespread adoption of technologies that have not been adequately demonstrated to work at commercial scale while achieving EPA's requirements, and contains unrealistic and unachievable time frames. The only way that the Proposed Rule will not have a detrimental effect on electric reliability is for EPA to withdraw it. EKPC on its behalf and that of NRECA appreciates the opportunity to discuss the elements of the Proposed Rule that will be disastrous for grid reliability and suggest steps the Commission can take to attempt to ameliorate the damage. This testimony, however, should not be construed to imply that EPA's proposal is salvageable. The question for this conference is whether or not reliability can be salvaged.

1) Will the rule, if implemented as proposed, affect electric reliability? In what ways?

The Proposed Rule would have an obvious negative effect on reliability. The Proposed Rule is reliant on nascent technologies that are unproven at the levels and scale that EPA would require

[2] In 2021, electric cooperatives' fuel mix included 22 percent renewables, 15 percent nuclear, 29 percent natural gas, 32 percent coal, and two percent oil and other resources. National Rural Electric Cooperative Association. Electric Co-op Facts and Figures. April 13, 2023. (NRECA Fact Sheet) Available at: https://www.electric.coop/electric-cooperative-fact-sheet

and are not available in all regions of the country. These technologies will not be available within the compliance time frame, even putting aside the costs to implement them. As a result of these infeasible and unworkable standards, operators will be forced into the very limited compliance options that do not require carbon capture and storage (CCS) or co-firing clean hydrogen. This means either the retirement of essential dispatchable coal units or the curtailment of those units to capacity factors below 20 percent by 2032 and complete retirement by 2035; and curtailing the use of natural gas units to capacity factors below 20 percent starting in 2032. As a result, there will be an acceleration of the trend of disorderly retirement and elimination of baseload generation at alarming rates that will leave the electricity grid with a significant deficit of dispatchable generation as replacement generation will not be available.

Based on permitting timelines, grid operation interconnection challenges, limited construction vendors and other variables, sustainable generation cannot be constructed in time to replace the viable resources that EPA is forcing to prematurely retire and curtail. There will be very little incentive for cooperatives to invest in the Proposed Rule's nascent technologies at exorbitant costs that will be borne by our member-consumers who will receive degraded reliability in return. All at a time when resource adequacy and reliability are already challenged in many regions by other generator retirements and other factors.

EPA's Reliance on the Theoretical Commercial Viability of CCS and Clean Hydrogen is Misplaced

Under the Proposed Rule, existing coal-fired units planning to operate beyond 2039 would need to achieve a 90 percent CO_2 capture rate by January 1, 2030. Coal-fired units scheduled to retire between 2035 and 2040 would be required to co-fire with 40 percent natural gas by January 1, 2030. New natural gas units operating at baseload levels and existing natural gas units 300 MW or greater with at least a 50 percent capacity factor would have the option to comply by installing CCS at the same capture rate by January 1, 2035, or co-fire unproven and unavailable quantities of clean hydrogen.

Electric cooperatives are leaders in exploring the development of CCS. NRECA is a sponsoring partner of the National Carbon Capture Center and the Wyoming Integrated Test Center (ITC). NRECA's members are actively engaged in the deployment of CCS as an emerging technology. Basin Electric Power Cooperative's coal-fired Dry Fork plant is the host site for the ITC and is adjacent to the University of Wyoming's CarbonSAFE CO_2 storage project. Tri-State Generation and Transmission Association, Inc. is also a sponsor. Minnkota Power Cooperative's Milton R. Young Station will be the site of Project Tundra, a carbon capture project to retrofit the North Dakota coal-fired plant with an amine-based solvent technology. Golden Spread Electric Cooperative's natural gas-fired Mustang Station was the subject of a University of Texas at Austin CO_2 capture feasibility study. Wabash Valley Power Alliance, Southern Illinois Power Cooperative, and Prairie Power are part owners of the Prairie State Energy Campus, which has partnered with the University of Illinois on a CO_2 capture retrofit front-end engineering and design study for the southern Illinois coal-fired plant. Finally, the Nebraska Public Power District, which sells power to Nebraska Electric Generation & Transmission Cooperative, is working with technology experts to evaluate CO_2 capture and storage for its coal-fired Gerald Gentleman Station.[3]

To date, there are just two large-scale coal units currently operating with CCS, Boundary Dam Unit 3 and Petra Nova, neither of which achieve levels of CCS that even come close to compliance under the Proposed Rule.[4] There are currently no natural gas units with CCS operating. CCS may hold promise, but it is a developmental technology that is not yet proven to operate,

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[3] NRECA GHG Comments https://www.regulations.gov/comment/EPA-HQ-OAR-2023-0072-0770.
[4] *See id at 11.*

particularly on a continual basis, at sustained CO_2 removal rates that would assure compliance with the Proposed Rule.

Moreover, development and permitting of the infrastructure needed to transport and store CO_2 at the scale necessary to meet EPA's time frames is wholly unrealistic and prohibitively expensive. Industry-wide CCS deployment is infeasible because sequestration is not available in all regions of the country. Recent experiences reported in the *Wall Street Journal* demonstrate the considerable opposition to construction of CO_2 pipelines.[5] Several days ago, Navigator CO_2 Ventures LLC cancelled its Heartland Greenway CCS pipeline project, which EPA had relied upon in its technical analysis claiming that missing infrastructure would not be a challenge to the viability of CCS.[6] The Proposed Rule links the grid's reliability to the functionality of an unproven process with documented maintenance, financing and permitting issues.

