April 15, 2025

Administrator Lee Zeldin
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Submitted via email to a-and-r-docket@epa.gov and regulations.gov.

Re: Docket ID: EPA-HQ-OAR-2024-0419 – Review of New Source Performance Standards for Stationary Combustion Turbines and Stationary Gas Turbines; 89 Fed. Reg. 101,306 (December 13, 2024)

Dear Administrator Zeldin,

The National Rural Electric Cooperative Association (NRECA) respectfully submits these comments in response to the U.S. Environmental Protection Agency's (EPA, or the Agency) Proposed Rule to revise emissions standards for new, modified, and reconstructed combustion turbines (CTs).[1] NRECA is the national trade association representing nearly 900 not-for-profit electric cooperatives and other rural electric utilities.

America's electric cooperatives are owned by the people they serve and comprise a unique sector of the electric industry. Electric cooperatives power one in eight Americans and serve as engines of economic development for 42 million people across 56% of the nation's landscape. Electric cooperatives are focused on providing affordable, reliable, and safe electric power in an environmentally responsible manner and support common sense solutions to environmental impacts.

NRECA appreciates the opportunity to comment on the Proposed Rule.[2] These comments are accompanied by a Technical Report attached to this submission.[3] The Technical Report should be considered in its entirety.

For the reasons explained in these comments, the Proposed Rule does not align with the administration's vision of American energy dominance – a vision designed to promote an abundance of affordable, reliable energy. Accordingly, EPA should consider a supplemental proposed rule that better aligns with the administration's vision or find that no update of the

[1] Review of New Source Performance Standards for Stationary Combustion Turbines and Stationary Gas Turbines. 89 Fed. Reg. 101,306 (December 13, 2024) (Proposed Rule).
[2] NRECA is also a member of the Power Generators Air Coalition that submitted comments on this proposal.
[3] J. Edward Cichanowicz and Michael C. Hein. *Technical Basis for Comments: New Source Performance Standards for Stationary Combustion Turbines and Gas Turbines*. April 14, 2025. (Technical Report).

standards is necessary. In the absence of doing so, these comments also offer ways the Agency can minimize regulatory burden while meeting the statutory requirements of the Clean Air Act (CAA).

1) Executive Summary

America's not-for-profit electric cooperatives are committed to keeping the lights on at a cost local families and businesses can afford. This commitment to providing affordable, reliable, and safe electricity underpins NRECA's comments on the Proposed Rule. Electric cooperatives operate without shareholders and are uniquely affected by regulatory mandates. Any increased costs for cooperatives must be passed along directly to their consumer-members at the end of the line. It is therefore critical that agencies issue regulations that are cost effective.

EPA's Proposed Rule would revise the New Source Performance Standards (NSPS) for nitrogen oxides (NO_X) emissions from new, modified, and reconstructed stationary CTs under Section 111 of the CAA. CTs are an essential generation source for maintaining electric grid reliability and will become more critical as demand substantially increases due to the growth of data centers, industrialization, and electrification. The Proposed Rule would constrain how cooperatives operate their CTs with significant impacts on reliability and would increase costs to cooperatives' end of the line consumer-members. It also does not align with the Trump Administration's vision of American energy dominance.

A major flaw of the Proposed Rule is EPA's finding that post-combustion selective catalytic reduction (SCR), in conjunction with combustion controls, is the best system of emission reduction (BSER) for several subcategories. EPA arrives at this conclusion because it has substantially underestimated the costs of the technology. EPA should reevaluate this determination, particularly for new simple cycle CTs and for modified and reconstructed simple cycle and combined cycle units. EPA has also inappropriately subcategorized CTs subject to the rule by delineating units by size and annual capacity factor, rather than the operational characteristics of CTs.

EPA should reevaluate the Proposed Rule's impacts on the electric utility sector and its barriers to the administration's vision of American energy dominance. It should then either propose a new version of the rule that better comports with the administration's policies or find that no update to the standards is necessary. In the absence of doing so, EPA should consider substantial changes to the Proposed Rule explained in these comments.

2) Overview of America's Electric Cooperatives

NRECA is the national trade association representing nearly 900 not-for-profit electric cooperatives and other rural electric utilities. NRECA's member cooperatives include 64 generation and transmission (G&T) cooperatives and 830 distribution cooperatives.[4]

Locally, cooperatives are focused on powering and empowering their communities. Nationally, electric cooperatives are focused on advocating for smart energy policy that keeps the lights on.

[4] *See* https://www.cooperative.com/programs-services/bts/Documents/Data/Electric-Co-op-Fact-Sheet.pdf.

This includes pressing for solutions to meet increasing energy demands at a cost local families and businesses can afford.

As our nation increasingly relies on electricity to power the economy, keeping the lights on has never been more important – or more challenging. Over the next five years, the North American Electric Reliability Corporation (NERC), the nation's grid watchdog, forecasts that all or parts of 19 states from Montana to Louisiana are at high risk of rolling blackouts during normal peak conditions.[5] And flawed public policies that force the closure of existing power plants are a big reason why. Policymakers must approach national energy policy with affordability and reliability at the core while balancing aspirations with reality. NRECA supports efforts to maintain a diverse supply of always available energy technologies which are essential to keeping the lights on.

