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April 15, 2025

Lee Zeldin, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue
Washington, D.C. 20460

Re: Proposed Review of New Source Performance Standards for
Stationary Combustion Turbines and Stationary Gas Turbines;
Docket No. EPA-HQ-OAR-2024-0419.

Dear Administrator, Zeldin:

Please find attached comments filed on behalf of the Midwest Ozone Group (MOG)¹ on the proposal by the United States Environmental Protection Agency ("EPA") entitled "*Review of New Source Performance Standards for Stationary Combustion Turbines and Stationary Gas Turbines*," Docket No. EPA-HQ-OAR-2024-0419. 89 Fed. Reg. 101306 (December 13, 2024). The comment period on this proposal has been reopened through April 15, 2025. *See* 90 Fed. Reg. 13576 (March 25, 2025).

MOG appreciates the opportunity to offer these comments.

Very truly yours,

A handwritten signature in blue ink that reads 'David M. Flannery'.

David M. Flannery

¹ The membership of the Midwest Ozone Group includes: Ameren, American Electric Power, American Forest & Paper Association, American Iron and Steel Institute, American Wood Council, Appalachian Region Independent Power Producers Association, Associated Electric Cooperative, Berkshire Hathaway Energy, Big Rivers Electric Corp., Buckeye Power, Inc., Citizens Energy Group, City Water, Light & Power (Springfield IL), Cleveland-Cliffs Inc., Council of Industrial Boiler Owners, Duke Energy Corp., East Kentucky Power Cooperative, ExxonMobil, Indiana Energy Association, Indiana-Kentucky Electric Corporation, Indiana Municipal Power Agency, Indiana Utility Group, Hoosier Energy REC, inc., LGE/ KU, Marathon Petroleum Company, Monongahela Power Company, National Lime Association, North American Stainless, Nucor Corporation, Ohio Utility Group, Ohio Valley Electric Corporation, Olympus Power, Steel Manufacturers Association, and Wabash Valley Power Alliance.

cc: John Ashley
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**MIDWEST OZONE GROUP COMMENTS ON
PROPOSED RULE ENTITLED
“Review of New Source Performance Standards for Stationary
Combustion Turbines and Stationary Gas Turbines”**

Docket ID No. EPA-HQ-OAR-2024-0419

89 Fed. Reg. 101,306 (December 13, 2024)

APRIL 15, 2025

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Exhibit A

Technical Basis for Comments: New Source Performance Standards for Stationary Combustion Turbines and Gas Turbines; Prepared for: American Public Power Association, Midwest Ozone Group, Power Generators Air Coalition; Prepared by J. Edward Cichanowicz, Saratoga, CA; Michael Hein, Hein Analytics, LLC, Whitefish, MT; April 14, 2025.

(https://www.midwestozonegroup.com/_files/ugd/7ec07f_e7155a8742ea49e8aa9354136ab713f8.pdf)

**Midwest Ozone Group Comments on Proposed Rule Entitled
“Review of New Source Performance Standards for Stationary Combustion
Turbines and Stationary Gas Turbines”
Docket No. EPA-HQ-OAR-2024-0419
89 Fed. Reg. 101306 (December 13, 2024)**

1. Introduction.

The Midwest Ozone Group (“MOG”) offers these comments¹ on the proposed rule issued by the U.S. Environmental Protection Agency (“EPA”) entitled “*Review of New Source Performance Standards for Stationary Combustion Turbines and Stationary Gas Turbines,*” Docket No. EPA-HQ-OAR-2024-0419. 89 Fed. Reg. 101306 (December 13, 2024). The comment period on this proposal has been reopened through April 15, 2025. 90 Fed. Reg. 13576 (March 25, 2025).

MOG is an affiliation of companies and associations² that draws upon its collective resources to seek solutions to the development of legally and technically sound air quality programs that may impact on their facilities, their employees, their contractors, and the consumers of their products. MOG's primary efforts are to work with policy makers in evaluating air quality policies by encouraging the use of sound science. MOG has been actively engaged in a variety of issues and initiatives related

¹ These comments were prepared with the technical assistance of Gregory Stella of Alpine Geophysics, LLC. and of J. Edward Cichanowicz and Hein Analytics, LLC. Comments or questions about this document should be directed to David M. Flannery, Kathy G. Beckett or Keeleigh Scarlett Huffman (Steptoe & Johnson PLLC, P.O. Box 1588, Charleston, WV 25326-1588) or Edward L. (Skip) Kropp, (Steptoe & Johnson PLLC, P.O. Box 36425, Indianapolis, IN 46236; dave.flannery@steptoe-johnson.com / (304) 353-8171; kathy.beckett@steptoe-johnson.com / (304) 353-8172; keeleigh.huffman@steptoe-johnson.com / (304) 353-8132 or skip.kropp@steptoe-johnson.com / (317) 946-9882 respectively.

² The membership of the Midwest Ozone Group includes: Ameren, American Electric Power, American Forest & Paper Association, American Iron and Steel Institute, American Wood Council, Appalachian Region Independent Power Producers Association, Associated Electric Cooperative, Berkshire Hathaway Energy, Big Rivers Electric Corp., Buckeye Power, Inc., Citizens Energy Group, City Water, Light & Power (Springfield IL), Cleveland-Cliffs Inc., Council of Industrial Boiler Owners, Duke Energy Corp., East Kentucky Power Cooperative, ExxonMobil, Indiana Energy Association, Indiana-Kentucky Electric Corporation, Indiana Municipal Power Agency, Indiana Utility Group, Hoosier Energy REC, inc., LGE/ KU, Marathon Petroleum Company, Monongahela Power Company, National Lime Association, North American Stainless, Nucor Corporation, Ohio Utility Group, Ohio Valley Electric Corporation, Olympus Power, Steel Manufacturers Association, and Wabash Valley Power Alliance.

to the development and implementation of air quality policy, including the development of transport rules (including the Good Neighbor Plan related to the 2015 ozone NAAQS), NAAQS standards, nonattainment designations, petitions under Sections 126, 176A and 184(c) of the Clean Air Act (“CAA”), NAAQS implementation guidance, the development of Good Neighbor State Implementation Plans (“SIPs”), NESHAP and NSPS requirements, and related regional haze and climate change issues. MOG’s membership owns and operates numerous stationary sources that are affected by air quality requirements, including the NSPS for stationary combustion turbines and stationary gas turbines.