One of EKPC's crucial generation assets, Cooper Station, maintains reliability in the transmission-constrained Lake Cumberland area of Kentucky. This region's terrain will not support sequestration. Expensive and time-consuming construction of piping to transport the CO_2 removed from the region would be necessary for CCS to be a viable option at Cooper. Cooper is one of only two other generation resources (Wolf Creek, E.W. Brown (via the Alcalde substation)) that provide power to that transmission pocket. Of those, E.W. Brown is also partially powered by coal.

It is unknown whether some areas of Kentucky might hypothetically support storage. Storage evaluations would need to include not only technical feasibility but also an extensive permitting process. EKPC anticipates that it would take at least 4-5 years to permit a well site. Since the feasibility and economics of any CO_2 capture project would be predicated on permitting a viable

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[5] https://www.wsj.com/us-news/climate-environment/a-new-nimbyism-blocks-carbon-pipelines-bb7b8b56
[6] https://www.ogj.com/energy-transition/article/14300550/navigator-cancels-us-midwest-ccus-pipeline-project

storage location, EKPC would be unable to design, permit, install, and operate a capture and storage system in less than 10 years, aside from the cost-prohibitive nature of this technology. In short, the importance of EKPC's critical resources and the impact of their potential retirements to reliability in that region cannot be overstated.

Clean hydrogen is even further behind CCS. Clean or low-greenhouse gas hydrogen does not exist in quantities remotely sufficient to meet the projected need. In the unlikely event sufficient clean hydrogen becomes available, combustion turbines have not been shown to operate at sustained levels while co-firing it. Even assuming that production of clean hydrogen was available at the scale needed, there is no pipeline infrastructure in place to deliver it. EPA's assumption that incentives under the Inflation Reduction Act (IRA)[7] and the Infrastructure Investment and Jobs Act (IIJA)[8] will be sufficient to guarantee development of the necessary hydrogen supply and infrastructure by the 2032 compliance date is wholly speculative.

The coal-fired generation "stopgap measure" of co-firing of 40 percent natural gas is not universally achievable and poses problematic timing constraints for building gas pipelines. Co-firing of 40 percent natural gas by coal-fired generators to permit operation from 2032 through December 31, 2039 also poses reliability and construction concerns. For many units, gas is not available or gas lines must be built. EKPC's coal-fired units are not currently capable of firing natural gas, nor are gas lines constructed to deliver gas to our generating stations. The Proposed Rule provides a very limited window of time in which to secure contracts for permitting and construction of gas lines which must be in place by 2029 at the latest. If these co-firing resources cannot be brought on-line in time, reliability will be impacted.

[7] https://www.govinfo.gov/content/pkg/BILLS-118hr812ih/pdf/BILLS-118hr812ih.pdf
[8] https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf

The Proposed Rule's Compliance Time Frame is Unworkable

Under the Proposed Rule, state plans for existing generating units would be due in the summer of 2026, placing inordinate pressure on utilities to make crucial generation and retirement decisions in a brief window of time, while challenges to the Proposed Rule are likely to still be working through the court system. There will not be sufficient information on the advancement of the technologies by 2026 to know what will reliably work in the early 2030s.

Regardless, states and operators will have to decide what compliance pathways they will chose. It is virtually impossible that CCS and clean-hydrogen technologies will be sufficiently advanced by 2026 to make these substantial and permanent decisions affecting the future of the electricity grid. The costs of these decisions will have lasting impacts on all of this country's electricity customers, including disproportionally impacted residential customers such as the ones EKPC serves in rural eastern Kentucky.

EPA's Analysis of the Reliability Impact of the Proposed Rule is Inaccurate and Inadequate

EPA asserts that it has considered the reliability impacts of the Proposed Rule. It has not done so adequately. Foremost, it provided a "resource adequacy analysis," which by EPA's own definitional distinction is not the same thing as a reliability analysis. As EPA itself explains, "the 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." [9]

Regardless, in the resource adequacy analysis EPA points to studies that purportedly demonstrate "how reliability continues to be maintained under high variable renewable penetration

[9] EPA Resource Adequacy Analysis TSD at 2

scenarios."[10] Even assuming these third-party studies are correct, which is unproven, the ability to maintain reliability with an influx of new intermittent renewable resources does not address the reliability impacts the expected retirement of significant volumes of existing baseload fossil fuel-fired generation or operation of new generating resources at lower capacity factors, as a result of implementation of the Proposed Rule.

The economy is growing nationwide and in Kentucky (1.8 percent in 2022). Economic growth requires energy to fuel the economy. More electric vehicles and electricity-dependent infrastructure is coming on-line as residential and commercial buildings pivot away from fossil-fuel combustion. Reliability studies must factor in existing demands for electricity as well as future projections of demand. Otherwise, utilities will be limited and unable to serve load, as resources are forced to retire while demand increases. Energy policy should be a coordinated process that is not dictated exclusively by EPA rulemakings.

Generators Will Be Forced to Retire Under the Proposed Rule

As a result of these uncertainties surrounding EPA's preferred control technologies, the only compliance options that provide certainty are those requiring retirement or severely limiting capacity factors, which by necessity will degrade reliability to a level that cannot be overcome by intermittent resources. This should not be news to anyone: industry, markets and NERC all have raised concerns repeatedly. Some G&T cooperatives are seriously contemplating shutting down units or have in fact made that decision. In June 6, 2023 congressional testimony, Patrick O'Loughlin, CEO of Buckeye Power Inc., described how and why the Proposed Rule will cause a costly shutdown of all of

[10] Id.