Cooperatives are leading the way with locally led solutions that ensure energy reliability, embrace responsibility and empower consumers with next-generation technologies. And with the growth of data centers in rural areas, they are balancing the need to meet increasing energy demand while ensuring that they keep the lights on at a cost their members can afford.

From state-of-the-art power plants and transmission lines to long-duration battery storage and microgrids, to carbon capture systems, to providing gigabit rural broadband, electric cooperatives are delivering more reliable services to their consumers, making our electric grid more resilient, and paving new pathways to prosperity for their communities.

America's electric cooperatives comprise a unique sector of the electric industry. These not-for-profit entities are independently owned and democratically governed by the people they serve. They exist in rural areas, where low populations and incomes have not attracted for-profit power companies. Electric cooperatives are focused on providing affordable, reliable, and safe electric power in an environmentally responsible manner.

Each cooperative is governed by a board of directors elected from its membership. The G&T cooperatives generate and transmit power to distribution cooperatives that then provide that power to consumer-members.

Collectively, G&T cooperatives generate and transmit power to nearly 80% of distribution cooperatives, which in turn provide power directly to consumer-members at the "end of the line" – i.e., the location where electricity is consumed. The remaining distribution cooperatives obtain power directly from other generation sources within the electric utility sector. Both distribution and G&T cooperatives share an obligation to serve their consumer-members by providing affordable, reliable, and safe electric service.

[5] North American Electric Reliability Corporation. *2023 Long-Term Reliability Assessment*. December 2023. pp. 6-7. Available at: https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_Infographic_2023.pdf.

Electric cooperatives provide power to one in eight Americans and serve as engines of economic development for 42 million people across 56% of the nation's landmass.[6] They own and maintain 2.7 million miles, or 42%, of the nation's electric distribution lines and serve large expanses of the United States that are primarily residential and typically sparsely populated.[7] Those characteristics make it comparatively more expensive for rural electric cooperatives to operate than the rest of the electric sector, which tends to serve more compact, industrialized, and densely populated areas.

Because 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 customers of municipal-owned or investor-owned utilities. Using data from the U.S. Energy Information Administration (EIA) and other sources, NRECA estimates that rural electric cooperatives serve an average of eight consumers per mile of line and collect annual revenue of approximately $19,000 per mile of line. In contrast, for the rest of the industry, the averages are 32 customers and approximately $79,000 in annual revenue per mile of line.

Many cooperative consumer-members are among those least able to afford higher electricity rates. Electric cooperatives serve 92% of persistent poverty counties in the United States.[8] In 2022, the average (mean) household income for electric cooperative consumer-members was 12% below the national average.

The electricity supplied by cooperatives is vital to rural economies. Rural development requires access to affordable and reliable electric power. Regulations that are not cost-effective and increase the cost of producing that electricity, or that threaten its availability, thus pose serious threats to economies in large segments of rural America.

Electric cooperatives rely on a diversity of resources to affordably and reliably meet their consumer-members' energy needs. Because of the comparatively smaller scale at which many cooperatives operate, cooperatives rely on fewer generation resources than other parts of the utility sector. Any actions affecting the availability of these resources disproportionately impact cooperatives and their consumer-members.

As not-for-profit entities, electric cooperatives are unique in the way they are financed. Cooperatives have no equity shareholders who can bear the costs of stranded generation assets or investment in new or alternative generation resources. Cooperatives do not have a rate of return on equity as do investor-owned utilities. All costs are passed through directly to each cooperative's consumer-members via increased electric rates.

Because of their not-for-profit nature, cooperatives maintain only marginal cash reserves for anticipated operating expenses and unforeseen events. For that reason, financing the significant capital investment required for new generation, transmission, and other infrastructure projects necessarily requires reliance on debt sourced from entities such as the U.S. Department of

[6] NRECA. *Electric Co-op Facts and Figures*. April 19, 2024. Available at: https://www.electric.coop/electric-cooperative-fact-sheet..
[7] *Id.*
[8] *Id.*

Agriculture's Rural Utilities Service (RUS), National Rural Utilities Cooperative Finance Corporation, and CoBank.[9] While RUS loans can be attractive to cooperatives because of lower interest rates, RUS financing is not without challenges. These challenges include loan restrictions, lengthier and uncertain approval processes (including National Environmental Policy Act reviews), and the significant amount of capital required.

