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May 7, 2024

Michael S. Regan
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

Re: **EPA Docket ID No. EPA-HQ-OAR-2024-0135;** Comments by Clean Energy Group, et al., on Key Framing Questions for New Source Performance Standards and Emissions Guidelines for Existing Stationary Combustion Turbines

Administrator Regan:

Clean Energy Group (CEG), along with our undersigned partner organizations (Slingshot, THE POINT CDC, New York City Environmental Justice Alliance, New York Lawyers for the Public Interest, and Berkshire Environmental Action Team) respectfully submits these comments in response to the Environmental Protection Agency's request for responses to key framing questions that will guide the Agency's development of rulemaking to reduce greenhouse gas emissions, air toxics, and emissions of nitrogen oxides from natural gas turbines in the power sector.

These comments reflect the position of CEG, a national nonprofit focused on accelerating an equitable and inclusive transition to a resilient, sustainable future, and our undersigned partners. These comments do not necessarily reflect the positions of CEG's other partner organizations or funders.

Thank you for your consideration.

Respectfully submitted,

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Comments of Clean Energy Group, et al., on Key Framing Questions for New Source Performance Standards and Emissions Guidelines for Existing Stationary Combustion Turbines

EPA Docket ID No. EPA-HQ-OAR-2024-0135

Clean Energy Group (CEG), along with our undersigned partner organizations, respectfully submit these comments in response to the Environmental Protection Agency's (the Agency) request for comments on key framing questions that will guide the development of rulemakings to address greenhouse gas (GHG) emissions, air toxics, and emissions of nitrogen oxides (NOx) from natural gas turbines in the power sector. These comments reflect the position of CEG, a national nonprofit focused on accelerating an equitable and inclusive transition to a resilient, sustainable future, and our undersigned partners. These comments do not necessarily reflect the positions of CEG's other partner organizations or funders.

Clean Energy Group's multi-year Phase Out Peakers project works to accelerate the retirement of polluting, fossil-fuel peaker power plants and to advance the deployment of clean, cost-effective alternatives, such as energy storage, renewable generation, transmission, energy efficiency, and demand response. It is the first national effort to systematically demonstrate with analysis and technical assessments how communities can harness clean non-combustion alternatives to meet peak electricity demand and capture local health and wealth benefits. This work is done in partnership and close collaboration with organizations representing the low-income communities and communities of color disproportionately impacted by power plant emissions.

Our comments on the Key Framing Questions address a proposed regulatory approach for emissions guidelines for existing fossil fuel-fired stationary combustion turbines used for peaking purposes, or "peakers," defined in the May 2023 proposed rule as those electricity generating units (EGUs) with a capacity factor of less than 20 percent.[1] CEG focuses specifically on peaker power plants for several reasons. Peakers have historically been placed close to the load they serve, often in urban areas as load typically equates to people, but the placement of peakers has not occurred in an equitable and just manner. Peakers are disproportionately located near low-wealth communities and communities of color.[2]

Peakers are some of the dirtiest power plants on the grid with high marginal emissions of carbon dioxide (CO2) as well as localized NOx pollution.[3] This is partially due to the underlying

[1] 88 FR 33244 (May 23, 2023)

[2] Seth Mullendore, "Peaker Power Plant Data Show Persistent Economic and Racial Inequities," *Clean Energy Group*, September 7, 2023, https://www.cleanegroup.org/peaker-power-plant-data-show-persistent-economic-and-racial-inequities/.

[3] Deborah Nicole Behles, "Controlling Ancillary Emissions Under the Clean Air Act: Consideration of Energy Storage as Best Available Control Technology," 42 Ecology L.Q. 573 (2015), pp. 585-587

inefficiencies of gas peaking technologies (predominately simple-cycle combustion turbines and internal combustion engines) and partially due to the frequent ramping, short duration, and low-level standby operation of peaker plants that make it difficult, if not impossible, to effectively control emissions.[4] NOx is a locally harmful pollutant and a contributor to secondary PM2.5, also a localized harmful pollutant. Combustion turbines can also burn petroleum, and often do so in areas where supplies of natural gas are constrained. Petroleum combustion is even more harmful than methane combustion. In Section IV(G) of the May 2023 proposed rule, it was noted that the pounds of CO_2 emitted per MMBtu for petroleum products is 161 lb CO_2/MMBtu compared to that of natural gas at 117 lb CO_2/MMBtu.[5]

As the Agency noted in Section IV(F)4 of the May 2023 proposed rule, the Inflation Reduction Act is likely to accelerate the adoption of non-emitting capacity on the grid such as renewables, and this is expected to "impact the operation of certain combustion turbines. For example, as the electric output from additional non-emitting generating sources fluctuates daily and seasonally, flexible low and intermediate load combustion turbines will be needed to support these variable sources and provide reliability to the grid. This requires the ability to start and stop quickly and change load more frequently."[6] Such operational adjustments will increase peaker plant inefficiencies and increase air emissions.

Key Framing Question 1

As the Agency noted in Section V(C)3(a) of the May 2023 proposed rule, in its discussion of the impact of *West Virginia v. EPA* on this proposed rule, the Supreme Court does not define "system of emissions reduction." The majority opinion states, "We have no occasion to decide whether the statutory phrase "system of emission reduction" refers exclusively to measures that improve the pollution performance of individual sources, such that all other actions are ineligible to qualify as the BSER [best system of emission reduction]."[7]

Clean Energy Group therefore recommends, in response to **Key Framing Question 1**, that it is appropriate that battery energy storage be added, essentially in the same manner as an "add-on control", as a BSER for peaking EGUs for three reasons. First, battery storage does not require a research and development "on ramp." The technology is immediately available, cost-effective, and has a proven track record of peak demand performance and emissions reduction when operated with the objective to do so. Second, this hybrid concept falls under the definition of a "technology-based" standard for hazardous emissions[8] and complies with *West Virginia v. EPA.* As an add-on control, battery storage would serve the short to medium duration peaking functions with priority over the combustion turbine. Indeed, EPA nodded to this history in the Clean Power Plan itself, describing the sort of "systems of emission reduction" it had always

https://digitalcommons.law.ggu.edu/cgi/viewcontent.cgi?article=1763&context=pubs (accessed April 2, 2024).

