

FACT SHEET
Proposal to Strengthen the New Source Performance Standards
for Stationary Combustion Turbines

ACTION

- On November 22, 2024, the U.S. Environmental Protection Agency (EPA) proposed to strengthen the Clean Air Act limits on emissions of nitrogen oxides (NO_x) from most new, modified, and reconstructed stationary combustion turbines. The proposal would ensure that new turbines—especially large ones that could operate for decades—would be among the most efficient and lowest-emitting turbines ever built.
- The proposal would also provide environmental protection for communities alongside regulatory certainty for the power sector, supporting reliability authorities in the continued delivery of reliable and affordable electricity.
- Stationary combustion turbines are located at power plants and at industrial sources, such as pipeline compressor stations, chemical and manufacturing plants, oil fields, landfills, and institutional facilities, among others. They are used to produce electricity and to drive heavy equipment such as compressors.
- The proposed New Source Performance Standards (NSPS) are the result of a review required by the Clean Air Act. EPA last amended this NSPS in 2006.
- To strengthen the NO_x performance standards from new stationary combustion turbines, EPA is proposing:
 - to determine that the use of combustion controls with the addition of post-combustion selective catalytic reduction (SCR) is the best system of emission reduction (BSER) for most combustion turbines,
 - to lower the NO_x standards of performance for affected sources based on the application of the BSER, and
 - to establish more protective NO_x standards for affected new sources that plan to fire or co-fire hydrogen, ensuring that these units have the same level of control for NO_x emissions as sources firing natural gas or non-natural gas fuels.
- When finalized, the proposed standards would apply to facilities that begin construction, modification, or reconstruction after the date of publication of the proposed standards in the *Federal Register*.
- EPA is proposing size-based subcategories that reflect consideration of the performance of different combustion turbine designs and current NO_x control technologies.
- In addition, EPA is proposing to maintain the current limits for sulfur dioxide (SO₂), which is well-controlled in this sector based on the required use of low-sulfur natural gas and distillate fuels.
- The proposed NSPS would establish three size-based subcategories that are further subdivided to reflect the base load rated heat input and capacity factor (the amount of actual heat input divided by the total possible heat input) of each affected stationary combustion turbine.
- NO_x contributes to harmful health effects, such as asthma and respiratory infections, and reacts with other volatile organic compounds to form ozone (*i.e.*, smog) and fine particulate matter. Children, the elderly, and people with chronic heart, lung, or other cardiopulmonary diseases are most at risk.
 - Elevated concentrations of NO_x can exacerbate asthma in the short term and may contribute to asthma development in the long term.

- Short- and long-term exposure to fine particle pollution has been linked to numerous harmful health effects, including bronchitis, asthma attacks, cardiovascular issues, and premature death.
- Exposure to high ambient ozone concentrations has been linked to respiratory infections, lung inflammation, impairment of lung defense mechanisms, and other chronic respiratory illnesses including emphysema, bronchitis, and asthma.
- In addition, environmental effects of NO_x pollution include adverse effects on foliage, and, via nitrogen deposition, effects on ecosystems, such as the acidification of aquatic and terrestrial ecosystems and nutrient enrichment.
- The locations of any new, modified, or reconstructed stationary combustion turbines that would be subject to this proposed NSPS are unknown, limiting EPA's ability to estimate the health and environmental impacts. However, this proposed rule would ensure that any additional NO_x emissions from affected sources would be limited to a level consistent with the application of state-of-the-art control technology.
- SCR technology is a widely available and a frequently adopted NO_x emissions control strategy for a wide range of sizes and types of combustion turbines.
- EPA's careful review of the statutory BSER factors in relation to SCR, including recent rules and determinations, multiple cost metrics, and the widespread adoption of this technology, all support EPA's proposed determination that this technology is appropriate for the subcategories of turbines to which EPA proposes to apply it as part of the best system of emission reduction (BSER).
- EPA estimates this proposed rule would reduce NO_x emissions by 198 tons in 2027 and 2,659 tons in 2032. The present value of net benefits to society is estimated at up to \$340 million, with an equivalent value of up to \$46.4 million per year.
- EPA is also proposing amendments to address specific technical and editorial issues to clarify the existing regulations.
- EPA will accept comments on the proposal for 90 days after publication in the *Federal Register*.