3) CTs are Critical to American Energy Dominance

President Trump has clearly articulated a vision for his administration to enable American energy dominance. The president has signed several executive actions directing agencies to remove regulatory barriers to achieving that goal. These executive actions include, but are not limited to:

- Executive Order 14154, *Unleashing American Energy*, which calls on agencies "to protect the United States's economic and national security and military preparedness by ensuring that an abundant supply of reliable energy is readily accessible in every State and territory of the Nation."[10]
- Executive Order 14156, *Declaring a National Energy Emergency*, which expresses the need for "a reliable, diversified, and affordable supply of energy to drive our Nation's manufacturing, transportation, agriculture, and defense industries, and to sustain the basics of modern life and military preparedness."[11]
- Executive Order 14219, *Ensuring Lawful Governance and Implementing the President's "Department of Government Efficiency" Deregulatory Initiative*, which calls on agencies to "initiate a process to review all regulations subject to their sole or joint jurisdiction for consistency with law and administration policy."[12]
- Executive Order 14262, *Strengthening the Reliability and Security of the United States Electric Grid*, which in part establishes a policy "to ensure adequate and reliable electric generation in America, to meet growing electricity demand, and to address the national emergency declared pursuant to Executive Order 14156."[13]

In addition to these actions, EPA itself has announced its Powering the Great American Comeback Initiative, which aims to achieve the Agency's mission while "energizing the greatness of the American economy."[14] This initiative is based on five pillars guiding EPA's work, including restoring American energy dominance and making the United States the artificial intelligence (AI) capital of the world.

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[9] The Cooperative Finance Corporation is a member-owned, nonprofit cooperative organized in 1969 to raise funds from capital markets to supplement RUS loan programs. CoBank is a national cooperative bank and a member of the Farm Credit System, a nationwide network of banks and retail lending associations chartered to support the borrowing needs of U.S. agricultural interests and the nation's rural economy.

[10] 90 Fed. Reg. 8,353.

[11] 90 Fed. Reg. 8,433.

[12] 90 Fed. Reg. 10,583.

[13] 90 Fed. Reg. 15,521.

[14] *See* EPA Press Release "EPA Administrator Lee Zeldin Announces EPA's 'Powering the Great American Comeback' Initiative. Available at: https://www.epa.gov/newsreleases/epa-administrator-lee-zeldin-announces-epas-powering-great-american-comeback.

Combustion turbines are an essential component of electricity production and accordingly serve a necessary role in ensuring affordable and reliable power consistent with these executive actions and EPA's pillars. According to EIA data, in 2023, natural gas-fired generation made up the largest share of the United States's electric generation at 43%.[15] Simple cycle and combined cycle CTs provided 84% of the country's natural gas-fired generation capacity in 2022.[16]

These units provide versatile, dispatchable power to the grid and can ramp up and down as needed to meet demand. These attributes will only make CTs more critical as electricity demand continues to skyrocket. Their essential nature is exemplified by several projects underway at G&T cooperatives across the country.

a) Combustion turbines are essential to reliability amid skyrocketing demand growth

The versatility of CTs make them integral to ensuring electric reliability. Combined cycle units, which utilize the electricity created by CTs burning fuel and the electricity created by steam generated from their residual heat, are effective in providing baseload power. Simple cycle units, which generate electricity solely from the CT itself, provide grid support by delivering power when needed to meet rapid changes in system demand. That is because CTs can start up and shut down quickly, helping them stabilize the grid during periods of high demand or unplanned outages. This also makes CTs ideal for providing grid support for weather-dependent renewable generation like wind and solar. In recent testimony to Congress, Lanny Nickell, Executive Vice President and Chief Operating Officer of Southwest Power Pool, Inc. (SPP), described a situation where wind generation in SPP fell by 12,000 megawatts (MW) in two hours.[17] As his testimony describes, natural gas generation was essential to keeping the lights on.

The versatility of CTs will be necessary to address today's challenges facing the electric grid. In its *2024 Long-Term Reliability Assessment*, NERC found that most of the North American bulk power system "faces mounting resource adequacy challenges over the next 10 years."[18] A significant part of the challenge is the ongoing and forecast retirements of baseload thermal generation, primarily those of coal power plants. Interconnection queues abound with intermittent renewables that could ostensibly replace this lost generation, but the nameplate capacity of a renewable resource is not equivalent to that of a thermal resource (such as coal or natural gas).[19] For example, PJM, the regional transmission organization which serves all or parts

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[15] U.S. Energy Information Administration. *In Depth Analysis: Use of natural gas-fired generation differs in the United States by technology and region*. February 22, 2024. Available at: https://www.eia.gov/todayinenergy/detail.php?id=61444.

[16] *Id.*

[17] Testimony of Lanny Nickell, Executive Vice President, Chief Operating Officer, Southwest Power Pool, Inc., U.S. House of Representatives Committee on Energy and Commerce Subcommittee on Energy. March 25, 2025, at 4-5. Available at: https://d1dth6e84htgma.cloudfront.net/03_25_2025_ENG_Testimony_Nickell_60f2e9d769.pdf.

[18] North American Electric Reliability Corporation. *2024 Long-Term Reliability Assessment*. December 2024. p.6. Available at: https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_Long%20Term%20Reliability%20Assessment_2024.pdf.

[19] *See* EIA, Glossary. The term "generator nameplate capacity (installed)" is defined by the EIA as the "maximum rated output of a generator, prime mover, or other electric production equipment under specific conditions designated by the manufacturer." In other words, this is the potential amount of electricity, usually expressed in MWs, that a manufacturer determines a resource can produce under specific conditions.

of 13 states and Washington, DC, finds that – on average – it takes 5.2 MW of solar nameplate capacity or 14 MW of onshore wind nameplate capacity to equal 1 MW of thermal capacity.[20] In addition, the rate of completion for renewable and battery projects in interconnection queues lags behind those of gas.[21] As result of these dynamics, CTs are vital to help close the gap in lost generation.