[4] ibid

[5] 88 FR 33259 (May 23, 2023)

[6] 88 FR 33258 (May 23, 2023)

[7] No. 20-1530, West Virginia v. EPA, United States Supreme Court, June 30, 2022, pp. 30-31

[8] *Alaska Dept. of Environmental Conservation v. EPA*, 540 U. S. 461, 485, n. 12 (2004)

before selected— "efficiency improvements, fuel-switching," and "add-on controls"—as "more traditional air pollution control measures."[9] The Agency noted that it had "considered" such measures as potential systems of emission reduction for carbon dioxide,[10] including a measure it ultimately adopted as a "component" of the BSER, namely, heat rate improvements. *Id*., at 64727. This peaker hybridization would not require the retirement of existing combustion turbines or negatively impact the reliability of the electric grid. Third, the interconnection process in many RTOs/ISOs is currently complex and time-consuming. In some instances, it is procedurally difficult, if not impossible, to disconnect a fossil EGU from the grid and interconnect a battery storage installation without losing the rights to interconnect at that location (essentially forcing the operator to the back of the line). This hybrid approach facilitates and accelerates the addition of battery storage in critical, high demand load pockets without the costly delay of extended interconnection processes.

Hybrid peaker systems are already in place and have been shown to result in a 60 percent reduction in GHG emissions over standalone combustion turbines.[11] Gridwell Consulting describes how these reductions are achieved in their paper, "Hybrid Storage Technology—Initial assessment of the greenhouse gas reduction and economic savings from Hybrid EGT® adoption in California," "A hybrid storage technology plant is more effective than a traditional combustion turbine or combined-cycle plant at providing the most common market ancillary services—regulation-up, regulation-down, spinning reserve, and non-spinning reserve. A plant using hybrid storage technology is always online and synchronized with the grid and only needs to burn fuel if the needed output is beyond the capability of the plant's battery storage system."[12]

To ensure localized emissions reduction, the Agency should require that the battery energy storage be charged from zero-emission generation or, at a minimum, the grid rather than from the onsite fossil EGU. There is no reason that the Agency cannot include a requirement that storage must be charged with zero-emission sources or when the grid is the cleanest. Absent this requirement, EGU operators, if forbidden from charging from the onsite fossil EGU, will charge co-located battery storage when energy is least expensive, which is increasingly when low-cost, zero-GHG renewables are producing the most.

There are increasing opportunities for peaking EGUs to be completely replaced with non-combustion alternatives such as virtual power plants, demand response, and energy storage devices. Lithium batteries are currently being installed to supplement or replace fossil peakers that fill the two-to-eight-hour use case, as evidenced by the New York Power Authority's announcement that they will replace their New York City peaker fleet completely with battery

[9] 80 FR 64661 (October 23, 2015)

[10] Ibid

[11] Caroline Aoyagi-Stom, "SCE Unveils World's First Low-Emission Hybrid Battery Storage, Gas Turbine Peaker System," *Edison International*, April 18, 2017, https://energized.edison.com/stories/sce-unveils-worlds-first-low-emission-hybrid-battery-storage-gas-turbine-peaker-system.

[12] "Hybrid Storage Technology," *Gridwell Consulting*, July 2018, https://www.gridwell.com/_files/ugd/fe68bf_ff74a8c24c6d4907b8bea661be9f99df.pdf p. 45.

storage by 2035.[13] For multi-day reliability needs, Form Energy has developed a 100-hour iron air battery to meet longer reliability needs. Unlike carbon capture and storage (CCS), which still requires significant technological development, Form Energy's multi-day energy storage technology is well on the pathway to maturity, evidenced by recent contracts with Georgia Power, Great River Energy, and Xcel Energy and evidenced by the construction of their manufacturing plant in West Virginia.[14] The localized pollution and health impacts caused by NOx and secondary PM2.5 that is emitted by fossil peakers is increasingly known and opposed by the communities that surround them. The availability of non-emitting technology and increasing local and state opposition are coinciding rapidly to make fossil peakers obsolete.

The availability of reliable and cost-effective non-emitting technology, such as energy storage, is rapidly making fossil peakers obsolete. Based on the proven track record of thousands of energy storage deployments across the country, many of which have been deployed with the expressed goal of emissions reduction, CEG recommends that battery energy storage *can* and *should* be added as a BSER for low load peaking EGUs and that the co-location of battery storage with peaking EGUs in a hybrid configuration does comply with *West Virginia v. EPA.*
Clean Energy Group respectfully submits these comments, which were informed by many years of partnership and collaboration with community-based organizations and frontline communities seeking cleaner air and healthier lives.

Clean Energy Group and its partners would welcome a conversation to discuss these issues further if that would be of interest.

Respectfully submitted:

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Director of Community Development
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[13] "Small Clean Power Plant Adaptation Study," *New York Power Authority*, April 2022, https://www.nypa.gov/-/media/nypa/documents/document-library/NYPA-SCPP-Adaptation-Study.pdf.

[14] Julian Spector, "Form Energy closes its biggest deal yet for long-duration energy storage," *Canary Media*, June 15, 2023, https://www.canarymedia.com/articles/long-duration-energy-storage/form-energy-closes-its-biggest-deal-yet-for-long-duration-energy-storage.

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