FLORIDA MUNICIPAL POWER AGENCY'S COMMENTS

ON EPA'S EXISTING STATIONARY COMBUSTION TURBINE EGUS FRAMING QUESTIONS

EPA'S SOLICITED INPUT ON THE AGENCY'S EFFORTS TO REDUCE EMISSIONS OF GREENHOUSE GASES FROM EXISTING FOSSIL FUEL-FIRED STATIONARY COMBUSTION TURBINES (MARCH 22, 2024)

NON-REGULATORY DOCKET ID NO. EPA-HQ-OAR-2024-0135

MAY 23, 2024

Florida Municipal Power Agency
8553 Commodity Circle • Orlando, FL 32819 • (407) 355-7767 • www.fmpa.com

Table of Contents

Introduction

Florida Municipal Power Agency (FMPA) is a wholesale power agency owned by 33 municipal electric utilities in Florida who collectively serve 3 million Floridians or 14% of the state's population. FMPA's mission is to provide low-cost, reliable, and clean power, plus value-added services for FMPA's owner-customers that benefit their communities and customers. Natural gas generation is critical to FMPA and all Florida utilities to affordably and reliably provide power to our citizens. Florida is by far the most natural gas-dependent state for electricity in the country– representing 75% of the state's and over 80% of FMPA's generation mix. The growth in natural gas generation in Florida is the reason the state has made such large emission reductions over the last 25 years while continuing to be a very affordable and reliable power provider. Natural gas is the key generation resource providing continually affordable and reliable power, while reducing emissions further. Any restriction on the use of the low emitting and efficient natural gas generation in the future will greatly harm our ability to provide reliable and affordable power to the 22 million permanent residents and over 100 million annual visitors to the state. FMPA is submitting this letter in response to the solicited input on the Environmental Protection Agency's (EPA) efforts to reduce greenhouse gas emissions from existing stationary combustion turbines.

In the comments below, FMPA addresses key framing questions, provides insights on technologies for emission reduction, and emphasizes the unique challenges and considerations specific to Florida's power generation landscape. FMPA's concerns and suggestions for the EPA's rulemaking process highlight the importance of balancing emission reductions with grid reliability and cost-effectiveness in the state of Florida.

Key Framing Questions

Question 1

What technologies should the EPA consider as part of the Best System of Emission Reduction (BSER) for reducing GHGs from existing combustion turbines? The following is a list of potential technologies that is not meant to be limiting, but, rather, is meant to suggest the expansive nature of the inquiry on which the EPA is seeking feedback. In addition to the control measures proposed in May, which included carbon capture and sequestration (CCS) and hydrogen co-firing, the EPA is interested in feedback and information on the technologies listed below as well as on other technologies that should be considered.

a. Combustion turbines integrated with battery storage
b. Combustion turbines integrated with solar
c. Improving efficiency of simple cycle turbines by upgrading to combined cycle plants.
d. Improving the efficiency of existing turbines, with retrofit options for both simple and combined cycle turbines.
e. Utility scale fuel cells integrated with combustion turbines

Consistent with FMPA's comments to the EPA on Docket EPA-HQ-OAR-2023-0072 as filed in July 2023 ("FMPA's Earlier Comments"), there are a variety of factors that make Florida unique in relation to other

areas of the United States from a power delivery and reliability perspective. Importantly, Florida has the largest percentage of natural gas generation in the country, a peninsular geography, limited transmission interconnections with other states and accompanying limited imports of power, and continuing population growth. Florida has limited access to renewable resources other than intermittent solar, which is 25% less available than in states like Arizona and California. Accordingly, restrictions on gas-fired combustion turbines (CTs) will disproportionately impact Florida's utilities and its ratepayers.