Buckeye Power's coal-fired units by 2030 with no ability to replace the energy in that time frame.[11] Arkansas Electric Cooperative Corporation estimates that to continue operating one of their coal-fired units until 2040, less than its remaining life, they would need to invest $70 million to $120 million by 2030 just to bring natural gas to the plant site in order to co-fire with natural gas. Necessary retrofits to the plant to enable co-firing would require additional investment.[12]

NERC has warned that for many regions of the country, the additional retirements of baseload thermal power plants – if not replaced by dispatchable, flexible resources – will increase the risk of rolling blackouts.[13] As NERC correctly points out, "merely having available generation capacity does not equate to having the necessary reliability services or ramping capability to balance generation and load."[14] NERC recommends that policymakers and industry manage the pace of generator retirements until solutions are in place to meet energy needs and ensure reliability.[15] PJM CEO Manu Asthana stated "we need to hang on to resources we have today that work, until their replacement is here" and that EPA's proposed GHG power plant rules, as proposed, "will continue to push this generation off the grid."[16]

Factors Outside of the Proposed Rule Must Be Taken into Account

The impact of the entire suite of EPA and other federal agency actions on the power sector

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[11] Testimony of Patrick O'Loughlin, President and CEO of Buckeye Power Inc. and Ohio Rural Electric Cooperatives, House Energy and Commerce Subcommittee on Environment, Manufacturing and Critical Materials. June 6, 2023, at 3. Available at: https://energycommerce.house.gov/events/environment-manufacturing-and-critical-materials-subcommittee-hearing-clean-powerplan-

[12] Analysis of EPA's Proposed Power Plant Greenhouse Gas Emissions Rule Impact on The Generation Alternative of Fuel Switching to Natural Gas. William Morris and John Weeda.

[13] North American Electric Reliability Corporation. *2022 Long-Term Reliability Assessment*. December 2022. https://www.nerc.com/pa/RAPA/ra/Reliability percent20Assessments percent20DL/NERC_LTRA_2022.pdf

[14] *Id*

[15] *Id at 7*.

[16] United States Senate. Committee on Energy & Natural Resources. Hearing entitled "Full Committee Hearing to Examine the Reliability and Resiliency of Electric Services in the U.S. in Light of Recent Reliability Assessments and Alerts." 1 June 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

and baseload fossil resources must be taken into account. The Proposed Rule is not the only federal agency action straining resource adequacy. Other overly-aggressive and unworkable federal environmental regulations will accelerate the pace of retirements and the threat to reliability. This includes a series of EPA regulations, including the Proposed Rule, which are being issued in rapid succession and will make it too costly and difficult to operate always available, fossil fuel-fired power plants.

EPA's ozone transport regulations would limit the operation of coal-fired generators in 23 states.[17] Under the Ozone Rule, all, or a very significant portion of 42 Gigawatts of coal-fired electric utility generation capacity within 23 states, including Kentucky, that EPA assumes will equip with selective catalytic reduction NOx controls, will likely be forced to curtail or cease operation in 2026 during the ozone season due to emission allowance shortfalls. The alternative option of installing these additional emission controls cannot be achieved under the Ozone Rule's timelines and the costs are prohibitively excessive. Moreover, beginning in 2023, existing coal-fired generation units with the best emission control technology available were effectively limited in operation based on their 2021 utilization rates. [18] Recent NERC reliability assessments identified the Ozone Rule as one of the key reliability issues for grid operators to watch. [19] NERC "pointed to the disorderly retirement of traditional generation (with its inherent ability to provide essential reliability services and balance energy reserves) as one of the biggest challenges facing the grid." [20]

Additionally, EPA's Supplemental Effluent Limitations Guidelines and Standards for the

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[17] Federal Implementation Plan Addressing Reginal Ozone Transport for the 2015 Ozone National Ambient Air Quality Standard (Ozone Rule), Docket ID NO.EPA-HQ-OAR-2021-0668
[18] *See* NRECA GHG Comments
[19] North American Electric Reliability Corporation. *2023 Summer Reliability Assessment*. May 2023. https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SRA_2023.pdf
[20] North American Electric Reliability Corporation. 2022 Annual Report. February 2023. p.13. Available at: https://www.nerc.com/gov/Annual%20Reports/NERC_Annual%20Report_2022.pdf

Steam Electric Power Generating Point Source Category (Steam ELG Rule) [21] and Hazardous and Solid Water Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Legacy CCR Surface Impoundments (CCR Rule) [22] must also be considered in assessing retirements. [23] The Steam ELG Rule would prescribe more stringent discharge standards for three wastewaters generated at coal-fired power plants, thereby forcing facilities to make massive investments in new wastewater treatment equipment or retire. Under the Steam ELG Rule, utilities may be forced to prematurely close plants and will not be able to recover investments that were made to comply with the 2020 version of the Steam ELG Rule. Like the Proposed Rule, implementing the Steam ELG Rule is predicated on technology advancements that are dependent on uncertain funding streams under the IRA and the IIIJA. The weight of any utility stranded assets is likely to negatively impact affordability and reliability and make investing in cleaner energy resources more challenging. There is also the CCR Rule, a one-size-fits-all proposal to regulate coal ash ponds and landfills for coal combustion residuals at inactive power plants. Compliance with the CCR Rule involves complex and costly challenges for new regulated sites that are located under active CCR landfills or existing generation and transmission infrastructure.[24]

Costs associated with compliance under each of these other EPA actions are very high, but when combined, they are exorbitant, irrespective of the Proposed Rule. For example, one electric cooperative has spent over $86 million thus far to comply with the 2015 and 2020 ELG Rules and expects to spend over $130 million in total just through the 2020 rule. These figures represent capital