As will be pointed out in these comments, significant portions of EPA’s proposed NSPS rule are both legally and technically flawed in part because the proposal is not supported by air quality modeling and erroneously assesses the cost and technical feasibility of the rule. In addition, the proposal exceeds EPA’s regulatory authority by seeking to impose mass-based limits that restrict unit operations and lower capacity factors rather than to reflect the performance of emission control technology. These comments also renew MOG’s objection to the short length of the comment period that EPA has offered for this proposal.

Accordingly, MOG urges EPA to address these concerns prior to finalization of the rule.

2. Overview of CAA authority.

On December 13, 2024, EPA published a proposed rule in the Federal Register entitled, “Review of New Source Performance Standards for Stationary Combustion Turbines and Stationary Gas Turbines.” This action is taken under the authority of the Clean Air Act Section 111, which governs the establishment of standards of performance for stationary sources that cause or contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare. CAA § 111(b)(1)(A).

The CAA requires that the EPA review the NSPS at least every eight years and revise (as appropriate) through the rulemaking process. *See* CAA § 111(b)(1)(B). This is a mechanism that allows EPA to list categories of stationary sources that cause or contribute significantly to air pollution that may endanger public health or welfare. *See* CAA § 111(b)(1)(A).

However, NSPS requirements are applicable to stationary sources linked to air pollution that could endanger public health and welfare and are intended to reflect

best system of emission reduction (“BSER”) as well as (1) cost (2) non-air health and environmental impact and (3) energy requirements. BSER is a determination of the best adequately demonstrated system of continuous emissions reduction, based on expected growth of source category, pollution control measures, current requirements achieved in practice, costs, amount of emission reduction, and non-air quality health impacts/energy.

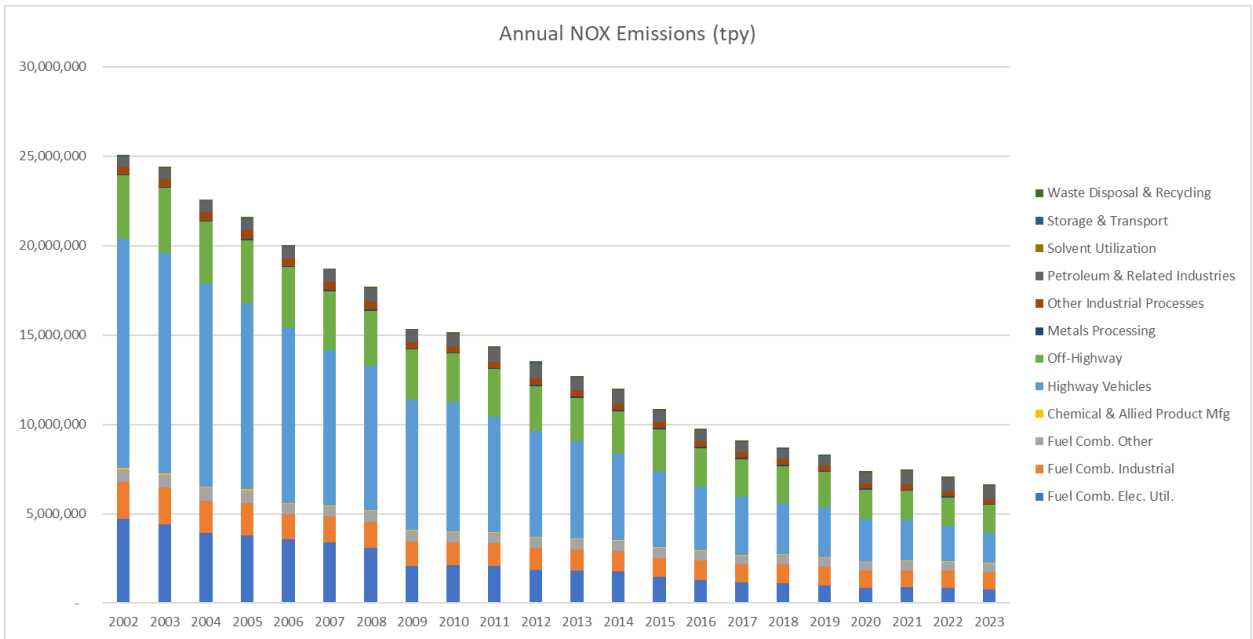
In addition to Clean Air Act statutory requirements, assessment of the 2025 Executive Orders signed by President Trump provides guidance relevant to the issues presented by this proposed rulemaking. At least two of these Executive Orders highlight key issues that inform about review of this proposal. For example, an assessment of whether EPA’s technical and mathematical outcomes are replicable and therefore consistent with the Executive Orders on transparency and the APA notice and comment requirements is necessary. (1) Executive Order 14154, January 20, 2025 “Unleashing American Energy,” Sec. 6; (2) Executive Order 14219, February 19, 2025 “*Ensuring Lawful Governance and Implementing the President’s Department of Government Efficiency*” Deregulatory Initiative.” Sec. 2(h).

3. Air Quality.

Given the requirement of CAA § 111(b)(1)(A), that NSPS requirements are applicable to stationary sources linked to air pollution that could endanger public health and welfare, it is critical that EPA consider air quality and the improvements that have occurred, and will continue to occur, as the result of existing regulatory programs.

a. Emissions from anthropogenic sources, and specifically combustion turbines, have been steadily decreasing in recent years.

Anthropogenic emissions of most key air pollutants continue to decline from 2010 levels, including those for nitrogen oxides (NO_x). As can easily be seen in the figure below, from 2002 to 2023, national, anthropogenic NO_x emissions decreased by 73 percent, largely driven by federal and state implementation of stationary and mobile source regulations, and technological advancements from American innovators.