In addition to a forecast shortfall of the electricity needed to meet existing levels of demand, future demand is expected to increase substantially. According to a recent report from Grid Strategies, nationwide electric demand is forecast to increase by nearly 16 percent by 2029, driven primarily by growth in AI data centers, manufacturing demand, and electrification.[22]

In particular, the projected growth of data centers, which according to the Department of Energy consume 10 to 50 times the energy per floor space of a typical commercial office building,[23] is expected to lead to skyrocketing growth in electricity demand. According to a report from the Lawrence Berkeley National Laboratory, at the end of 2023 data centers made up 4.4% of total U.S. electricity use, up from 1.9% in 2018.[24] That number is projected to jump to as much as 12% by 2028, a nearly threefold increase.

In order to meet this surge, utilities and data center developers are looking to natural-gas fired generation – primarily in the form of simple and combined cycle units. One estimate projects that as many as 80 new natural gas-fired power plants will be built in United States by 2030 – potentially 46 gigawatts (GW) worth.[25] In one such example, earlier this month plans were announced for a 4.5 GW natural gas power plant made up of seven CTs – which would be the largest such plant in the country – that will power a major data center campus.[26]

The expected growth in data centers may be even greater in areas served by cooperatives. Developers of data centers often look for inexpensive land on which to site projects, and rural land in areas served by cooperatives is an attractive option.

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[20] PJM. *Energy Transition in PJM: Resource Retirements, Replacements & Risks*. February 24, 2023. p.13 (see footnote 22). Available at: https://www.pjm.com/-/media/DotCom/library/reports-notices/special-reports/2023/energy-transition-in-pjm-resource-retirements-replacements-and-risks.ashx.

[21] Rand, et al. for Lawrence Berkeley National Laboratory. *Queued Up: 2024 Edition – Characteristics of Power Plants Seeking Transmission Interconnection As of the End of 2023*. p.28. April 2024. Available at: https://emp.lbl.gov/sites/default/files/2024-04/Queued%20Up%202024%20Edition_1.pdf.

[22] John D. Wilson, Zach Zimmerman, and Rob Gramlich for Grid Strategies. *Strategic Industries Surging: Driving US Power Demand*. December 2024. p.3. Available at: https://gridstrategiesllc.com/wp-content/uploads/National-Load-Growth-Report-2024.pdf.

[23] *See* https://www.energy.gov/eere/buildings/data-centers-and-servers.

[24] Shehabi, et al. for Lawrence Berkeley National Laboratory. 2024 United States Data Center Energy Usage Report. p.52. December 2024. Available at: https://eta-publications.lbl.gov/sites/default/files/2024-12/lbnl-2024-united-states-data-center-energy-usage-report.pdf.

[25] Amanda Chu and Jamie Smyth. *AI set to fuel surge in new US gas power plants.* Financial Times. January 13, 2025. Available at: https://www.ft.com/content/63c3ceb2-5e30-44f4-bd39-cb40edafa4f8.

[26] Jennifer Hiller. *A Big Coal Plant Was Just Imploded to Make Way for an AI Data Center*. The Wall Street Journal. April 2, 2025. Available at: https://www.wsj.com/business/energy-oil/a-big-coal-plant-was-just-imploded-to-make-way-for-an-ai-data-center-cd4bbe32.

b) Examples of cooperative combustion turbine projects

Faced with the prospect of substantial growth and the need to fulfill their mission to provide affordable and reliable power, NRECA's members are building new CTs. Basin Electric Power Cooperative is relying on CTs to help meet projected load growth over the next decade that could reach 5.9%.[27] In addition to the ongoing construction of two 235 MW simple cycle CTs, Basin recently announced the planned construction of approximately 1,470 MW in new natural gas-fired generation from two combined-cycle power plants.

Oglethorpe Power Corporation has announced two new projects to help it meet significant demand growth.[28] The first is a two-unit combined cycle plant expected to produce about 1,200 MW and come online in 2029. The second is a 240 MW simple cycle peaking unit.

Associated Electric Cooperative, Inc., has plans to add two new peaking facilities to meet their system's needs during periods of high demand.[29] The Ripley Energy Center, already under construction, and the forthcoming Turney Energy Center will each be equipped with a simple cycle CT that can produce a net output of 420-445 MW.

East Kentucky Power Cooperative plans to build a 745 MW combined cycle unit at its Cooper Station,[30] and Arkansas Electric Cooperative Corporation recently announced plans for a new 900 MW facility consisting of two simple cycle CTs.[31] These cooperatives are not alone. Other cooperatives are similarly looking to CTs to help meet future demand affordably and reliably.

4) The Proposed Rule Does Not Align with the Administration's Vision of American Energy Dominance and Should Be Reevaluated

The Proposed Rule fails to reflect the Trump Administration's vision of American energy dominance. EPA has identified the combination of combustion controls and post-combustion SCR as the BSER. While SCR is a demonstrated technology, it is not cost effective for many of the units to which it would apply. Due to the Proposed Rule's design, discussed in the following section, many new and *existing* CTs that will be vital to sustaining the electric grid and meeting future demand growth would be arbitrarily limited to run less often than makes sense – and does not justify the assumed benefits.