[21] https://www.regulations.gov/comment/EPA-HQ-OW-2009-0819-10107
[22] https://www.regulations.gov/comment/EPA-HQ-OLEM-2020-0107-0259
[23] PJM has acknowledged that the combined effects of that ozone regulation, effluent limitation guidelines, coal combustion residuals regulations and state policies could result in a significant amount of generation retirements within a condensed time frame [23] PJM Interconnection. *Energy Transition in PJM: Resource Retirements, Replacements & Risks.* February 24, 2023. https://www.pjm.com/-/media/library/reports-notices/special-reports/2023/energy-transition-in-pjm-resource-retirements-replacements-and-risks.ashx
[24] https://www.regulations.gov/comment/EPA-HQ-OLEM-2020-0107-0244

costs only and do not include costs associated with the Steam ELG Rule. In a report predating the Proposed Rule, PJM identified these three EPA regulations – the Steam ELG Rule, the CCR Rule and the Transport Rule – as ones that have "the potential to result in a significant amount of generation retirements within a condensed time frame." [25]

Finally, EPA has proposed new regulations that will constrain the ability of utilities to build new, replacement generation. The proposed Particulate Matter National Ambient Air Quality Standards (NAAQS) would restrict the siting of new generation assets to areas in which the particulate baseline is lower so that sites can obtain a permit to construct.[26] EPA is anticipated to finalize these regulations by the end of this year. [27]

The Council on Environmental Quality's (CEQ) National Environmental Policy Act (NEPA) Implementing Regulations Revisions Phase 2 proposal (Proposed NEPA Rule) would create a longer and broader NEPA process.[28] The impacts on building new generation and transmission would be significant. A longer NEPA process would even further slow generation project development, working directly against the Proposed Rule's tight time frames and goals. As a cooperative, EKPC must comply with NEPA to obtain USDA Rural Utilities Service funding for environmental projects. In EKPC's experience, EPA should already factor in at least an additional two years to allow cooperatives to obtain financing, especially for generation-related projects that may stimulate interest and comments requiring an agency response. Yet the Proposed NEPA Rule would cause

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[25] energy-transition-in-pjm-resource-retirements-replacements-and-risks.ashx at 7.

[26] https://www.govinfo.gov/content/pkg/FR-2023-01-27/pdf/2023-00269.pdf

[27] Other EPA efforts that likely will impact generation reliability include:(1) The regional haze rule addressing regional haze mitigation in national parks and wilderness areas (Sections 169A and 169B of the Clean Air Act (42) USC. Sections 7491,7492; and the upcoming amendments to the Mercury and Air Toxic Rule which will lower the filterable particulate matter emissions limit for all covered units and lower the limit for mercury emissions from lignite coal units, National Emission Standards for Hazardous Air Pollutants: Coal-and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review.

[28]National Environmental Policy Act Implementing Regulations Revisions Phase 2, 88 Fed. Reg. 49924 (Jul. 31, 2023)

additional time and effort to complete NEPA reviews on top of current protracted time frames. Reliability is at stake if replacement generation cannot be put in place quickly enough to fill the gap created by retiring resources. Transmission projects and gas line builds are likely to also be delayed by expanding NEPA reviews.

***Existing Reliability Concerns the Bulk Electric System is Confronting*.**

The Commission is well aware of the other challenges confronting reliability of the bulk electric system: extreme weather, the growing need for recalibrated gas-electric interdependencies, needed transmission, rising demand, supply chain constraints and environmental review and permitting. For purposes of this panel, three of these challenges deserve a bit more discussion here. Other challenges are addressed subsequently in responses to questions for other panels.

Extreme weather: Winter Storm Elliott last year illustrated the imminent danger of grid emergencies and the need for reliability contingencies. The weather event caused a significant generation shortfall. During the storm, EKPC's coal and gas-fired generation fleet over-performed relative to its commitment to provide capacity to the PJM region, but Winter Storm Elliott highlights that load shedding concerns are a reality, despite projections of adequate supply resources. In other areas, gas production and delivery had challenges, and Local Distribution Companies had a first priority to serve retail gas customers, not gas-fired generators. A diversified generation portfolio is essential during emergency events and should not be further depleted by the Proposed Rule.

Supply chain constraints: Electric utilities are facing significant challenges and delays in their supply chains. These challenges are contributing to an unprecedented shortage of the most basic machinery and components that are essential to ensuring continued reliability of the electric grid. Whether it is unprecedented delays and ballooning costs for distribution transformers, large power transformers or electrical conduit, new projects are being deferred or canceled, and cooperatives are concerned about their ability to respond to major storms due to depleted stockpiles.

Permitting challenges: Electric cooperatives rely on a diverse suite of resources to affordably and reliably meet their consumer-members' energy needs, including many low- and zero-emission renewable energy resources. Policies enacted in the IRA – particularly the "direct pay" tax credits for not-for-profit entities and USDA's Empowering Rural America (New ERA) program – are expected to help more rural Americans transition to lower-carbon, affordable, and reliable energy. But the promise of these programs will falter if the federal environmental review and permitting process is not modernized to meet the needs of this energy expansion.