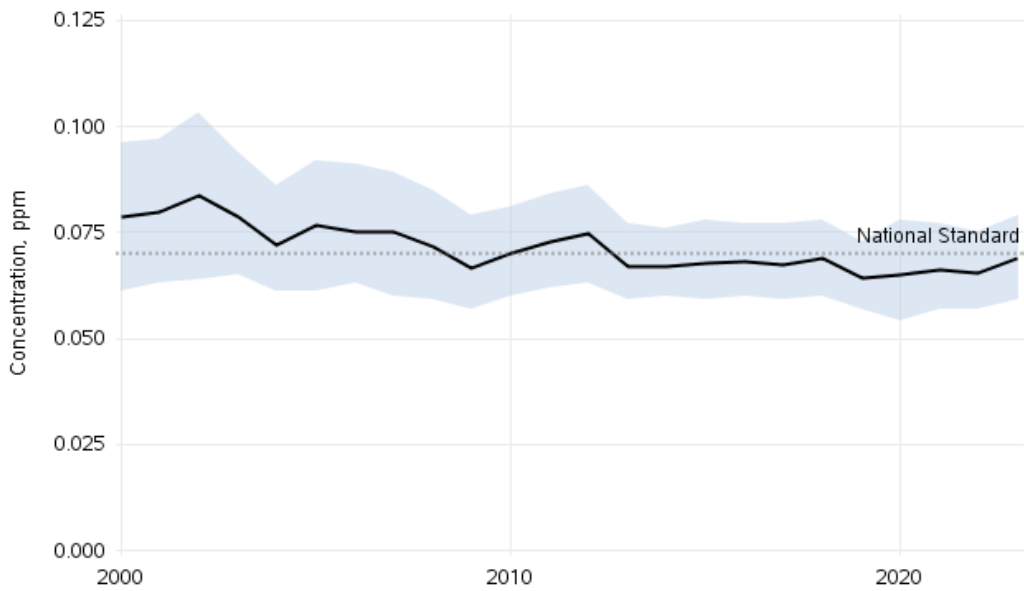


Emission trends for combustion turbines also show a significant decline in pollutants like NOx due to advancements in combustion technology, particularly the adoption of "lean premixed" burners, which result in cleaner burning and lower emissions making it unnecessary to impose additional NOx emission reductions.

b. Air quality has been steadily improving in recent years.

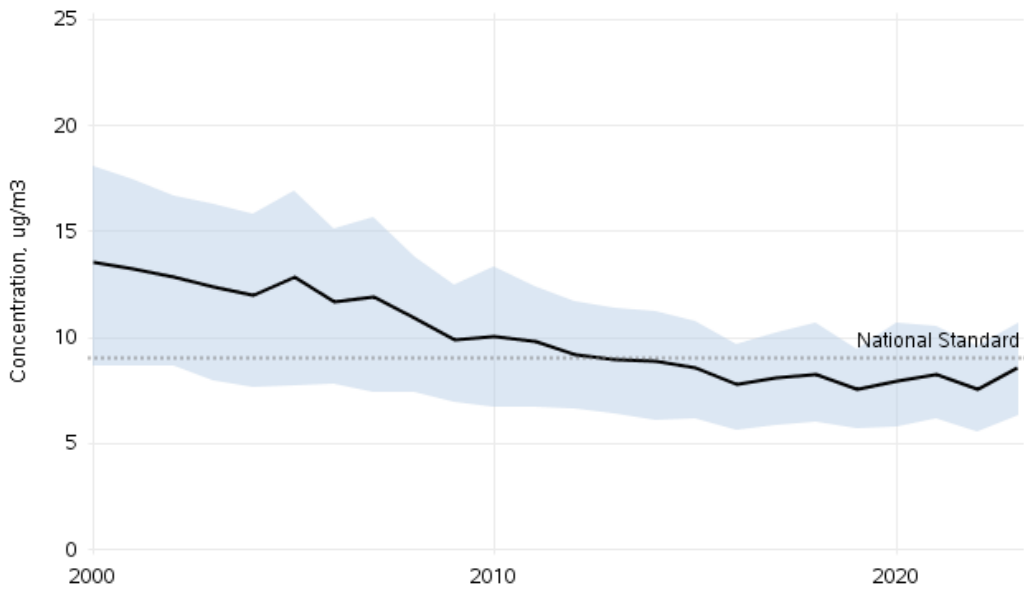
The United States has seen a 12% decrease in the daily maximum 8-hour national average in ozone between 2000 and 2023 and a 37% decrease in the seasonally-weighted national annual average in PM2.5 during the same period. U.S. Environmental Protection Agency, *Ozone Trends* (access at <https://www.epa.gov/air-trends/ozone-trends>).

Ozone Air Quality, 2000 - 2023
(Annual 4th Maximum of Daily Max 8-Hour Average)
National Trend based on 823 Sites



2000 to 2023 : 12% decrease in National Average

PM2.5 Air Quality, 2000 - 2023
(Seasonally-Weighted Annual Average)
National Trend based on 356 Sites



2000 to 2023 : 37% decrease in National Average

c. The NO_x reductions set forth in the proposed rule are not significant.

In total, this proposed rule is estimated to reduce NO_x emissions by 198 tons in 2027; 714 tons in 2028; 1,229 tons in 2029; 1,744 tons in 2030; 2,259 tons in 2031; and 2,659 tons in 2032.

When compared to NO_x reduction estimates of other recent EPA actions these nominal emission reductions demonstrate the limited impact this proposed rule is likely to have on downwind air quality.

In contrast to this proposed rule, EPA's Final Rule entitled "*Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles*" demonstrates a national emission reduction of 84,700 tons NO_x. U.S. Environmental Protection Agency, *Memo to the Docket: Air Quality Analysis for the Light and Medium-Duty Vehicle Multipollutant Rule* (access at <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1019Z9X.pdf>).

