UNITED STATES OF AMERICA
BEFORE THE
U.S. ENVIRONMENTAL PROTECTION AGENCY

Reducing Greenhouse Gas Emissions	**)**	
From New and Existing Fossil Fuel-Fired	**)**	**EPA-HQ-OAR-2024-0135-0001**
Stationary Combustion Turbines	**)**	

COMMENTS OF ISO NEW ENGLAND INC.

ISO New England Inc. (ISO) appreciates the opportunity to provide comments in this non-regulatory public docket. The ISO is supportive of the EPA's plans to re-propose emission guidelines for existing electric generating unit (EGU) combustion turbines to address greenhouse gas (GHG) emissions and other hazardous air pollutants. The ISO respectfully provides input for six of the EPA's seven framing questions to assist the agency in developing a reliable, efficient and cost-effective approach to regulating GHG emissions from the entire fleet of existing gas combustion turbines under Section 111(d) of the Clean Air Act. The ISO's comments are high-level and are not meant to be an exhaustive analysis of the complex topics presented.

As more fully explained in Section II below, the ISO: (1) recommends that the EPA consider the level of emission reductions that can be achieved through the use of different Best System of Emission Reduction (BSER) technologies; (2) supports incorporating a mass-based carbon trading mechanism that uses an auction to allocate emission credits (for both existing and new combustion turbines); (3) recommends that the EPA rely on other factors in addition to nameplate capacity and capacity factors for turbine subcategorization; and (4) suggests that the EPA allow emission limit exceptions for reliability reasons and include anti-manipulation provisions in the carbon trading rules.

I. IDENTIFICATION OF THE FILING PARTY

The ISO is the private, not-for-profit entity that serves as the Regional Transmission Organization (RTO) for New England (the region includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont). The ISO plans and operates the New England bulk power system and administers New England's organized wholesale electricity markets. In its capacity as an RTO, the ISO has the responsibility to protect the reliability of the New England Control Area and to operate the system according to reliability standards established by the Northeast Power Coordinating Council and the North American Electric Reliability Corporation. The Federal Energy Regulatory Commission (FERC) regulates the ISO.

II. BACKGROUND

When the wholesale markets opened to competition in 2003, private companies heavily invested in the development of natural-gas-fired power plants in New England. Developers opted for natural-gas-fired power plants because they used advanced technology that made them run efficiently, were relatively inexpensive to build, site, and interconnect, and offered lower carbon emissions compared to coal and oil, which helped the region meet state environmental policies. As nearby shale gas emerged as an inexpensive and plentiful fuel resource around 2008, natural-gas-fired generators became the go-to resource for New England, clearing as the largest resource type in the markets year after year. Nearly half of the region's electric generating capacity uses natural gas as its primary fuel (16,000 MW in 2023), and natural-gas-fired power plants produce about half of the grid electricity consumed in a year (about 55,600 GWh in 2023). In 2023, renewable resources made up 12% of total energy generation in New England. The region's shift in fuel from coal and oil to less-emitting sources, primarily natural gas, has resulted in significant reductions in emissions from the region's electricity generating fleet. From 2001 to 2022, annual

emissions for nitrogen oxides (NO_X), sulfur dioxide (SO_2), and carbon dioxide (CO_2) declined by, respectively, 79%, 98%, and 37%.

The majority of the New England states have set aggressive decarbonization goals that are driving the transition towards cleaner, non-emitting energy resources. Looking into the future, about 97% of resources currently proposed for the region are grid-scale wind, solar, and battery projects.[1] As of January 2024, approximately 40,000 MW of battery storage and renewables have been proposed in the ISO New England Interconnection Request Queue. The future of the New England power system is projected to comprise mainly renewable non-emitting resources. However, given that these are intermittent resources, there will be a continued need for dispatchable energy (*i.e*. natural gas-fired generation) to meet demand during periods of *dunkelflaute*, better known as times with little wind and low solar output. While battery energy storage systems help provide dispatchable energy, the ISO has found that current battery technology is unable to provide consistent supply throughout the entire year.[2] Hence, the proposed emission guidelines for existing combustion turbines should offer compliance flexibilities to allow the grid to operate reliably.