DETAILS ABOUT THE PROPOSED BSER, SUBCATEGORIES AND NO_x EMISSIONS LIMITS

- SCR technology is a widely available and a frequently adopted NO_x emissions control strategy for a wide range of sizes and types of combustion turbines.
- EPA is proposing that combustion controls with the addition of post-combustion SCR is the best system of emission reduction for stationary combustion turbines in the small, medium, and large subcategories, with certain, limited exceptions. EPA finds that SCR is adequately demonstrated for this source category, is generally cost-effective, and satisfies the other statutory criteria.
- EPA is proposing to establish size-based categories in the NSPS based on the base load rated heat input of each combustion turbine, measured in million British thermal units per hour (MMBtu/h), that generally align with the utilization thresholds set forth in the Carbon Pollution Standards.
- The proposed rule establishes large, medium, and small size-based subcategories that reflect the capacity of fuel combustion (heat input) and the frequency and intensity of how they are operated.
 - Large combustion turbines—units with a base load heat input rating > 850 MMBtu/h (> ~ 85 MW)

- Medium-sized combustion turbines—units with a base load heat input rating of > 250 and ≤ 850 MMBtu/h (> ~ 25 MW and ≤ ~ 85 MW)
- Small combustion turbines—units with a base load heat input rating of ≤ 250 MMBtu/h (≤ ~ 25 MW).
- EPA is proposing to further subcategorize affected sources based on whether they operate at high, intermediate, or low loads and whether they burn natural gas or non-natural gas fuels.
- When classifying low, intermediate, high load units, EPA will consider the 12-calendar-month capacity factor of these combustion turbines.
 - High load—capacity factor greater than 40 percent
 - Intermediate load—capacity factor greater than 20 percent and less than or equal to 40 percent
 - Low load—capacity factor of less than or equal to 20 percent
- For non-EGU stationary combustion turbines, the capacity factor would be determined based on the prior 12 calendar months of data on a rolling basis updated each month.
- EPA also recognizes that at smaller sizes and at lower or more variable operating levels the cost-reasonableness on a per-ton basis and efficacy of SCR technology becomes less favorable. Thus, EPA proposes to establish standards for certain combustion turbines based on the use of combustion controls without SCR. This includes:
 - Small combustion turbines that operate at low and intermediate loads
 - Medium combustion turbines that operate at low loads
 - Large combustion turbines that operate at low loads
- There are additional subcategories that take fuel type into consideration. These subcategories distinguish between facilities that are natural gas-fired and non-natural gas-fired.
 - A source is categorized as non-natural gas-fired when more than 50 percent of the heat input comes from a non-natural gas fuel during part of an hour of operation.
 - EPA is proposing that the NO_x standard be based on the type of fuel being burned in the combustion turbine engine alone and not duct burners associated with a heat recovery steam generator.
- The proposed BSER for large intermediate load and base load combustion turbines, would also be combustion controls with the addition of SCR.
- In the NSPS, EPA is proposing to maintain the subcategory of large stationary combustion turbines with base load ratings of greater than 850 MMBtu/h of heat input like the subcategory for large turbines in the existing NSPS.

POTENTIAL IMPLICATIONS ON COMMUNITIES WITH ENVIRONMENTAL JUSTICE CONCERNS

- EPA carefully considered the potential implications of this proposed NSPS on communities with EJ concerns. As part of the regulatory development process, and consistent with feedback we received during the development of the final Carbon Pollution Standards, EPA continued its outreach with interested parties, including communities with EJ concerns. These opportunities gave the EPA a chance to hear directly from the public, including from communities potentially

impacted by this proposed rule. EPA took this feedback into account in the development of this proposal.

- The locations of newly constructed sources that will become subject to the proposed NSPS are not known, thus, we are limited in our ability to estimate the potential EJ impacts of this rule.
- EPA’s examination of potential EJ concerns in this proposed rule includes a proximity demographic analysis for 130 existing facilities that have been constructed in the past five years that are currently subject to the 2006 NSPS. This represents facilities that might modify or reconstruct in the future and become subject to the proposed requirements.
- The results of the proximity demographic analysis indicate that the percent of the population that is Black, Hispanic/Latino, or Asian living within 50 kilometers (km) of existing facilities with stationary combustion turbines is above the national average. In addition, the percent of population living within 50 km of existing facilities with stationary combustion turbines is also above the national average for linguistic isolation and people with one or more disabilities. Furthermore, within 5 km of the existing facilities with stationary combustion turbines, the percent of population is above the national average for people living below the poverty level and people living below two times the poverty level.
- We anticipate the proposed changes to the NSPS will generally reduce the potential emission impacts, in particular NOX emissions. Although this proposed rule does not preclude the construction of new combustion turbines, and emissions may increase as a result of increased operation of newly-constructed capacity, this proposed rule, if finalized, would ensure that any additional NOX emissions from certain affected sources are reduced to a level consistent with the application of state-of-the-art control technology.
- Any source that commences construction, modification, or reconstruction after the date of publication of this proposal will be subject to the standards of performance when they are finalized.
- Further, frontline communities have consistently raised concerns about increases in NOX emissions from newly constructed stationary combustion turbines that plan to co-fire with hydrogen. This proposed rule, when finalized, will help address those concerns by establishing more protective NOX standards for stationary combustion turbines that plan to co-fire hydrogen.
- Additionally, sources that install stationary combustion turbines that meet the applicability of the proposed NSPS will likely be subject to the New Source Review (NSR) preconstruction permitting program and, more specifically, the requirements of the “major NSR” program. Major NSR permitting requirements can offer protections for communities that are near sources that will experience an increase in NOX and other emissions resulting from the installation and operation of new, modified, or reconstructed stationary combustion turbines.