As discussed earlier, completing federal environmental reviews and obtaining permits for infrastructure project simply takes too long and is another challenge to build new electric generating assets and other electric infrastructure, including transmission lines. On average, it takes federal agencies four and a half years simply to complete the environmental review process, while one quarter of projects take more than six years.[29]

While important reforms to NEPA were recently enacted in the Fiscal Responsibility Act[30] (FRA), more must be done to increase the efficiency of the federal environmental review and permitting process, which can involve multiple agencies depending on the federal permits, authorizations, and other approvals required for a project. As noted earlier, unfortunately, CEQ's Proposed NEPA Rule is counterproductive to the goals of FRA: adding new burdensome requirements and increasing complexity which will inject new uncertainty into NEPA reviews, thereby prolonging the review process.

[29] NRECA Comments on NEPA Phase 2 https://www.cooperative.com/programs-services/government-relations/regulatory-issues/Documents/2023-09-29%20NRECA%20NEPA%20Phase%202%20Cmnts%20FINAL.pdf
[30] https://www.congress.gov/118/plaws/publ5/PLAW-118publ5.pdf

EPA needs to consider the cumulative impact of all of these factors into account when evaluating the reliability risks of the Proposed Rule and how it can avoid exacerbating those risks. Electrifying other sectors of the economy could require a three-fold expansion of the transmission grid and up to 170 percent more electricity supply by 2050, according to the National Academies of Sciences.[31] In May, Commissioner Christie warned of threats to reliable electricity, stating "I think the United States is heading for a very catastrophic situation in terms of reliability."[32] In March, PJM CEO Manu Asthana said that the RTO needed to slow the pace of generation retirements to avoid reliability problems by the end of the decade: "I think the math is pretty straightforward." [33]

2) What tools and processes should the Commission, other federal and state agencies, and industry consider in order to implement the Proposed Rule?

Implementing the Proposed Rule will have a detrimental impact on reliably providing electricity service over the bulk power system, period. The question then is whether there are actions that agencies and others can take that may ameliorate that detrimental impact. Under FPA section 215, FERC has the fundamental responsibility to ensure reliability of the bulk power system and that there is sufficient generation to serve all consumers. Moreover, FERC has an obligation to be proactive in meeting its fundamental responsibilities. The adverse reliability consequences resulting from the Proposed Rule will end up at FERC's door because of its responsibilities under the FPA. Once the Proposed Rule's requirements go into effect, it will be too late to prevent these catastrophic consequences. Thus, the prudent course of action is for FERC to use its considerable influence and credibility to avoid a reliability crisis in the first place. As Commissioner Danly has observed,

[31] National Academies of Sciences, Engineering, and Medicine. Accelerating Decarbonization of the U.S. Energy System. 2021. Available at https://nap.nationalacademies.org/catalog/25932/accelerating-decarbonization-of-the-us-energy-system.

[32] https://www.electric.coop/ferc-commissioners-warn-of-threats-to-reliable-electricity#:~:text= percentE2 percent80 percent9CI percent20think percent20the percent20United percent20States,oversight percent20hearing percent20focused percent20on percent20FERC.

[33] https://americaspower.org/pjm-chief-retirements-need-to-slow-down-he-means-coal/

"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 EPA is contemplating policies that promise to alter the makeup of the bulk electric system drastically and on an abbreviated timeline. When proposing a rule with such profound consequences, responsible decision-making requires hard data. Absent input from the Commission, based on detailed analyses by Commission staff, it is nearly impossible to imagine that EPA could be in a position to reach an informed conclusion regarding the reliability consequences of its Proposed Rule."[34]

The Commission through NERC should perform reliability assessments on the impacts of the Proposed Rule and jointly file those assessments with EPA, highlighting the reliability challenges. Those assessments should be included in the Proposed Rule's underlying regulatory impact analysis. NERC is the federally-appointed reliability expert of the federal branch of the government. FERC and NERC should remind EPA of this and make it clear there can be no real consideration of the reliability impacts without consulting with them. They should also look at the assessments being performed by the regional transmission organizations. Policy makers should look to NERC for guidance before they pass rules that will impact the reliability of the grid.

Department of Energy (DOE) Secretary Granholm and EPA Administrator Regan in March of 2023 signed a Memorandum of Understanding (MOU) on electric sector resource adequacy and reliability coordination, with a shared objective of supporting the continued delivery of "a high standard of reliable electric service." [35] Achieving that objective is impossible, given the impacts of EPA's actions on the baseload generation fleet under impractical compliance time frames. Both EPA

[34] Letter from James Danly to Hon. Michael S. Regan, August 8, 2023. https://www.cooperative.com/programs-services/government-relations/regulatory-issues/Documents/Comments%20-%20James%20P%20Danly.pdf
[35] https://www.epa.gov/system/files/documents/2023-03/DOE-EPA percent20Electric percent20Reliability percent20MOU.pdf

and DOE state that they intend to engage FERC regularly since FERC is the agency charged with ensuring reliable energy services. At a minimum, EPA must work with FERC and RTOs/ISOs and other balancing authorities on developing a final rule that would not be based on technologies and time frames that cannot be met, other than through retirements and curtailments. In addition, EPA should undertake a supplemental rulemaking proceeding to re-examine reliability concerns and allow for public comment on any additional procedures to mitigate impact on reliability. FERC also has the opportunity to file comments on the Proposed Rule and engage in the interagency review process pursuant to the procedures established for OMB's Office of Information and Regulatory Affairs (OIRA), which will have 90 days to review the Proposed Rule. [36] Lastly, under Section 202(c) of the FPA, DOE has the authority to require plants to run in the event of an emergency. We are creating an emergency here but there may not be resources to run.

3) What authority should the Commission and other federal and state agencies have in order to address potential reliability issues that could arise during implementation of the Proposed Rule?