EPA's Acid Rain Program ("ARP") has accounted for a 7.5-million-ton NO_x reduction from the projected level in 2000 without the ARP, over three times the program's NO_x emission reduction objective. U.S. Environmental Protection Agency, *Progress Report - Emissions Reductions* (access at <https://www.epa.gov/power-sector/progress-report-emissions-reductions#nox>).

Emission reductions from the Cross-State Air Pollution Rule ("CSAPR") NO_x annual program sources were about 1.8 million tons (84 percent) lower than in 2005 and 732,000 tons (68 percent) below the CSAPR NO_x annual program's 2023 regional budget of 1,069,256 tons. *Id.*

Additionally, the increased application of SCR required by the proposed rule is estimated to increase emissions of ammonia (NH₃) and carbon dioxide (CO₂). Therefore, proposed subpart KKKKa is estimated to increase NH₃ emissions by 21 tons in 2027; 65 tons in 2028; 108 tons in 2029; 152 tons in 2030; 196 tons in 2031; and 232 tons in 2032. CO₂ emissions are estimated to increase by 1,597 tons in 2027; 4,921 tons in 2028; 8,244 tons in 2029; 11,568 tons in 2030; 14,891 tons in 2031; and 17,680 tons in 2032. *See* 89 Fed. Reg. 101350.

Executive Order No. 14219 from February 19, 2025, provides that agency heads are ordered to review regulations and identify those that "are based on anything other than the best reading of the underlying statute" and that "impose significant costs upon private parties that are not outweighed by public benefits."

Sec. 2 (iii) and (v). As discussed in detail below, the NO_x reductions set forth in the proposed Rule are not significant and are therefore inconsistent with the Executive Order.

d. Air quality improvement related to these emission reductions are not meaningful.

While EPA notes that “[t]he changes will have beneficial effects on air quality and public health for populations exposed to emissions from new, modified, or reconstructed stationary combustion turbines and will provide additional health protection for most populations, including communities with EJ concerns.” 89 Fed. Reg. 101353, no estimated air quality improvement was calculated for this proposed rule so no determination of meaningful air quality improvement could be made.

The EPA projects that approximately 68 new, modified, or reconstructed combustion turbines will begin operation each year. Approximately 13 sources are expected to incur additional costs associated with running their existing controls more. No existing combustion turbines will be affected by the regulation. However, because it is not possible to project specific companies or government organizations that will purchase combustion turbines in the future, the small entity screening analysis for the combustion turbine rule is based on the evaluation of owners of combustion turbines constructed within the past five years. It is assumed that the existing size and ownership distribution of combustion turbines in this dataset is representative of the future growth in new combustion turbines.

The EPA is also unable to precisely predict the number or location of the combustion turbines likely to be constructed, modified, or reconstructed in the future, and therefore has to rely upon recent history to project the future. As noted in Chapter 3 of the RIA, the proposed rule does not dictate that controls must be installed to control pollutants, but rather that new, modified, and reconstructed turbines must meet emission standards consistent with the BSER for that unit. If the owners of affected units are able to find alternative methods to comply, then the costs presented in this RIA may be overestimates. Likewise, the costs may be underestimated if the variable cost associated with running existing controls more was underestimated in the cost analysis or if the controls the EPA assumed will be needed are not able to obtain the required reductions.

Based on the anticipated number of units controlled by the rule and predicted emission reduction associated with these controls, estimated emission reduction per unit is calculated at approximately 11 tons NO_x per year for each of the projected

years. When distributed across the national geographic scope of the proposed rule's implementation, each individual unit is unlikely to have measurable, let alone meaningful, air quality improvement at any downwind receptor.

Executive Order No. 14219 from February 19, 2025, provides that agency heads are ordered to review regulations and identify those regulations that “implicate matters of social, political, or economic significance that are not authorized by clear statutory authority.” Sec. 2(iv). Promulgation of a rule such as this one that will not affect meaningful emissions reductions is not consistent with the referenced Executive Order and may negatively impact grid reliability at a time when demand is expected to dramatically increase. Additionally, Executive Order No. 14154 urges prioritizing accuracy in environmental analyses as follows: “In fulfilling all such requirements, agencies shall strictly use the most robust methodologies of assessment at their disposal and shall not use methodologies that are arbitrary...” Sec. 6 (a). Such executive guidance raises concern about a rule based on assumptions that are unlikely to result in measurable or meaning air quality improvement.

e. Air quality modeling was not conducted for this analysis.

EPA's Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM_{2.5} and Regional Haze (“Modeling Guidance”) reflects the EPA's recommendations for how air agencies should conduct air quality modeling and related technical analyses to satisfy model attainment demonstration requirements for the 2015 ozone NAAQS. The document describes how to apply air quality models to generate the predictions used to evaluate attainment, primarily to nonattainment areas for which modeling is required, or desired. The guidance is intended for use by “the EPA headquarters and Regional offices; federal land managers of mandatory Class I federal areas; state, local and tribal air quality management authorities, and the general public.”

This Modeling Guidance outlines the process for utilizing a photochemical model to assess proposed control strategies for attaining air quality goals. When EPA's modeling guidance is followed, the photochemical model is run several times in a consistent manner so that the results of the model runs are comparable. First, the air quality model is setup and run for a base year using emissions and meteorological data for that base year. The meteorological and air quality model results are evaluated against available observations and a decision is made if the model performance is adequate for air quality planning. In the next step, a future year base case emissions inventory is prepared and input into the model to assess the future year air quality concentrations. The final step is to apply controls to the sources in

the emissions inventory for a future year emissions inventory and re-run the future year model. The results of the future year control case model are compared to the future year base case to determine the air quality benefit of the proposed control strategy.