REGULATORY IMPACT ANALYSIS – ESTIMATED COSTS, BENEFITS AND DISBENEFITS

- To comply with the requirements of this proposed rule, some units will incur capital costs associated with installation of SCR or upgrades to existing controls, while some units are expected to incur increased operating costs of their existing controls to meet the proposed requirements.

- In a regulatory impact analysis, EPA estimates this proposed rule would 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. EPA also estimates increases in emissions of ammonia and carbon dioxide. For example, in 2032, EPA estimates increased emissions of 232 tons of ammonia and 16,039 metric tons of carbon dioxide.
- For the analysis period 2025-2032, EPA estimated benefits of projected reductions in NO_x emissions, disbenefits of projected increases in ammonia and carbon dioxide emissions, and costs to install and operate SCR.
- EPA estimated benefits of projected reductions in NO_x emissions, disbenefits of projected increases in ammonia and carbon dioxide emissions, and costs to install and operate SCR.
- The estimated present value of net benefits is -\$58.7 million and \$340 million, with an equivalent annualized value of -\$8.01 million and \$46.4 million. The two net benefits figures were estimated using separate methodologies and do not represent lower- and upper-bound estimates. (All estimates in 2023\$, 2% discount rate).
- These net benefits include costs, benefits and disbenefits. The present value of the expected costs of the proposed rule is approximately \$166 million, while the equivalent annualized value of the costs is \$22.6 million. EPA estimates the present value of benefits from NO_x reductions is \$200 million and \$670 million. The equivalent annualized value of benefits is \$27 million and \$92 million. The present value of disbenefits from ammonia and carbon dioxide increases is \$88.4 million and \$169 million, with an equivalent annualized values of \$12.1 million and \$23.0 million.

BACKGROUND

- For source categories that cause or contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare, Clean Air Act (CAA) Section 111 requires the EPA to establish standards of performance for new sources.
- Under CAA 111, the EPA is also required to review and, if appropriate, revise, the standards every eight years to reflect the application of the BSER and consider costs, energy requirements, and other statutes. When reviewing existing performance standards, the EPA also has the discretion and authority to add emission limits for pollutants or emission sources not currently regulated for that source category.
- EPA last revised this NSPS on July 6, 2006, strengthening the NO_x and SO₂ standards. The 2006 NSPS identified combustion controls and the use of low-sulfur fuels as the BSER.
- In the 2006 rule, EPA established NO_x emission limits for 14 subcategories of stationary combustion turbines, classified by size and design heat input ratings. There are additional subcategories for combustion turbines operating at part load, for modified and reconstructed combustion turbines, heat recovery units operating independent of the combustion turbine, and turbines operating at low ambient temperatures.
- Today's proposed standards of performance will be codified in 40 CFR part 60, subpart KKKKa. Stationary combustion turbines that would be or may become subject to the proposed standards in

the new subpart KKKKa (when finalized) would not be subject to the requirements of 40 CFR part 60, subparts GG or KKKK.

- The new standards of performance, when finalized, would directly apply to affected sources that begin construction, reconstruction, or modification after the date of publication of the proposed standards in the Federal Register.
- The NSPS proposes to maintain the current exemptions to the NO_x standards for emergency combustion turbines as defined and codified in previous NSPS.

HOW TO COMMENT

- EPA will accept comments for 90 days after the proposal is published in the *Federal Register*.
- Comments, identified by Docket ID No. EPA-HQ-OAR-2024-0419, may be submitted via one of the following methods:
 - Go to <https://www.regulations.gov/> and follow the online instructions for submitting a comment.
 - Send an email message to a-and-r-docket@epa.gov, Attention Docket ID No. EPA-HQ-OAR-2024-0419.

FOR MORE INFORMATION

- Interested parties can download a copy of the proposed rule and fact sheet from the EPA's website at [Stationary Gas and Combustion Turbines: New Source Performance Standards \(NSPS\)](#)
- This action and other background information are also available online at [Regulations.gov](https://www.regulations.gov). Materials for this proposed action can be accessed using Docket ID No. EPA-HQ-OAR-2024-0419.