It is encouraging that FERC has included in this year's conference a review and discussion of how the Proposed Rule will affect reliability. As discussed earlier, a more robust evaluation by the Commission of the impact of the Proposed Rule on reliability is critical to FERC's fulfilling its mandate under the FPA and is consistent with the MOU. Ensuring the availability of safe and reliable electricity over the bulk power system to all consumers is an obligation that the federal government cannot abrogate in support of another obligation. Legislative proposals to actively require greater collaboration and input among federal agencies on regulatory actions that impact reliable service are an important step towards keeping the lights on.

[36] Executive Order 12866.

4) What existing processes for coordination will enable federal and state agencies, planning entities, and industry stakeholders to share ongoing developments relevant to the implementation of the Proposed Rule?

The Commission and NARUC should consider expanding the existing FERC/NARUC Joint Task Force to conduct periodic meetings to assess resource adequacy within states and to get reports from NERC and entities responsible for regional resource adequacy. Also, as noted above, FERC should direct NERC to undertake an inquiry and a report, and possible standards to ensure reliability in the wake of forced compliance with the Proposed Rule.

ADDITIONAL COMMENTS TO QUESTIONS POSED TO OTHER PANELS

PANEL 1: STATE OF BULK POWER SYSTEM RELIABILITY WITH A FOCUS ON THE CHANGING RESOURCE MIX AND RESOURCE ADEQUACY

1) What should the Commission's top reliability priorities be for the next one to three years? What are potential actions the Commission could take to improve reliability regarding these priorities?

As an overarching matter, FERC must continue to be proactive in its fundamental responsibility under the FPA to ensure reliable, affordable electric energy service to consumers. This means that FERC must actively engage with other federal agencies in their actions that impact FERC's ability to fulfill its mission.

More specifically, under section 217(b)(4) of the FPA, FERC should focus transmission planning and expansion on meeting the needs of LSEs and the consumers they serve. Towards this end, FERC needs to ensure that ongoing efforts to reform transmission planning and cost allocation policies result in (1) continued availability of reliable service of electricity, (2) comparable treatment of similarly situated customers with respect to terms and conditions and rates for transmission service, (3) efficient and affordable long-term transmission planning and expansion that will be used and useful, focus on the long-term needs of load-serving entities (LSEs), and which provide for regional flexibility, and (4) transparent planning and cost allocation processes.

In considering whether or not to address interregional transmission transfer capability, FERC should (1) afford regional flexibility in determining the needs for and benefits of interregional transfer capability, and (2) allocate costs in accordance with existing cost-allocation policy. FERC should resist proposals to require a minimum level of transfer capability. While the proposals may be intended to ensure reliability and resource adequacy, their prescriptive nature will result in astronomical costs increases for transmission service that will not be offset by greater access to low-cost generation. For example, the up to $100 billion Long-Range Transmission Plan projects that MISO is proposing[37] will not get the transfer capabilities anywhere close to the levels in proposals for minimum requirements. That $100 billion will just be a small down payment in the MISO. Moreover, it is imperative that states not be required to pay for the policies of other states that share different priorities or objectives.

FERC recognizes that the growing interdependence between natural gas and electric sectors is resulting in significant challenges for both industries to maintain reliable service. Under its current authority, FERC can initiate market reforms, such as aligning scheduling and better communication with respect to the procurement process between the two sectors. FERC is already on record (as are the six RTO/ISO market monitors) as supporting reliability standard reforms for the natural gas pipeline industry[38], which would also serve to enhance the reliability and economic efficiency of natural gas as a generation fuel. FERC should continue supporting these reforms, especially legislation to support the winterization of the natural gas system. As the Commission has stated repeatedly, the industry and NERC should work together to implement the gas-electric coordination

[37] https://www.misoenergy.org/planning/transmission-planning/long-range-transmission-planning/#:~:text=Tranche percent201,to percent20address percent20future percent20reliability percent20needs.
[38] https://www.rtoinsider.com/59040-market-monitors-endorse-naesb-gas-electric-recommendations/

recommendations from the NERC 2021 ERO Reliability Risk Priorities Report. [39]

The Commission's reliability inquiry should also consider improvements to organized market design and/or structures that create impediments to reliability. For example, in addition to considering North American Energy Standards Board (NAESB) recommendations to enhance gas-electric coordination, the Commission should consider rule changes in organized markets in light of this interdependence. Currently, market rules such as PJM's Capacity Performance place the onus and risk on resource owners to have their units available or face significant penalties. If generation owners buy gas in order to have their units available and then later are not committed to run, they can suffer significant financial loss if they are unable to resell the gas. Thus, during the very time that generators are needed most for reliability, generation owners are having to decide which risk to take – the risk of bearing the cost of unused gas, or the risk of penalties for non-performance. At the very least, the Commission should encourage regional market operators, in times of anticipated system stress, to utilize their authority to schedule resources so that gas-fired resources do not bear undue risk. To the extent market operators can proactively schedule long-lead resources, they should be encouraged or even required to do so.

Market rules were designed to squeeze efficiencies out of markets that have substantially excess reserve margins. They worked well and have been so efficient at squeezing out these efficiencies, we now are retiring generation faster than it can be replaced. Furthermore, organized markets focus on transmission needs in their evaluation of the retirement of an individual plant or unit. While the markets are working diligently to reform the rules, it is not occurring fast enough and largely results in experimental rules that may or may not solve the problem. Generation queues need

[39]https://www.nerc.com/comm/RISC/Documents/RISC%20ERO%20Priorities%20Report_Final_RISC_Approved_July_8_2021_Board_Submitted_Copy.pdf

to be cleared, otherwise an LSE cannot be sure they can get a resource through the queue with any level of certainty on interconnection costs or timeline. While MISO and PJM have both indicated recently that they each have well over 40,000 MW of projects that have made it through their queues with a Generator Interconnection Agreement or minimal upgrades required, these projects are not getting developed.[40] Why? Are these the right projects? Do they support reliability?