In this proposed rule, while citing time constraints, EPA used a “Benefit-Per-Ton” (“BPT”) approach to estimate the benefits of this rule instead of conducting photochemical air quality modeling. Utilizing this method introduced large uncertainties into this conceptually simple approach which have rendered the results technically uncertain and too tenuous to support the imposition of the proposed rule findings. U.S. Environmental Protection Agency, RIA, EPA-HQ-OAR-2024-0419-0005, at 37 (“RIA”).

Finally, guidance set forth in Executive Order 14154 directs administrative agencies to prioritize accuracy of environmental analyses. “In fulfilling all such requirements, agencies shall strictly use the most robust methodologies of assessment at their disposal and shall not use methodologies that are arbitrary...” Sec. 6(a). EPA’s decision to use the BPT approach as an alternative to air quality modeling is clearly inconsistent with this directive.

f. The benefits associated with the proposed reduction in NOx emissions have significant uncertainty.

In 2023, the EPA updated BPTs for 21 emissions sectors using an updated 2017 emissions inventory³ Sectoral BPTs were calculated for 3 regions (West, North, South) for 18 of the 21 sectors and at the State-level for the other 3 sectors (industrial boilers, stationary internal combustion engines, and electricity generating units (“EGUs”)). These BPT estimates provide the total monetized human health benefits (the sum of premature mortality and premature morbidity) of reducing one ton of the PM2.5, NOx and SO2 precursor for PM2.5 and the NOx precursor for ozone from a specified source.

It is important to note that Combustion Turbines were not among the sectors modeled by the EPA in 2023; therefore, the Agency does not have pre-calculated BPT estimates for the combustion turbine sector.

³ U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Technical Support Document: Estimating the Benefit per Ton of Reducing Directly-Emitted PM2.5, PM2.5 Precursors and Ozone Precursors from 21 Sectors*, (September 2023) (access at https://www.epa.gov/system/files/documents/2021-10/source-apportionment-tsd-oct-2021_0.pdf)

In selecting BPTs for industrial boilers as the best fit for estimating potential benefits (and disbenefits) of this proposed rule, the EPA acknowledges the significant uncertainty inherent in the benefits estimates presented in this RIA. RIA at 39.

The estimation of BPTs involves analytic uncertainties. BPT estimates reflect the geographic distribution of the modeled emissions, which may not exactly match the emission reductions that would occur due to the action, and may not reflect local variability in population density, meteorology, exposure, baseline health incidence rates, or other local factors for any specific location. Reduced-form tools can produce overestimates or underestimates relative to full-form modeling, depending on the pollutant of interest and policy scenario In particular, reduced-form approaches should be applied with caution to policies with substantial changes in NO_x emissions. *Id.* at 40.

As acknowledged in section 4.3 of the RIA, the EPA has utilized a BPT approach to estimate the monetized benefits of this proposed rule, which introduces substantial uncertainty into the benefits estimates. Furthermore, because the Agency did not have a sector-specific BPT for combustion turbines, it used BPTs from the industrial boilers sector to calculate the potential benefits from this proposed rule and also presented sensitivity analyses based on BPTs from the EGU sector and Oil & Gas Transmission sector as alternatives. These approaches introduce substantial uncertainty into the benefits estimates presented in this RIA. RIA at 49.

The use of BPTs based on modeling of a sector introduces additional uncertainty in the benefits analysis beyond the fundamental uncertainties associated with full-form modeling (e.g. uncertainties in projections, statistical sampling) and in the BPT methodology (e.g. discrepancies between the modeled and actual locations of emissions reductions, nonlinearities in the relationship between emissions and benefits). RIA at 80.

Executive Order 14154 highlights the need for administrative agencies to identify undue burdens on domestic energy. Sec. 3. The benefits associated with the proposed reductions represent significant uncertainty raising the potential for undue, therefore unjustified, burdens based on unverified benefits.

- g. Any improvements in air quality related to the reduction of NO_x emissions would be offset by disbenefits from increased emissions of NH₃ and CO₂.**

Ammonia is a precursor to PM_{2.5} formation. Using the estimated ammonia emission increases reported in Table 10 of the RIA, the EPA estimated the monetized disbenefits associated with increased ammonia as a precursor to PM_{2.5} using the same BPT approach as was used for NO_x. The present value of the disbenefit is estimated to be \$76 million dollars (short-term/low benefits) and \$160 million dollars (long-term/high benefits), corresponding to an equivalent annualized value of \$10 million dollars and \$21 million dollars (2023). RIA at 45.

The EPA also estimates the disbenefits of CO₂ emissions increases expected from this proposed rule using an updated set of SC-CO₂ estimates that reflect recent advances in the scientific literature and associated economic impacts and incorporate recommendations made by the National Academies of Science, Engineering, and Medicine. The present value of the disbenefit is estimated to be \$7.69 million dollars (2.50% discount rate) and \$21.8 million dollars (1.50% discount rate), corresponding to an equivalent annualized value of \$1.07 million dollars and \$2.91 million dollars (2023). RIA at 48.

h. Contrary to the CAA, the proposed rule would provide little or no public health benefit.

Presidential guidance on review of regulations includes assessment of those administrative actions that “are based on anything other than the best reading of the underlying statutory authority” and “impose significant costs upon private parties that are not outweighed by public benefits.” Executive Order 14219, Sec. 2 (iii) and (v). Additionally, it is not apparent this rule as proposed is consistent with the Clean Air Act. As proposed this rule is an “unconstitutional regulation “that exceeds the power vested in the Federal Government, by the Constitution” warranting review as unlawful governance. *Id.* at Sec. 2(i).

4. Fuel Blending with hydrogen has not been adequately demonstrated as satisfying BSER and is therefore not supported by law.

The EPA is proposing to categorize stationary combustion turbines that burn hydrogen as either natural gas-fired sources or non-natural gas-fired sources—depending upon the amount of hydrogen that is co-fired. In addition, even though EPA recognizes that NO_x as a concentration in combustion products is not a valid means to compare hydrogen and natural gas, EPA has proposed that combustion turbines burning hydrogen should be subject to the same standards of performance

for NO_x emissions as stationary combustion turbines firing natural gas or non-natural gas fuels. 89 Fed. Reg. 101338.