II. GENERAL COMMENTS ON THE EPA'S KEY FRAMING QUESTIONS

A. Response to Framing Question 1

As an independent system operator, the ISO is fuel and technology agnostic when it comes to selecting a BSER. In the ISO's previous comments on the EPA's proposed GHG standards and

[1] ISO New England Interconnection Request Tracking Tool, ISO New England, Accessed May 2024.

[2] Economic Planning for the Clean Energy Transition (EPCET) Pilot Study – Additional Sensitivities, ISO New England, Presented at the Planning Advisory Committee, February 28, 2024.

emission guidelines,[3] the ISO recommended that the EPA consider the level of emission reductions that can be achieved through other technologies outside of hydrogen co-firing and carbon capture and storage. The ISO reiterates its prior recommendation that the EPA consider the level of emission reductions that can be achieved through the use of other technologies. For example, low carbon fuels such as synthetic methane and synthetic/renewable natural gas can be used as a direct replacement for fossil gas and are compatible with existing natural gas infrastructure. Low carbon fuels can be produced from multiple sources including conversion of biomass, valorization of waste feedstocks, and methanization using hydrogen and captured CO_2.[4] The ISO recommends that the EPA consider low and net-zero carbon fuels, such as synthetic methane and synthetic/renewable natural gas (SNG), as one of the BSER technologies. The ISO is concerned that selecting a single technology for the BSER may prove difficult and costly as certain technologies are less practical in the New England region. While the BSER is only a mechanism for the EPA to determine an emission reduction level and other technologies may be used for generators to meet emissions compliance, achieving the same level of emission reduction in New England may require more investment. For example, hydrogen via electrolysis would need to be sourced outside of the New England region due to the lack of geological storage or developed distribution network, as discussed in the ISO's previous comments on the EPA's proposed GHG standards and emission guidelines. However, much less hydrogen storage would be needed to produce SNG than what would be needed for 96% hydrogen co-firing to

[3] New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule, *Comments of ISO New England Inc.*, Docket No. EPA-HQ-OAR-2023-0072-0001 (Aug. 7, 2024).

[4] "Electric-Gas Infrastructure Planning for Deep Decarbonization of Energy Systems," MIT, accessed July 2023.

supply the same amount of energy. The ISO has developed capacity expansion models that look at possible future power systems in 2050 as part of the Economic Planning for the Clean Energy Transition (EPCET) Study. The results of the deep decarbonization scenario (*i.e.* the Policy Scenario) show that the New England states can still meet their deep decarbonization goal of at least 80% below 1990 levels by 2050 with a 2 GW buildout of SNG combined cycle units. This buildout would not only achieve the required emission reductions but it reduces the amount of primarily renewable energy that would be curtailed since the system is building 37% less non-emitting capacity. The combination of low to net-zero carbon fuels, additional smokestack controls, and heat rate improvements could reduce GHG emissions while utilizing the already existing gas infrastructure, mitigating costs to ratepayers.

B. Response to Framing Question 2

The ISO has consistently stated its support for market-based solutions and continues to believe that these are, in combination with the wholesale electricity markets, the most efficient mechanisms to reduce emissions in the power system. As such, the ISO supports the inclusion of a mass-based carbon trading mechanism and recommends that such market-based solution utilize an auction to allocate carbon emission credits to electricity suppliers. An auction will allow market participants to reflect their private valuation of emission credits while accounting for expected production, potential capital investments that could reduce emissions, future market conditions, and their risk tolerance. This design relies on market competition to reduce emissions rather than an administrative process that awards initial emission credits based on historical use or projected future emissions, which may not be indicative of emissions going forward. If the credits are not distributed efficiently under the administrative process, it could prevent the most cost effective resources from delivering energy, thereby increasing total costs and emissions. An

auction-based allocation would send a transparent price signal to all market participants, allow for the efficient trading of credits, create revenue that could be invested in energy and environmental policies, and provide compliance flexibility. These market mechanisms have been successfully implemented in the Regional Greenhouse Gas Initiative[5] and the Massachusetts Global Warming Solutions Act[6] to achieve significant emission reductions within the power sector. In addition, the ISO has advocated for net carbon pricing within the New England wholesale electricity markets.[7] A sufficient price on carbon in the wholesale electricity markets would drive innovation by compensating new and existing clean energy resources for their carbon free energy, while also providing powerful incentives to existing carbon-emitting resources to reduce their carbon emissions. In the past, the ISO has stated that it can implement carbon pricing in the wholesale electricity markets (which would automatically rebate the bulk of the collected carbon emission revenues back to consumers) if the New England states support it and take action to set the price and impose it on generating resources. Carbon-emitting resources would be required to account for the cost of carbon emissions in their offer prices. Since the New England energy market selects the lowest-priced resources to meet consumer demand, net carbon pricing will further incentivize generators to reduce carbon emissions.