The Agency should reevaluate the Proposed Rule's impacts on the electric sector and its barriers to the administration's vision of American energy dominance. It should then either propose a new version of the rule that better comports with the administration's policies or find that no update to the standards is necessary. In the absence of doing so, EPA should consider substantial changes to the Proposed Rule explained in the remainder of these comments.

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[27] Testimony of Todd Brickhouse, Chief Executive Officer and General Manager of Basin Electric Power Cooperative, U.S. House of Representatives Committee on Energy and Commerce Subcommittee on Energy. March 5, 2025, at 2. Available at: https://d1dth6e84htgma.cloudfront.net/03_05_2025_ENG_Testimony_Brickhouse_88b42179d6.pdf.

[28] *See* https://opc.com/newgeneration.

[29] *See* https://www.aeci.org/new-gas-generation.

[30] *See* https://www.ekpc.coop/new-generation.

[31] Cathy Cash. *'Building Equity for Our Members': Arkansas G&T Invests $1B in Gas Units*. November 5, 2024. Available at: https://www.electric.coop/building-equity-for-our-members-arkansas-gt-invests-1b-in-gas-units.

a) Overview of the Proposed Rule

EPA published the Proposed Rule to revise the NSPS for new, modified, and reconstructed stationary CTs under Section 111 of the CAA. The Proposed Rule would specifically revise the "standard of performance" for NO_X emissions.

The Proposed Rule's primary emissions standard is based on what EPA found to be the BSER – a combination of combustion controls and post-combustion SCR. EPA then reviewed the universe of CTs subject to the NSPS and developed subcategories. EPA based these subcategories first on the size of the CT (small, medium, or large) and then by annual capacity factor (low load, intermediate load, and baseload).[32] Small CTs are those with heat inputs of less than or equal to 250 million British thermal units per hour (MMBtu/h), or about 25 MW. Medium CTs are those with a heat input between 250-850 MMBtu/h, or about 25-85 MW. Large CTs are those with a heat input greater than 850 MMBtu/h, or about 85 MW. A low load CT is one that operates at a 20% capacity factor or less. An intermediate load unit is one that operates between 20%-40%. A baseload unit is one that operates at a capacity factor of greater than 40%.

For new and reconstructed units, EPA proposes that the addition of post-combustion SCR to combustion controls is the appropriate BSER to apply to large intermediate load and baseload units, medium intermediate load and baseload units, and small baseload units. EPA proposes that application of this BSER can achieve an emissions rate of 3 ppm. EPA also proposes to apply this BSER and emissions rate to modified units in the large intermediate load and baseload subcategories. For units in other subcategories (except from those units operating north of the Arctic Circle), EPA finds that a BSER of combustion controls only is appropriate and proposes to establish varying emissions rates it believes are appropriate.

Other notable elements of the Proposed Rule include adding language to "clarify" when changes to a CT make a unit subject to the new and reconstructed unit requirements, and to change the averaging period for combined cycle units from a 30-operating-day period found in the current NSPS to a 4-hour rolling average.

For the reasons explained in the remainder of these comments, EPA should reevaluate its BSER and emissions standards in the Proposed Rule and address other deficiencies should it move forward with a final rule.

5) EPA Underestimates the Costs of SCR in Both New Applications and Retrofits

A "standard of performance" under CAA Section 111 is one that "reflects the degree of emission limitation achievable through the application of the best system of emission reduction" which, after accounting for costs and "nonair quality health and environmental impact and energy requirements," EPA determines has been "adequately demonstrated."[33] Appropriately broken down to its elements, EPA must demonstrate that its proposed standards: (1) are based on technology that has been adequately demonstrated, (2) are achievable through application of that

[32] The EIA defines "capacity factor" as the "ratio of the electrical energy produced by a generating unit for the period of time considered to the electrical energy that could have been produced at continuous full power operation during the same period."
[33] 42 U.S.C. § 7411(a)(1).

technology, and (3) are cost effective after considering costs and other nonair quality factors, including "energy requirements."

SCR is a technology that has been used for decades to lower NO_X emissions from fossil fuel-fired power plants. According to EPA, it has been included as a control on all new combined cycle units and most simple cycle CTs constructed over the last five years. The mere prevalence of the technology, however, does not mean it is appropriate for all units. EPA recognized this fact in establishing SCR as BSER for three of the 12 types of CT listed in Table 1 of the Proposed Rule[34] – finding that it is not cost justified for the subcategories in which it did not require SCR.

Despite this, EPA still underestimates the costs per ton of NO_X removed because of flawed methodology and assumptions. As a result, the Agency needs to reconsider its determination that SCR is BSER for these subcategories. While the attached Technical Report explains the deficiencies in EPA's cost analysis in detail,[35] the major flaws are summarized below.

a) EPA underestimates the costs of SCR in new applications

A major flaw is that EPA's reference unit is atypically large. The Agency chose a 459 MW CT as exemplary of the units likely to be built in the future. This, according to the Technical Report, represents the 99.7th percentile unit by size. A much more typical unit, based on recent builds, will be in the neighborhood of 205 MW. The effect of using such a large CT as the reference unit is that it downplays typical costs, making SCR appear more cost effective than it is in practice. Using the 459 MW unit, EPA derives a capital cost estimate to install SCR of $15/kilowatt (kW) for simple cycle and $9/kW for combined cycle. The more likely 205 MW unit results in an estimate of $28/kW and $12/kW, respectively.