As is set forth in Exhibit A, the report of Ed Cichanowicz and Michael Hein (“Cichanowicz Report”), a review of available sources show that nearly all combustion turbines do not fire fuel oil and natural gas contemporaneously. In fact, an EIA report suggests only 177 units of 2,500 contemporaneously fire alternative fuels – and these appear to fire mostly synthetic or renewable gases. It is clear that the fuel blending concept that EPA suggests is not adequately demonstrated sufficient to include it as BSER.

Further, the limited commercial experience with hydrogen utilization does not enable EPA to mandate specific NO_x limits. The lack of data showing demonstrated utilization of hydrogen in this manner prevents EPA from justifiably presenting it as an option for industry at this time. Far more research, development, deployment, and demonstration is required for hydrogen to be a viable compliance mechanism. While MOG generally supports the incorporation of hydrogen as a fuel blending technology, it recognizes that the data does not yet support its inclusion in the instant rulemaking. Any attempt to establish a NO_x emission limit based on hydrogen co-firing is premature.

In addition, we note that Presidential guidance found in the executive order titled “Unleashing American Energy” urges agencies “to guarantee that all executive departments and agencies (agencies) provide opportunity for public comment and rigorous, peer-reviewed scientific analyses.” Executive Order 14154, Sec 2(h). The lack of data supporting utilization of hydrogen highlights the lack of clarity about the basis of this proposal limiting availability of underlying justification by EPA. This lack of clarity is not supported by law.

5. Output based mass limits are without either legal or technical justification.

Current regulatory requirements allow operators of stationary combustion turbines the option of operating on the basis of input based limits, The 2006 rule specifically states that it “allows turbine owners and operators to meet either concentration-based or output-based standards” and “the standards for NO_x in the final rule allow the turbine owner or operator the choice of a concentration-based or output-based emission standard.” *See* 71 Fed. Reg. 38483.

As part of its review of NSPS requirements, EPA is considering, and soliciting comment on an alternative mass-based output limit on NO_x emissions in the rate range of 0.21 to 0.75 tons per MW per calendar year.

As shown in the Cichanowicz Report, even the highest of these rates severely constrains operations and limits utilization of the power generator. EPA's proposed output-based mass limits are highly problematic in that they will result in strict operating barriers to commercial units, barriers that interfere with a unit's capacity factor and its ability to deliver power and to balance the grid. The use of such mass-based limits could impose sufficient limits as to compromise grid reliability.

MOG objects to any mass-based limits as exceeding EPA's legal authority related to NSPS control requirements to the extent that impose operational limitations on a unit. NSPS controls must be based solely on the performance of the emission control equipment involved. Finally, as raised in presidential guidance, rulemaking "based on anything other than the best reading of the underlying statutory authority" is concerning relative to the law. Executive Order 14219, Sec. 2 (iii). Departure from an NSPS program that targets emission control equipment is not adequately supported by the Clean Air Act.

EPA's proposed output-based mass limits also impose strict operating barriers to commercial units, that interfere with a unit's ability to deliver power and balance the grid. The use of such mass-based limits could impose sufficient limits as to compromise grid reliability. The stated policy of Executive Order 14154 is "to protect the United States' economic and national security and military preparedness by ensuring that an abundant supply for reliable energy is readily accessible...." Sec 2(c). This proposed rule does not facilitate reliable electric generation and must be carefully assessed due to this harmful result.

6. EPA's concern about units being intentionally operated at Part Load to avoid regulatory requirements is not justified.

One of EPA's requests for comments relates to EPA concern that there is a "requesting incentive" for operations to reduce operating load to get the benefit of the part-load standard. This concern is addressed and dismissed in the Cichanowicz Report based on the fact that there is no financial benefit to be gained by an operation in restricting operations to part-load.

Moreover, when combustion timeline operations are considered, part-load operation is rarely intentionally considered. Any action to constrain operation at

part-load would limit options to balance the distribution grid and compromise reliability.

EPA has also inquired of the feasibility of limiting part load operations to control NO_x emissions and requested comment on a maximum limit of the number of hours that part load standards can be applied. 89 Fed. Reg. 101320. The Cichanowicz Report, however, notes as follows:

- Combustion turbine operation at part load is rarely intentionally selected and usually necessitated by the need to ‘balance’ the grid to offset the variable non-dispatchable asset generation.
- Arbitrarily constraining operation at part load imposes major limits to asset duty:
 - Half of the medium and large combined cycle turbines (566) expend only 20-25% of their operating time at part load.
 - Similarly, half of the population of medium simple cycle turbines (505) expend less than half (43%) of their operating time at part load.
 - Half of the large simple cycle turbines (422) expend about 34% of their operating time at part load.

Cichanowicz Report at 17-18.

7. EPA’s proposal to establish alternative input based emission rates have not been adequately demonstrated.

As part of its proposal, EPA states that it is proposing that a NO_x emissions rate of 3 ppm has been demonstrated for large highly efficient intermediate and base load combustion turbines and for medium combustion turbines operating at intermediate or base loads.

As seen in the Cichanowicz Report, an attempt was made to replicate data of the 11 units cited (6 simple cycle, 5 combined cycle). However, EPA’s calculations supporting its conclusions as to feasibility of compliance for 2, 3, and 4-ppm limits could not be replicated for all cases by this study.

In the case of the 3-ppm proposal, the Cichanowicz Report was able to replicate EPA’s calculations for 5 of 11 units. However, in the case of 3 of 11 units,

EPA predicted higher compliance than the Report was able to determine and in the case of another group of 3 of 11 units, EPA predicted lower compliance than the Report was able to determine. Given these results, many units are at risk of not being able to achieve a 3 ppm compliance emission rate, and those that can comply do so with a significant error margin.