[5] Since 2009, the New England states have participated in the Regional Greenhouse Gas Initiative, a market-based cap-and-trade program to reduce CO_2 emissions from the power sector across the participating states. The current participating states are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

[6] 310 CMR 7.74: Reducing CO_2 Emissions from Electricity Generating Facilities sets annually declining emission limits and established an allowance-trading program for CO_2 emissions from large fossil fuel power plants within Massachusetts.

[7] In April 2022, the ISO issued the final report of the Pathways Study that evaluated net carbon pricing and other Pathways to a Future Grid focused on market. The report can be accessed at https://www.iso-ne.com/static-assets/documents/2022/04/schatzki-et-al-pathways-final.pdf

C. Response to Framing Question 3

As the EPA considers subcategories for the existing combustion turbine fleet, the ISO would like to caution the EPA about basing these subcategories solely on nameplate capacity and capacity factors. In its previous comments on the EPA's proposed GHG standards and emission guidelines, the ISO explained that its production cost modelling results show operational and market concerns when a capacity factor limit is placed on natural gas generators. By placing a capacity factor threshold that would trigger compliance requirements, the resulting effect was a shift in generation from larger, more efficient natural gas generators to smaller and less efficient natural gas generators.

On the markets side, capacity factor thresholds would cause market imbalances since generators that are near a specified capacity factor threshold would have a strong incentive to avoid the energy market if compliance costs exceed potential energy profits, whereas other generators far from the capacity factor thresholds would have weaker incentives. The EPA should consider additional parameters such as remaining useful life and retirement dates when designing these subcategories, similar to the proposed subcategories for coal-fired boilers.

Additionally, the ISO recommends that the EPA implement graduated scaling between any subcategories. This approach prevents the creation of sharp cutoffs that could unfairly disadvantage units on the borderline of these categories. For instance, under a scenario where stricter regulations apply to generators with a nameplate capacity over 300 MW, a generator rated at 301 MW could face disproportionately stringent requirements compared to one rated at 299 MW. To address this, the EPA should consider establishing a gradual increase in restrictions for units near these threshold values, thereby smoothing transitions between different regulatory categories and ensuring a more equitable application of standards.

D. Response to Framing Question 4

The ISO recommends the inclusion of a reliability safety mechanism that would allow a resource to operate past its emission limits or credit allowance for reliability-related reasons. For example, reliability-related reasons could include an Energy Emergency[8] declaration by the ISO. Alternatively, if auction-based emission trading were to be implemented, a provision could be included to allow for banking allowances or to buy through into next year's quantity at a pre-determined factor greater than the current year's auction value. The factor should be high enough to prevent market manipulation or increase of emissions, but provide a reliability safety mechanism for the generators and the ISO.

E. Response to Framing Question 5

Please see Response to Framing Question 4.

F. Response to Framing Question 6

If the EPA were to pursue a carbon-emission market trading mechanism, the ISO recommends that the EPA consider both existing and new combustion turbine resources. Both resources should be allowed to value and procure carbon emission credits in an auction-based credit allocation. This would increase the market pool and more credits could be procured by the set of resources, whether existing or new, that values them most in a cost-effective manner.

[8] Energy Emergency is defined in Section III.C of ISO New England Operating Procedure No. 21 – Operational Surveys, Energy Forecasting & Reporting and Actions During an Energy Emergency. https://www.iso-ne.com/static-assets/documents/rules_proceds/operating/isone/op21/op21_rto_final.pdf

G. Response to Framing Question 7

The ISO does not have any input on Framing Question 7 at this time.

Respectfully submitted,

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