With respect to the listed BSER options as articulated by the EPA, FMPA is not aware of any evidence to suggest that any of the above technologies should be considered a BSER given 1) the lack of proven technological deployment in the configurations listed, 2) cost-effectiveness considerations, and 3) practicality and space considerations. For example, integration of battery storage with existing CTs would require added space and interconnection facilities that may not be available at existing sites, and taking round-trip efficiency losses for storage charging into consideration (approximately 85% round-trip efficiency can be assumed for prevailing lithium-ion technology battery storage) would require increased generation relative to baseline. Likewise, solar is most cost-effective at larger scale, which requires significant volumes of dry land and associated transmission interconnection facilities that may not be available at existing sites. Transitioning existing CTs to combined cycle facilities represents a significant uncertainty for the owners for the same reasons noted above. Additionally, such conversions would pose economic uncertainty relative to any resulting regulatory requirements for such converted plants that remains unclear. Relative to the notion of a plausible BSER, Selective Catalytic Reduction (SCR) is the only viable control technology that FMPA is currently aware of.

Question 2

Should the EPA include market mechanisms like mass-based trading or emissions averaging in its proposal?

a. Should market-based mechanisms be limited to implementation and compliance, or do they have a role in establishing the emissions guidelines?
b. Many stakeholders have advocated for mass-based trading. Are there mechanisms (either mass- or rate-based) that can be designed in such a way as to maintain protectiveness while addressing local impacts and the significant uncertainties about future utilization levels for turbines?

FMPA does not believe any such mechanisms are effective in Florida. By "effective", we mean that Florida is left no worse off from serving the state's load reliably in a cost-effective manner. Florida does not have an organized market for such mechanisms to be functional. As noted in our response to question #1, Florida's unique geography requires that the state be mostly self-reliant for our power generation needs given the limited transmission ties to the mainland US. It is unclear how any such trading mechanism would ensure long-term reliability of power delivery for Florida customers and the extent to which it would interplay with other timeframes for compliance.

As far as mass versus emission rate-based trading, if such mechanisms were put in place, for growing states like Florida, an emissions rate-based approach is preferable versus a mass-based approach, which by its very nature penalizes states that grow in population or electricity consumption from new electric technologies like EVs, AI and data centers.

Question 3

How could EPA most effectively subcategorize the diverse existing combustion turbine fleet to maximize the application of affordable advanced technologies through BSER?

As articulated in FMPA's Earlier Comments, Florida is far more dependent on affordable and reliable electricity for quality of life and economic growth than other highly populated states. For example, Florida households use nearly twice as much electricity as in California or New York. Additionally, Florida families use a larger share of their disposable income to pay the electric bills because Florida has one of the largest percentages of fixed-income senior citizens in the county. Consequently, having dispatchable, controllable, and low-cost generating capacity to serve electric demand is mission-critical to prosperity and a high quality of life.

It is under this landscape of unique conditions whereby FMPA is of the opinion that the existing combustion turbine fleet does not require any subcategorization and reinforces that none of the proposed BSER options described in the EPA's Question #1 actually qualify as a BSER. Existing resources were planned, built, interconnected, and commissioned on the basis of deriving an estimated economic value at the time such decisions were made. Any retroactive impact to existing fleet assets would impact the recoupment of that value, and could cause unnecessary early retirements and stranded investment, which would only reinforce or potentially exacerbate concerns related to reliability and affordability.

In FMPA's Earlier Comments, we referenced an analysis by the Florida Reliability Coordinating Council (FRCC) that assumed that all CTs greater than 300 MWs would limit their capacity factor to 50% to avoid being subject to the new source performance rule as understood at the time. In short, FRCC estimated that in 2032 the Proposed Rule could require the replacement of 23 million MWh of annual energy supply needed to serve load. This shortfall represents about 8% of FRCC's total projected demand and is equivalent to blacking out about 1.8 million residential customers for the entire year, or all residential customers for about two months. FMPA reiterates our concern that any such scenario is a risk to the health and safety of all Floridians.

Question 4

What other compliance flexibilities should EPA provide for state implementation guidelines?

FMPA supports the existing Florida Public Service Commission (FPSC) and Ten-Year Site Plan (TYSP) processes as the foundational basis for ensuring reliable and low-cost power delivery in the state. These existing processes should be determinative regarding flexibility to ascertain challenges and focus on Florida's unique constraints and their impacts on long-term reliability and risks.