EPA compounds the error by arbitrarily selecting higher reference capacity factors for units operating in the intermediate and baseload subcategories that similarly biases toward lower costs. EPA selected a 30% capacity factor for the reference intermediate load unit and 60% for the reference baseload unit. More appropriate capacity factors to determine the highest costs an operator could face would be 20% and 40%, respectively.

The attached Technical Report uses EPA's methodology but substitutes in the more realistic CT size and more appropriate capacity factor to develop revised cost estimates. These are reproduced in the table below.[36] Each color band is grouped together by the change in NO_X emissions.

[34] Proposed Rule at 101,323.
[35] *See* Technical Report, Section 7 – Critique of EPA's Cost Evaluation.
[36] Data from Technical Report, Table 7-3.

Subcategory	CT Type	Change in NO_X Emissions (ppm)	EPA Estimate ($/ton NO_X removed)	Revised Estimate ($/ton NO_X removed)	Percentage Increase
Low Load	SC	25 to 3	18,391	25,011	36%
Intermediate Load	SC	25 to 3	4,894	7,899	61%
Baseload	CC	25 to 3	3,545	5,047	42%
Low Load	SC	15 to 3	33,000	45,256	37%
Intermediate Load	SC	15 to 3	8,400	13,884	65%
Baseload	CC	15 to 3	3,800	5,732	51%
Low Load	SC	9 to 3	65,000	89,361	37%
Intermediate Load	SC	9 to 3	16,000	26,618	66%
Baseload	CC	9 to 3	6,400	10,314	61%
Low Load	SC	5 to 3	190,000	261,761	38%
Intermediate Load	SC	5 to 3	42,000	75,553	80%
Baseload	CC	5 to 3	16,000	27,272	70%

As the right-most column shows, the revised methodology results in costs per ton on NO_X removed that range from 36% to 80% higher than EPA's estimate. These more appropriate estimates merit EPA's reconsideration of BSER on the basis of cost justification for all baseload subcategories, and the medium and large intermediate load subcategories.

Separately, EPA developed its estimate of typical capital costs by engaging a respected engineering and consulting firm. As the Technical Report describes, these estimates are in line with industry standards except for one major flaw – they are now outdated. As a result, the estimates developed do not reflect today's much higher costs. As Table 7-4 of the Technical Report shows, recent examples of SCR capital costs exceed EPA's estimates.

b) Retrofitting SCR onto existing units is neither cost effective nor practical

As mentioned in section 4(a), EPA would require existing CTs to comply with the Proposed Rule's requirements when they are upgraded, modified, or reconstructed in a way that triggers application. For such units that fall within the baseload and medium and large intermediate categories, that could mean triggering a requirement to install SCR. As detailed in the Technical Report, however, this entails substantial costs – typically greater than that of new construction – assuming it is physically possible to install SCR on a plant's existing footprint.[37]

The major challenge with the Proposed Rule's requirements that could affect existing CTs is that these units were not designed with SCR in mind. SCR involves substantial physical space and engineering. As a result, retrofit is often impractical – if not impossible. Retrofits of simple cycle

[37] Technical Report at 35-37.

units would likely involve either relocating the stack to make room for the SCR reactor or trying to configure the reactor in parallel to the unit. Either option results in suboptimal process conditions for NO_X removal, thus making retrofits unrealistic. Combined cycle unit retrofits are also unworkable. The Technical Report details two options considered for retrofitting the Jackson Generating Station with SCR. Both options were abandoned as not feasible – before potential costs were even developed.[38]

A technical memo from 2022 cited in EPA's technical support document regarding NO_X mitigation measures similarly explains the difficulty in retrofitting existing simple cycle and combined cycle units yet was seemingly ignored on the aspect of retrofits.[39] The memo states:

> Existing combined cycle facilities with SCR units in place that are looking to further reduce NO_X emissions need to understand available space inside their reactor for extra catalyst volume or activity. For combined cycle facilities originally built without SCR, if extra space in the (heat recovery steam generator) was not dedicated for the future (ammonia injection grid) and catalyst, it may be impossible to retrofit the facility with SCR. Simple cycle units looking to add an SCR unit would see high costs as well due to either the use of a high temperature system that can be placed immediately downstream of the combustion turbine, or a larger SCR reactor that would require tempering air. Either way, duct or stack expansion is required to make an appropriate reactor with decreased flue gas velocity through the catalyst.