In the case of the 2-ppm proposal, the Report was able to replicate EPA's calculation on 2 of 11 units. In the case of 6 of 11 units EPA predicted higher compliance than was determined in the Report and in the case of another group of 3 of 11 units, EPA predicted lower compliance than the Report was able to determine. It is therefore clear that a 2 ppm limit has not been demonstrated. NSPS requirements must, of course, be achievable. *Portland Cement Ass'n v Ruckelshaus*, 486 F.2d 375, 402 (D.C. Cir. 1973).

Presidential guidance required that "agencies shall adhere to only the relevant legislated requirements for environmental considerations and any considerations beyond those requirements are eliminated. In fulfilling all such requirements, agencies shall strictly use the most robust methodologies of assessment at their disposal and shall not use methodologies that are arbitrary or ideologically motivated." Executive Order 14154, Sec. 6. Additionally the order provides it is the policy of the United States "to guarantee that all executive departments and agencies provide opportunity to public comment and rigorous, peer-reviewed scientific analysis. *Id.* at Sec. 2(h). It is not possible to provide comment nor rigorous peer-review if the agency's calculations cannot be replicated.

In summary, and as noted in the Cichanowicz Report, the 2-ppm limit cannot be readily attained. While the 3-ppm limit can be attained more frequently, the compliance margin is too small, creating significant challenges to combustion turbines, particularly simple-cycle turbines.

8. EPA should not impose NO_x emission limits on SCR equipped units during startup.

EPA requests comment on the efficacy of combustion control technology operated in conjunction with SCR when units are in part-load operation. EPA notes that while there may be some loss in efficiency in combustion controls or in SCR performance in part-load operation, these technologies do not lose all value. Therefore, EPA requests comment on whether it is appropriate to exclude these technologies from the BSER for part-load operation. If it is not appropriate, then EPA requests comment on what emissions performance these technologies can

achieve in part-load operation. EPA also notes that even if there is some reduction in efficiency, combustion controls in combination with SCR could still achieve emissions rates in part-load operation as low as 9 ppm or 3 ppm, thus calling into question whether emissions rates as high as 96 ppm or 150 ppm would be unjustified to sustain.

As noted in the Cichanowicz Report, the gas temperature and NO_x distribution existing in the combustor as the result of part-load is not compatible with conventional SCR design and operation. In addition, changes to the SCR reactor design – some perhaps radical – could be required to effect SCR effective duty following a low load event. Abnormalities in these variables create conditions at an SCR reactor that in some cases render SCR application impractical.

EPA seeks input on the availability of NH₃-destruction catalysts to reduce ammonia implying that achieving lower NO_x is possible while abiding by a given NH₃ limit. As noted in the Cichanowicz Report, SCR catalyst formulation and design has evolved so that inherent NH₃-destruction capabilities are built in to several commercial offerings. Consequently, there is only marginal improvement with this application. A separate NH₃ destruction step would be “duplicative” and counterproductive, imposing other impacts. Further, such NH₃ destruction catalyst present disbenefits in terms of additional pressure drop, and potential to oxidize NH₃ to NO_x, resulting in a heat rate and power production penalty.

The Cichanowicz Report specifically shows that Part Load conditions that are barriers to practical SCR design and operation include:

- High NO_x content at part load will widely vary during transitions between different burner operating modes;
- Low gas temperature at 580 F or less provides minimal reaction rate for NO_x removal; and
- Low velocity gas flow, as little as one-fourth of design value, which impairs both mixing of ammonia reagent in the gas stream, and the penetration of the ammonia and NO_x into the pores of the catalyst surface. Gas flow is ¼ design: inadequate momentum for mixing.

Cichanowicz Report at 26-27.

This confirms that data have shown that NO_x of less than 5 ppm possibly can be achieved, but that the compromised condition leads to high residual NH₃ (of greater than 10 ppm, and up to 20 ppm).

9. EPA has significantly under-estimated SCR capital costs for both combined and simple cycle units.

EPA’s estimate of SCR capital cost for simple cycle units, and the incurred cost per ton of NO_x for both simple and combined cycle units, is too low. Indeed, EPA itself notes that it “... recognizes that if it were to conclude that a 9 ppm or a 5 ppm NO_x emissions rate were achievable for large natural gas-fired turbines using only dry combustion controls, then the per-ton incremental cost of SCR against that baseline would increase as described.” 89 Fed. Reg. 101334. However, EPA adds that “Nonetheless, in reviewing all of the relevant cost considerations (as discussed in section III.B.7.b), the EPA does not find the resulting cost figures so exorbitantly high that it renders SCR as applied in those instances no longer capable of being considered the BSER— with the potential exception of the incremental cost associated with a 5 ppm baseline in the intermediate load subcategory. The EPA requests comment on the cost factor for SCR on large-sized turbines.”

EPA states that it determined the cost for SCR using a “Model Plant” for simple and combined cycle, projecting capital cost for SCR process equipment, and assumptions of combustor exit NO_x emissions. 89 Fed. Reg. 101332. EPA concludes such costs are reasonable, even if the best “9 ppm” of combustor exit NO_x is assumed.

As the Cichanowicz Report notes, typically, SCR cost is not separately identified from the balance of the Heat Recovery Steam generator in these installations, and must be inferred. However, data for several specific installations demonstrates that SCR capital cost derived by Black & Veatch does not reflect present market conditions.

There are several flaws in EPA’s cost assessment approach. First, EPA uses a reference unit likely not representative of future installations, and a capacity factor that does not reveal the highest cost possible. Second, the SCR capital cost for combustion turbines in simple and combined cycle duty is dated, and does not reflect present market forces. Third, EPA ignores the widely divergent NO_x emission from four key categories of combustion turbines. NO_x emission from these can vary from 25 ppm to 5 ppm, significantly biasing the estimated cost per ton to control NO_x.

Further evaluation considered higher SCR capital cost, as experienced by several owners of simple cycle combustion turbines. These owners solicited bids for SCR capital cost, which per unit generating capacity exceed EPA’s values by a factor

of 2 or 3. These elevated costs apply to new units, with even higher costs estimates received for retrofit to existing units. These adjustments of capital cost and NOx emissions, the latter considering between 25 ppm and 5 ppm, reveal levelized cost per ton exceeding \$50,000 and for some cases \$500,000. Consequently, this study shows EPA's methodology under-estimates both SCR capital cost and the levelized cost per ton of NOx removed.