2) What trends and risks identified in NERC's 2023 State of Reliability Report and the 2023 ERO Reliability Risk Priorities Report warrant the most attention and effort?

NERC is to be commended in identifying important reliability trends and risks in both the 2023 State of Reliability Report and, along with its Regional Entities, the 2023 ERO Reliability Risk Priorities Report. While all of these must be considered, a few notables stand out as evidence of the impact that the growing strain on resource adequacy has on meeting load. The 2023 NERC State Report highlights challenges to resource adequacy, including more frequent extreme weather, increasing demand and a changing resource mix, which are resulting in higher overall outage rates and are a greater contributor to major load loss events than are challenges to transmission reliability/resiliency. Also, for the first time, the 2023 ERO Reliability Risk Priorities Report highlights several policies, when coupled with other risks, as adversely impacting reliability. Policies supporting decarbonization, decentralization and electrification incentivize the transformation to variable resources, which in turn impacts maintaining resource adequacy. The report correctly notes that timelines for implementing such policies should take in to account the ability to ensure resource adequacy. We especially encourage the Commission to fully engage with EPA regarding the reliability impact various proposed and recently enacted rules including the Proposed Rule that will

[40] https://insidelines.pjm.com/transition-to-new-interconnection-process-begins-july-10/#:~:text=About%2044%2C000%20MW%20of%20projects,that%20number%20was%202%2C000%20MW; https://www.utilitydive.com/news/midcontinent-miso-interconnection-queue-supply-chain-transmission-expansion-mtep/693652/

hasten the retirement of generation that will still be needed for resource adequacy and reliability. The Proposed Rule relies on EPA's hopes, wishes, and dreams that the technology will be available. The grid cannot run on hopes, wishes and dreams.

The interdependence between natural gas and electricity should be a top priority. Legislation needs to be enacted to require the winterization of natural gas delivery and production systems. FERC also needs to focus on developing more alignment between the two markets on risk assessment, planning, and operations.

Another concern respecting the interdependence between natural gas and electricity is a structural market design issue that involves the reliance on markets for commitment of generation resources. The organized market rules have *de facto* removed the obligation to serve from the generators in their markets due to an increase financial risk from an LSE making a commitment decision outside the market operator instruction and no reduction in reliability risk from such a decision. An LSE that owns generation is disincentivized from procuring natural gas and committing generation on its own. If the market operator ultimately determines that the unit was not needed and the natural gas market shifted dramatically, the LSE faces significant losses with no ability to recover the costs. Further, if the LSE committed its generation and the market was short overall, its load would still be shed on a *pro-rata* basis, regardless of whether it has covered its own load and reserve obligations. Thus, an LSE is forced to rely on the market to anticipate that load may come in higher during extreme weather conditions. Proactively scheduling long-lead resources and/or developing products that would allow market operators to commit generation in advance of extreme cold events would alleviate this market risk and disincentive toward maintaining reliability.

Load forecast is quickly becoming a concern and has been identified as a key issue in recent events such as Winter Storm Elliott. Beneficial electrification and behind-the-meter resources are creating load patterns that are not as well understood as the diurnal pattern that was well understood for decades. The non-linear nature of loads around heat pumps and electric vehicles are creating extreme peaks during extreme cold weather. Through beneficial electrification, these challenges are only going to grow and therefore must be addressed.

3) Resource adequacy traditionally has been characterized in terms of planning reserve margin, which assesses the excess generating capacity required to meet peak load. NERC and industry have recently been discussing the notion of energy adequacy, which assesses whether there is sufficient energy – power over time - to meet customers' energy needs. Is energy adequacy a more appropriate metric to characterize reliability risks given the changing grid?

Energy adequacy is an important topic that needs to be addressed. NERC has been developing a framework around energy adequacy that has not been fully implemented.[41] While this is an area that will be important to reliability and resiliency going forward, existing capacity and planning reserve metrics should not be abandoned until an energy adequacy framework is fully understood, developed and implemented across the industry.

4) NERC has highlighted essential reliability services (e.g., frequency response, voltage control, and ramping capability) as core to maintaining reliable operation of the grid. How does the changing resource mix and characteristics of load affect the needed amount and provision of these essential reliability services? What actions, and by whom, are necessary to ensure adequate levels of these services?

As transitioning the generation fleet to more distributed and renewable resources continues, essential reliability services will become more and more important. While they can be programmed to provide essential reliability services, inverter-based resources (IBRs) do not inherently provide many of the essential reliability services. Unless mandated or incented through market products, it is highly unlikely IBRs will provide these services. Furthermore, because the inverters do not inherently provide the energy storage resource, they have to be programmed to provide them. Unlike

[41] https://www.nerc.com/comm/RSTC/Pages/ERATF.aspx

a synchronous resource, IBRs are subject to potential human error in programming the systems and do not rely on the laws of physics. Furthermore, there may be some services such as short circuit duty that cannot be provided by IBRs. A weak system full of IBRs may not have sufficient short circuit duty to clear a fault which could create safety issues.

5) The electric grid is undergoing its most significant changes in a century. How should reliability oversight adapt to this change? Is the existing reliability oversight model flexible and agile enough to help lead the change?