6) The Proposed Rule's Subcategories and Associated BSER and Emissions Limits Should Be Reevaluated

EPA based the Proposed Rule's subcategories on CT size and annual capacity factor. This method does not take into account design and operational variability among units that end up in the same subcategory, such as combined cycle and simple cycle units, and aeroderivative and frame types – nor does it account for variation within the same type of CT, such as the different uses of frame units. EPA should reconsider its approach to the Proposed Rule and instead base subcategories on the characteristics of units rather than just size and capacity factor.

a) NO_X control of simple cycle CTs vary within subcategories

As explained above, EPA created subcategories based on CT size and annual capacity factor. This approach fails to consider differences in CTs within such subcategories. For example, combined cycle and simple cycle units residing in the same subcategory have physical differences that result in substantial variation in the cost of controls like SCR, described below. Similarly, aeroderivative and frame CTs have different exhaust temperatures that affect the complexity (and thus cost) of NO_X removal.[40] Even variation within the class of CT within the

[38] *Id.* at 36-37.
[39] Sargent and Lundy. *Combustion Turbine NO_X Control Technology Memo*. January 2022. p.4. Available at: https://www.epa.gov/system/files/documents/2022-03/combustion-turbine-nox-technology-memo.pdf.
[40] Aeroderivative combustion turbines are adapted from aircraft jet engines, making them lighter, more compact, and faster to start up. They are known for high efficiency, flexibility, and suitability for distributed generation or peaking power applications. Frame combustion turbines, on the other hand, are designed specifically for heavier duty use.

same subcategory (as with frame CTs in the large intermediate subcategory) results in wide cost effectiveness disparities among those units. As a result, SCR is not cost effective for the entire subcategory.

Five subcategories of new units require the use of SCR – large baseload, large intermediate, medium baseload, medium intermediate, and small baseload. Small baseload units are not typically found in utility use. The rest are widely used, and the Proposed Rule's requirements would make it uneconomical for some CTs to operate at the capacity factor they would in the absence of the Proposed Rule. Like the NSPS for natural gas units included in the May 2024 Power Plant Carbon Dioxide Rule[41] that on March 12, 2025 EPA announced it will reconsider, these requirements would artificially constrain electricity production – with significant impacts on reliability and affordability.

EPA's proposed large baseload subcategory covers combined cycle and simple cycle CTs and would require an emissions limit based on SCR. This does not make sense. The Power Plant Carbon Dioxide Rule effectively prevents any natural gas-fired plant from operating at baseload levels.[42] Putting that aside, there are notable physical differences between combined cycle and simple cycle plants. SCR for combined cycle units may make sense because the SCR is located near the heat recovery steam generator (HRSG),[43] where exhaust gas temperatures are suitable for effective use of the control technology. Large simple cycle units (which would likely fall in the large intermediate subcategory), however, do not have such a setup, which means that in order to allow for SCR to function properly additional equipment (and cost) is required. Further, those large simple cycle CTs are generally frame units, specifically E-Class, F-Class, and H-Class. These classes vary considerably in their emissions performance.

As shown in Table 1 of EPRI's comments,[44] E-Class units are typically in the capacity range of about 88-150 MW, and with Dry Low-NO_X combustion control technology can achieve NO_X emissions levels of about 5 ppm. F-Class unit capacities range from about 200-300 MW, and with Dry Low-NO_X technology can achieve NO_X emissions levels of about 9 ppm. H-Class units

They are larger, heavier, and built for durability, and often used in power plants where long operational life and stability are prioritized over rapid startup.

[41] 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).

[42] The Power Plant Carbon Dioxide Rule would require any natural gas unit to capture 90% of carbon dioxide emissions via carbon capture and storage (CCS) in order to operate at a capacity factor of 40% or greater in 2032. CCS, including carbon dioxide transportation and storage, has not been adequately demonstrated at that level and is therefore not a realistic option. *See* NRECA comments filed in Docket ID: EPA-HQ-OAR-2023-0072 on August 8, 2023.

[43] A heat recovery steam generator a type of heat exchanger that recovers heat from hot exhaust gases, typically from gas turbines or other combustion sources, and uses that heat to generate steam. This steam can then be used to drive a steam turbine, increasing the overall efficiency of the power plant.

[44] *See* Comments of Electric Power Research Institute (EPR). Table 1. Available at: https://www.regulations.gov/comment/EPA-HQ-OAR-2024-0419-0059.

are typically above 320 MW, and with Dry Low-NO_X technology can achieve NO_X emissions levels of about 25 ppm.[45]

Based on EPA's cost calculations, which as detailed in the previous section and the Technical Report are underestimated, only the H-Class reductions to the proposed emissions standard of 3 ppm could even be considered cost effective. This is stated only to show the variance within the cost effectiveness within the same subcategory. Using the revised cost methodology found in the Technical Report, a BSER of SCR would not be cost effective for any of these CTs.