In Florida, FRCC's TYSP Process is an annual requirement for certain generating utilities to provide a plan to the FPSC. This plan aims to ensure a reliable electricity supply in the state and provide adequate planning reserves over the next decade. As part of this process, utilities estimate the amount of each type of generation that is to be retired, upgraded, or constructed to meet projected loads. The FRCC amalgamates individual TYSPs and associated data into the annual Load and Resource Plan for the entire region. Based on data provided in the 2023 FRCC Load and Resource Plan, nameplate solar capacity is expected to grow from approximately 5.6 GW at the end of 2022 to approximately 32.3 GW (excluding any power purchase

agreement capacity) by 2032. In contrast, the EPA's July 7th, 2023, IPM model output shows incremental solar additions, beyond the 32.3 GW of solar in 2032, of 19 GW in 2035, 38 GW in 2040, and 50 GW in 2045. Assuming these solar additions are all incremental adds, the EPA is modeling additions in 2–3 years roughly equal to what the TYSP process is projecting will be added over a decade. This misalignment of timelines calls into question the pace at which the EPA expects resource additions to be added and ignores the existing rigorous TYSP process already in place in Florida to ensure an adequate and reliable power supply for Floridians. The pace and nature of the expansion of resources should be managed in-light of critical resource adequacy and transmission system solvency issues within Florida as opposed to arbitrary targets and time domain-based restrictions.

In FMPA's Earlier Comments, we also outlined a series of concepts associated with ensuring maximum flexibility regarding implementation. Key concepts therein included consideration of a unit's remaining useful life, listing multiple compliance paths for a unit within the State Plan to allow for the actual selection to occur at any time prior to the compliance deadline, the ability to alter the path or interim milestones without having to alter the overall State Plan, the ability to opt out of the rule by accepting a permit limit to operate at 300 MW or less, and safety valves for the Public Service Commission if a determination is made that prices would increase more than 6% on an annual basis. We urge review of such concepts as we believe existing state processes are sufficient and robustly positioned to address the potential cost impacts and reliability risks of compliance.