Federal, state, and local energy policies need to consider reliability impacts. Policies need to be developed with the need to maintain reliability during the transition with the ability to pump the brakes on changes if reliability degrades. Policies should be required to have an extensive reliability analysis conducted before a policy is implemented.

Cooperatives believe the existing oversight model provides the ability to shift priorities as needed to address reliability concerns. A recent example of such is the approach being used to manage the study obligations that were included in the FRA for NERC, along with regional entities and transmitting utilities that already have interregional facilities, to conduct a study of existing interregional transfer capabilities and make recommendations about any additional capabilities that may be necessary to strengthen reliability. In addition, there have been revisions to the NERC Standards Process Manual and Rules of Procedure to allow for expedited standards development to address reliability risks to the Bulk Electric System.[42]

6) In recent years, reliance on natural gas as a fuel for electric generation has steadily increased. At the Commission's recommendation, the North American Energy Standards Board (NAESB) held forums between August 2022 and July 2023 to discuss the growing interdependence between the natural gas and electric sectors. NAESB issued recommendations to enhance market coordination to address challenges posed by this growing interdependence. Should the Commission prioritize pursuing any specific NAESB recommendation?

[42] https://www.cooperative.com/programs-services/government-relations/regulatory-issues/Documents/NERC%20Standards%20Process%20Manual%20Appendix%203A%202019.pdf

The Cooperative sector endorses the following NAESB recommendations as priorities for Commission consideration:

Recommendation 4: On May 3, 2023, a request for standards development was submitted to NAESB to consider modifications to the force majeure language of the NAESB Base Contract for Sale and Purchase of Natural Gas to, among other things, encourage weatherization actions. The NAESB Gas-Electric Harmonization (GEH) Forum endorses this evaluation and encourages the NAESB Wholesale Gas Quadrant to act with utmost expediency to address this request on a timely basis.

Recommendation 7: State public utility commissions and applicable state authorities in states with competitive energy markets should engage with producers, marketers and intrastate pipelines to ensure that such parties' operations are fully functioning on a 24/7 basis in preparation for and during events in which extreme weather is forecasted to cause demand to rise sharply for both electricity and natural gas, including during weekends and holidays. (States could consider the approaches adopted in FERC regulations affecting the interstate pipelines.) In instances where state authorities lack enabling authority to take such actions, the FERC should adopt regulations to achieve identical outcomes within its authority.

Recommendation 8: The FERC should direct Independent System Operators (ISOs) and Regional Transmission Organizations (RTOs) or electric transmission owners/operators, where no ISO or RTO exists, to conduct and report to FERC the results of analyses of actions that better align the timelines of the Power Day and/or the day-ahead scheduling timelines with the gas day, including earlier notification of successful bids, to ensure that schedules are known and made available to allow natural gas-fired generators to procure natural gas and pipeline capacity in periods when the market is most liquid.

Recommendation 9: If not already under consideration through stakeholder processes, ISOs and RTOs or the FERC should conduct proceedings and adopt multiday unit commitment processes to better enable the industry to prepare for and provide reliable service during events in which weather is forecasted to cause demand to rise sharply for both electricity and natural gas.

Recommendation 10: State public utility commissions should encourage local distribution companies within their jurisdictions to structure incentives for the development of natural gas and electric demand-response programs in preparation for and during events in which demand is expected to rise sharply for both electricity and natural gas.

Recommendation 11: State public utility commissions should encourage local distribution companies within their jurisdictions to provide voluntary conservation public service announcements for residential, commercial, and industrial customers in preparation for and during events in which demand is expected to rise sharply for both electricity and natural gas.

Recommendation 16: Applicable state authorities should consider the development of weatherization guidelines appropriate for their region/jurisdiction to support the protection and continued operation of natural gas production and processing and gathering system facilities during extreme weather events, and require public disclosure concerning weatherization efforts of jurisdictional entities.

MORNING PANEL 2: CIP RELIABILITY STANDARDS AND THE EVOLVING GRID

Given the evolving regulatory landscape, it is imperative that new requirements on utilities are applied proportionately to the risk that the utility faces and do not mandate excessively prescriptive mitigation measures that, at best, limit entities' abilities to cost-effectively secure their systems and prevent unintended consequences to their operations resulting in reliability impacts.

Through the National Cyber Strategy and its Implementation Plan, there is a push to harmonize cyber requirements across sectors and agencies. This would benefit utilities that operate multiple systems or provide multiple services (e.g., electricity and gas). Cyber requirements on utilities – be they at the state, regional, or federal level – must be consistent with each other and not provide conflicting guidance that could lead to compliance issues or unintentionally increase risk. The energy sector needs to be closely involved in those harmonization efforts and the development of new regulatory efforts to ensure that the outputs are technically feasible, effective, and not place an unrealistic burden on the utilities and their customers. Harmonization, however, does not mean a "one-size-fits-all" approach because every utility's system is unique and mitigation measures must be flexible enough to accommodate differences between them.

CONCLUSION

These remarks cover a lot of ground and EKPC and NRECA are very appreciative of the Commission's time and attention to these important issues. While there may be diverging ways to achieve it, the common goal for this conference is assuring that our electric power grid remains safe, reliable and able to provide service at competitive rates in a sustainable manner. As is often said, however, "the devil is in the details" and reliability is too important to get wrong. As noted above, cooperatives serve some of the most rural, economically depressed areas of the country. Our members cannot afford the electric rate hikes, nor can they be asked to suffer through the blackouts that would result from the forced closure of some of our most important, dependable power plants.

For the good of utility customers and the nation, we must ensure that the bulk power grid remains reliable and resilient. Thank you again for your time and attention.