Accordingly, a BSER of SCR for any simple cycle CT at any capacity factor is not appropriate. EPA should reevaluate its BSER determination. In doing so, EPA should also base its subcategories on the physical characteristics of units, not merely size and capacity factor. If EPA were to eliminate SCR requirements for simple cycle CTs, for example, then the low load subcategory may not be necessary.

b) The Proposed Rule's emissions limit of 3 ppm for subcategories in which SCR is BSER is too stringent

EPA requested comment on an appropriate SCR-based ppm NO_X emissions standard. The attached Technical Report evaluated the appropriateness of a 2 ppm and 3 ppm limit.[46] NRECA agrees with EPA that a standard of 2 ppm is too stringent, for the reasons explained in Section 5 of the Technical Report. The Technical Report also shows that the proposed 3 ppm limit is too stringent. Only six of the 11 units evaluated could achieve compliance 100% of the time at this limit. This demonstrates that 3 ppm fails to offer sufficient compliance margin and that a higher ppm limit is necessary for any subcategory in which SCR may be an appropriate BSER.

c) SCR as BSER for large base load and intermediate modified CTs is not appropriate

The Proposed Rule would subject large base load and intermediate modified CTs subject to the same requirements as new CTs. For the reasons explained above in Section 5(b), retrofitting SCR onto existing units not originally designed for the technology is not cost effective, and may be physically impossible within the existing footprint of a plant. For combined cycle units, the SCR is typically located in the HRSG. There is not enough space to install SCR in these setups. Installing SCR would require either moving the HRSG to add enough ductwork or otherwise lengthening the ductwork to make the system function properly. This enormous expense is not cost effective, even assuming a plant has enough physical room to perform the needed expansion. Accordingly, the BSER for all modified units should be based on combustion controls.

d) The Proposed Rule's revised language regarding what constitutes 'new' and 'reconstructed' affected sources is problematic

In the current NSPS (referred to as subpart KKKK), EPA defines a "stationary combustion turbine," i.e., a source subject to the rule, to include not just the turbine itself, but also all

[45] Another large frame CT, Mitsubishi's J-Class CT, similarly achieves emissions levels of about 25 ppm with combustion controls, according to Table 1 in EPRI's comments.
[46] *See* Technical Report, Section 5 – Achievability: High Load NO_X Limits of 2, 3 ppm.

equipment including the HRSG and duct burners.[47] In the Proposed Rule, which would become subpart KKKKa, EPA narrows this definition by adding language to "clarify" when an existing CT should be considered "new" or "reconstructed," thereby triggering the Proposed Rule's application.

Proposed subpart KKKKa would determine that an existing CT would become a "new" CT if the combustion turbine portion of the unit is completely replaced. An existing CT would become "reconstructed" if "the fixed capital costs of the replacement of components of the combustion turbine engine portion exceed 50 percent of the fixed capital costs that would be required to install *only* a comparable new combustion turbine engine portion of the affected facility" (emphasis in original).[48] Under the long standing definition for subpart KKKK, reconstruction would have been triggered if fixed capital costs exceeded 50 percent of the fixed capital costs to construct an entirely new facility, inclusive of the HRSG and other equipment.

Rather than clarifying when a CT is considered "new" or "reconstructed," the effect of this revision – which is a departure from EPA precedent – is to increase the number of existing CTs that will be subject to the Proposed Rule by merely engaging in good maintenance practices (some of which may be required by manufacturers in order to maintain warranties and prevent safety issues). It also provides a disincentive for operators to upgrade existing CTs with efficiency upgrades that reduce emissions while providing more electricity output.

With respect to EPA's inclusion of "reconstructed" units in the Proposed Rule at all, based on the plain language of CAA Section 111, there is no statutory basis for doing so. The act defines a "new source" as "any stationary source, the construction or modification of which is commenced after the publication of regulations…"[49] A modification is defined as "any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such a source…" [50]Accordingly, other than when a unit is constructed, it should only become subject to an NSPS when it is modified in a way that increases emissions.

EPA should maintain the existing language in subpart KKKK regarding when a source is considered new and eliminate any language suggesting the Proposed Rule covers "reconstructed" units.

e) EPA should retain the 30-operating-day averaging period for combined cycle units

The Proposed Rule would establish a 4-hour rolling averaging period for both simple cycle and combined cycle units. This is a change from the current NSPS at subpart KKKK for combined cycle units, which currently have a 30-operating-day averaging period. Several NRECA members expressed concern that this proposed change would limit operational flexibility, particularly with regard to responding to changes in electricity demand. EPA should retain the

[47] In its regulations, the EPA defines a duct burner as a "device that combusts fuel and that is placed in the exhaust duct from another source, such as a stationary gas turbine, internal combustion engine, kiln, etc., to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a heat recovery steam generating unit." 40 CFR 60.331.
[48] Proposed Rule at 101,314.
[49] 42 U.S.C. § 7411(a)(2).
[50] 42 U.S.C. § 7411(a)(4).

30-operating-day averaging period for combined cycle units to ensure that operators can utilize these units as needed to support reliable electricity.

7) Conclusion

EPA's Proposed Rule has significant flaws and should be reevaluated. It does not align with the Trump Administration's vision of American energy dominance and would artificially constrain the use of essential CTs. For the reasons above, EPA should reevaluate the Proposed Rule for its alignment with the policy goals of the administration and its impact on affordable and reliable electricity. NRECA recommends that EPA then either issue a supplemental proposed rule or find that no update of the NSPS is necessary.

NRECA appreciates the opportunity to comment on EPA's Proposed Rule. If you have any questions, please contact Dan Bosch, regulatory affairs director, at dan.bosch@nreca.coop or 571-531-2493.

Sincerely,

Dan Bosch
Regulatory Affairs Director