In directing review of regulations, Executive Order 14154 highlights concerns for "regulations that impose significant costs upon private parties that are not outweighed by public benefits." Sec. 2 (v). EPA fails to provide adequate technical justification for its base case assumptions impacting its low cost estimates. Flawed technical justification results in a proposal that lacks clarity impacting the ability to develop meaningful public comments.

10. Hot gas upgrades should not be considered to be a basis for NSPS review.

EPA states in its proposed rule that it is aware of combustion turbine being modified such that the test in 40 CFR Section 60.14 is triggered by the owner/operator electing to upgrade the combustor technology to either increase the base load rating of the combustion turbine or to burn a fuel with a higher emissions rate. The EPA is soliciting comment on whether there are other actions that could increase the potential hourly emissions rate of a combustion turbine and thus may constitute 'modifications' and whether any unique considerations exist for this subcategory. 89 Fed. Reg. 101338.

EPA appears to accept that hot gas path upgrades, which almost without exception include combustor upgrades will not trigger NSR, since NOx emissions decrease subsequent to such an upgrade.

As noted in the Cichanowicz Report, both a compressor upgrade and retrofit of high flow inner guide vanes can increase the air flow. If contemporaneously retrofit with a combustor upgrade these are modifications that contribute to lower NOx emissions and may not necessarily increase emissions of SO₂, depending on the increase in combustion turbine thermal efficiency.

11. The proposed rule fails to adequately address grid reliability.

EPA has failed to consider the impact of the proposed rule on grid reliability.

For example, the Cichanowicz Report provides the following observations regarding the proposed rule's impact on grid reliability:

- EPA's proposed mass-based output limits impose strict operating barriers on commercial units that interfere with a unit's ability to deliver power and balance the grid. *The use of any of the mass-based limits proposed by EPA would impose stringent limits as to compromise grid reliability.*
- Arbitrarily constraining operation at part load imposes major limits to asset duty.... *Such constraints would limit options to balance the distribution grid, and result in compromising reliability.*

Cichanowicz Report at 11, 18 (emphasis added).

RTOs all over the country have also now warned of a coming reliability shortfall. Seven major U.S. grid operators have raised a unified alarm about an impending capacity crunch, warning that the pace and scale of explosive demand - including from data centers, manufacturing, and electrification - pose a precarious misalignment with accelerating generator retirements and transmission constraints.

At a March 25, 2025 hearing before the House Energy and Commerce Subcommittee on Energy, the nation's top grid officials testified that the U.S. power system is under mounting strain and that, without urgent structural reforms, the ability to maintain reliable electric service could falter.⁴ Their message was unusually direct: demand is accelerating, supply is lagging, and current tools may not be enough to bridge the gap.

House lawmakers heard testimony from Manu Asthana, president and CEO of PJM Interconnection (PJM); Jennifer Curran, senior vice president of planning and operations at the Midcontinent Independent System Operator (MISO); Lanny Nickell, president and CEO of the Southwest Power Pool (SPP); Rich Dewey, president and CEO of the New York Independent System Operator (NYISO); Gordon van Welie, president and CEO of ISO New England (ISO-NE); Elliot Mainzer, president and CEO of the California Independent System Operator (CAISO); and Pablo Vegas, president and CEO of the Electric Reliability Council of Texas (ERCOT).

⁴ Power Magazine, *Nation's Power Operators Warn Congress of a Coming Reliability Shortfall* (April 3, 2025) (access at <https://www.powermag.com/nations-power-operators-warn-congress-of-a-coming-reliability-shortfall/>)

Among the points made during the hearing, the RTO operators collectively warned that explosive load growth is now a certainty, driven largely by data centers and AI, that dispatchable fossil generation is retiring at a pace that could jeopardize reliability if comparable resources do not come online in time, that there is a structural imbalance in the portfolio of new additions, that winter is now emerging as the most precarious season for electric reliability, that the scale of a planned transmission expansion is unprecedented, that major interconnection queue reforms are underway but backlogs remain a critical bottleneck to getting new generation online, that retaining existing dispatchable resources, particularly those previously slated for retirement, is becoming an essential part of their reliability strategies, and that, unless structural grid challenges are resolved soon, they could jeopardize major national priorities—from economic growth to transportation electrification and leadership in AI and data infrastructure.

Finally, these comments point to concerns about the proposed rule that violate the April 8, 2025, Presidential Executive Order titled “Strengthening Reliability and Security of the United State Electric Grid.” Section 2 of the Order states that “[i]t is the policy of the United States to ensure the reliability, resilience, and security of the electric power grid. It is further the policy of the United States that in order 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 of January 20, 2025 (Declaring a National Energy Emergency), our electric grid must utilize all available power generation resources, particularly those secure, redundant fuel supplies that are capable of extended operations.” Because implementation of the proposed rule without addressing the concerns voiced in these comments would result in limiting the capacity of combustions turbines, it would have a deleterious impact on the reliability of the electric grid in the United States.

12. EPA has failed to allow an adequate comment period in which to appropriately assess this proposal.

While EPA did indeed extend the deadline for extending comments on this proposal, the extension to April 15, 2025, is not enough. As was stated in the Midwest Ozone Group letter of January 28, 2025, an extension of the comment period by 60 days was needed to address the dozens of questions raised by the proposal on highly technical issues. The letter also noted that such a request was supported by the January 20, 2025, Executive Order entitled “*Unleashing American Energy*” by facilitating peer review scientific analysis and public comments as found

in section 2(h) and by the Executive Order entitled “*Regulatory Freeze Pending Review*” also dated January 20, 2025.

Conclusion

Accordingly, the Midwest Ozone Group urges that EPA address the concerns raised in these comments in advance of finalizing the rule.