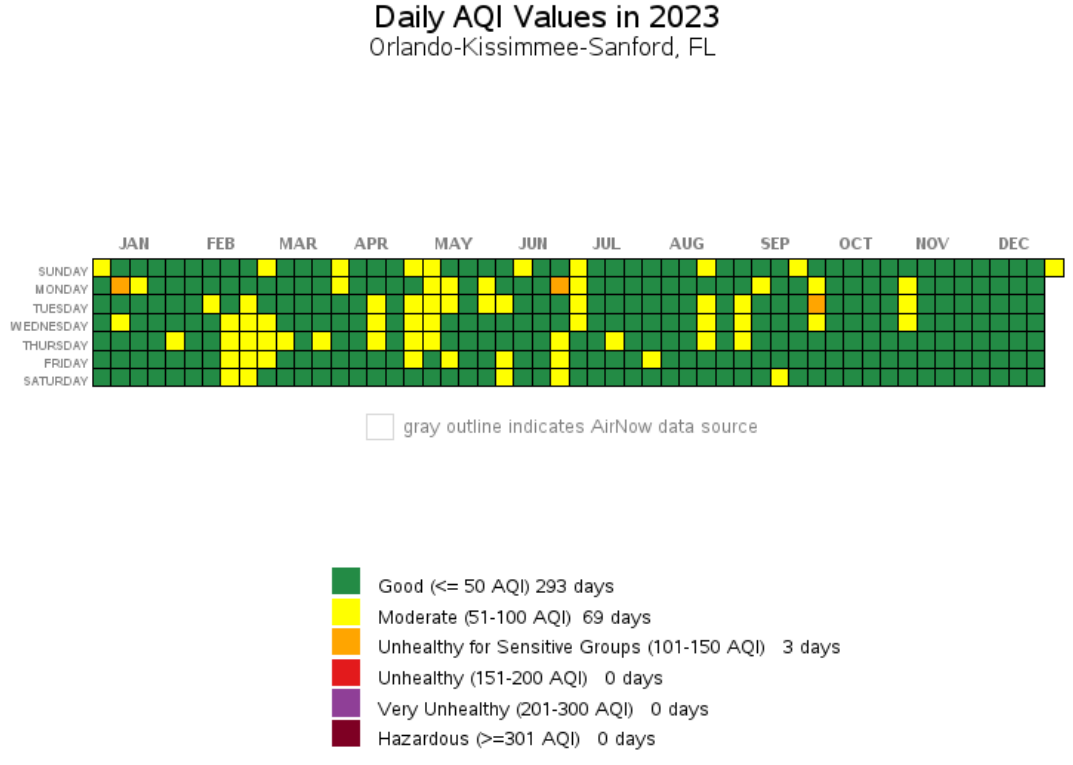
Question 5

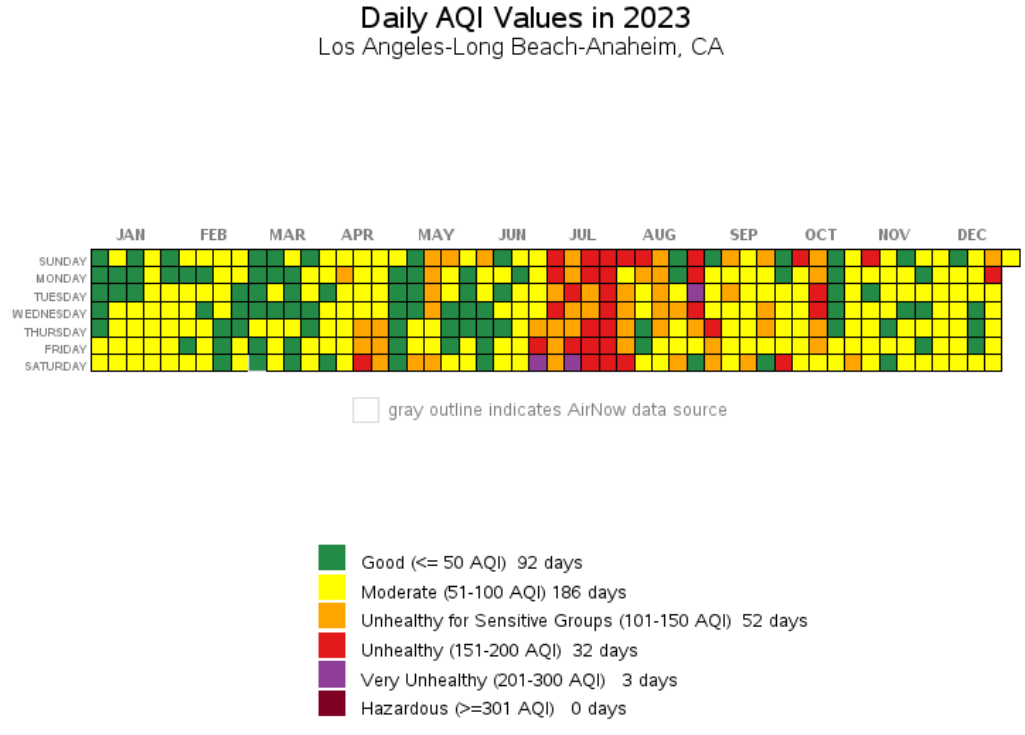
What steps can the EPA take in defining BSER or via compliance flexibility mechanisms or through other mechanisms to allow states to address a wide range of concerns, including, but not limited to:

a. Reliability of the power system,
b. Air quality and other health and environmental impacts for people living near stationary combustion turbines,
c. Concerns related to potential construction of new pipelines for hydrogen or CO_2,
d. Concerns related to the long-term storage of CO_2 (*i.e.*, carbon sequestration), and
e. Opportunities for workforce retention and re-training at existing fossil fueled power plants.

With respect to the reliability of the power system and subparts c and d, please refer to FMPA's responses to questions #3 and #4 and FMPA's Earlier Comments. Regarding air quality, FMPA notes that Florida has very high air quality as compared to other regions, as evidenced by the EPA's own data. The figures below are derived from the EPA's website visualization tool[1] that amalgamates various emissions (i.e., CO, NO2, ozone, PM2.5, and PM10) and represents annualized outdoor air quality data for the central Florida region, which contains FMPA's combustion turbine capacity and other power supply resources, as compared to an example location in California. As evidenced by this example, central Florida has exceptional air quality – there were zero unhealthy, very unhealthy, or hazardous days, as distinguished from the counterexample in California, wherein there were only 92 good quality days for all of 2023. The EPA should not assume that greater reliance on combustion turbines will correlate to lower air quality.

[1] https://www.epa.gov/outdoor-air-quality-data/air-data-tile-plot


Daily AQI Values in 2023
Orlando-Kissimmee-Sanford, FL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
gray outline indicates AirNow data source
Good (<= 50 AQI) 293 days
Moderate (51-100 AQI) 69 days
Unhealthy for Sensitive Groups (101-150 AQI) 3 days
Unhealthy (151-200 AQI) 0 days
Very Unhealthy (201-300 AQI) 0 days
Hazardous (>=301 AQI) 0 days
Source: U.S. EPA AirData <https://www.epa.gov/air-data>
Generated: April 10, 2024



Question 6

How should EPA consider interactions between the existing source and new source standards for GHGs from combustion turbines?

FMPA does not believe any such interactions are warranted. As described in FMPA's Earlier Comments, Florida is making a significant, rapid, and ongoing shift to renewable energy, as part of Florida utilities' push to lower GHG emissions. The percentage of renewable firm to grid summer capacity in Florida is expected to double in the next ten years from ~4,200 MWs to ~8,500 MWs (96% of which is solar), and the Net Energy for Load from renewables is expected to increase from 8% in 2023 to 28% in 2032 (~27% of which is solar). To support this shift to renewables, combined-cycle, and simple-cycle CTs will provide the majority of required ancillary services such as voltage support, frequency response as a result of system disturbances, regulation, and ramping, system restoration, etc. Restrictions on existing CTs that would force the de-rate of this critical dispatchable generation in Florida when it is needed the most will undermine Florida's aggressive transition to renewables.

FMPA has worked hard to reduce its CO2 emissions and is on pace to reduce its CO2 emission rate (in pounds per MWh) by 50% by 2027 through the retirement of coal units and increases in solar generation. Likewise, the power sector has reduced its CO2 emissions rate by nearly 40% over the last 15 years by increasing the utilization of natural gas to displace coal and oil-fired power generation and by boosting wind and solar generation. The pace of such changes should be aligned with the fundamental realities of the grid and with the reliability of service as the foremost priority.

Question 7

Along with developing proposed emission guidelines for existing stationary combustion turbine EGUs, the EPA is also, on a similar timeline, developing proposals to review the criteria pollutant NSPS (40 CFR 60 KKKK) for stationary combustion turbines and to review and update the NESHAP (40 CRF 63 YYYY) for stationary combustion turbines. Are there interactions between these three rulemakings that the EPA should be aware of and take into consideration?

As alluded to elsewhere in our response and in FMPA's Earlier Comments, the only available and scalable zero-emission energy resource in Florida that is readily viable for expansion is solar energy; however, solar energy is intermittent and weather dependent, which requires grid operators in the FRCC to have sufficient fast ramp response from dispatchable units (that are not themselves duration dependent) to support reliable energy delivery when the sun is not shining (ramping up to balance supply and demand moment to moment), or when a cloud cover event dissipates (ramping down to accommodate the increased solar resource and again balancing supply and demand moment to moment). Any additional rules that would impact CTs or other backup resiliency resources would fundamentally compromise reliability in the state.

Conclusion

FMPA underscores the critical need for a balanced approach that considers the specific challenges faced by Florida in transitioning to cleaner energy sources. These challenges include the importance of considering Florida's unique geography, maintaining grid reliability, affordability, and practicality. As the rulemaking process progresses, FMPA looks forward to continued collaboration with the EPA to achieve emissions reductions while safeguarding the reliability of Florida's power supply.

FMPA appreciates your consideration of these comments. If you have any questions regarding this information, please contact me at (407) 274-2846, or at Jacob.williams@fmpa.com.

Sincerely,

Jacob Williams

FMPA General Manager and CEO

cc: Stacy Dochoda, CEO, Florida Reliability and Coordinating Council
Tanya Portillo, Executive Director, Florida Electric Power Coordinating Group, Inc.
Jody Lamar Finklea, FMPA General Counsel and Chief Legal Officer
Mark Futtrell, Florida Public Service Commission
Ana Ortega, Florida Public Service Commission