Comments to New Jersey Department of Environmental Protection (NJDEP) on Reducing CO_2 Emissions in New Jersey from Electric Generating Units (EGUs) and Boilers

September 3, 2020 Stakeholder Meeting

PSEG appreciates the opportunity to provide comments on a potential rulemaking to reduce CO_2 emissions from EGUs. PSEG believes that climate change is the pre-eminent challenge of our time. PSEG has long believed that a national, economy-wide program that sets a price on carbon is the most effective way to achieve meaningful greenhouse gas (GHG) reductions. We continue to advocate for a national solution, including through membership in the CEO Climate Dialogue, a cross-sectoral organization that seeks to leverage CEO voices to build support for a national price on carbon and whose guiding principles for federal action include economy-wide GHG emission reductions of 80% or more by 2050.

We recognize that States and Industries have stepped up to the challenge in lieu of federal action on climate change. For example, PSEG has a five-point plan to address climate change: preserve existing nuclear, invest in energy efficiency, invest in offshore wind, invest in solar and invest in electrification of the transportation sector. PSEG is committed to working with the NJDEP on policies that encourage the reduction of GHGs in the State. We are committed to helping our customers use less energy and ensuring that the energy they use is cleaner, and delivered more reliably than ever before.

Electric Generating Units (EGUs)

Overview

NJDEP presented a strategy to reduce CO_2 emissions from in-state fossil fuel-fired EGUs through the accelerated deployment of renewable energy and distributed energy resources. The Department described a program to establish CO_2 emission limits, in pounds per megawatt hour (lb/MWh) for all fossil fuel-fired EGUs located in the State. These limits would decrease over time through the allocation of new renewable electric capacity/generation to those EGUs. Compliance with the CO_2 limit would be determined using the following formula:

$$\frac{\text{EGU } CO_2 \text{ emissions}}{\text{(EGU power output + allocated renewable power output)}}$$

NJDEP solicited feedback on numerous topics regarding this strategy. In the alternative, NJDEP requested feedback on the use of CO_2 or fuel use permit limitations (caps). PSEG hereby submits the following comments on the potential strategies presented by the NJDEP to reduce CO_2 emissions from EGUs.

Emission Reduction Roadmap

The Energy Master Plan (EMP) lays out a high-level roadmap to meet the goals of 100% clean energy and reduce economy-wide GHG emissions below the Global Warming Reduction Act (GWRA) target. This roadmap consists largely of electrification of the transportation and building sectors, promoting energy

efficiency, and meeting more than a doubling of load growth with 94% carbon-free electricity.[1] This is an enormous task that must be taken in a holistic manner.

As stated by many diverse Stakeholders during the session held on September 3rd, PSEG believes that NJDEP needs to work closely with other state agencies (e.g., NJBPU, NJDCA, etc.) to develop a detailed roadmap that outlines the timeline of these economy-wide emission reductions. The EMP correctly describes the need to manage CO_2 emissions from the electric generation sector while the state moves to aggressively electrify the rest of the economy. This roadmap would assist all agencies in developing a suite of cost-effective, complimentary measures that ensures the State will meet both the clean energy and GHG reduction targets. Detailed modeling is necessary to identify the appropriate timing and methodologies for reductions in each applicable sector. In addition, energy market modeling is necessary to fully understand the impact of significant load growth. Since New Jersey is a member of regional grid operator PJM, the modeling needs to reflect a regional approach to grid management. PSEG recommends that NJDEP share its modeling assumptions to solicit feedback prior to conducting its analysis to improve stakeholder buy-in and environmental outcomes, as well as, ensure durability of the final regulations.

Leakage and Reliability Analysis

As stated above, PSEG encourages NJDEP to conduct energy market analyses to fully understand the impact of any rulemaking. Any regulation on in-state EGUs has the potential to create leakage and effect reliability. "Leakage" is defined in the Global Warming Solutions Fund Act (GWSF) as "an increase in greenhouse gas emissions related to generation sources located outside of the State that are not subject to a state, interstate or regional greenhouse gas emissions cap that applies to generation sources located within the State." N.J.S.A. 48:3-51. Leakage reduces the environmental effectiveness of emissions regulation and will put at risk any potential benefits of a CO_2 reduction rulemaking. Therefore, mitigating leakage is critical to the state.

PSEG submitted similar comments when New Jersey rejoined RGGI. The RGGI program establishes a price on carbon, which we believe is appropriate to be reflected in the market price of energy. That said many of PSEG's generation assets are sold into the PJM market which has a different footprint. We continue believe there is a need to ensure implementation of RGGI and any additional program(s) in a way that does not cause unintended consequences for New Jersey's clean generation fleet that competes against power plants in adjacent states without the same additional cost on its fleet.

In addition to impact on CO_2 emissions, NJDEP should include the impact on ambient air ozone concentrations in its analysis. New Jersey has some of the most stringent standards for all EGUs through the implementation of NOx RACT and High Electric Demand Day (HEDD) regulations. Many neighboring states do not require state-of-the-art emission reduction technology necessary to minimizing ozone-producing emissions. Attainment of the Ozone National Ambient Air Quality Standards (NAAQS) continues to be a challenge in the Northeast. Performance standards must be established in a manner that does not result in retirement of the State's clean fleet and increase reliance on dirtier, less-efficient power plants from other states within PJM.

[1] NJBPU, 2020 Energy Master Plan, pg. 12.

Conducting this modeling is of particular importance as the state moves ahead with electrification of the transportation and building sectors that has the potential to more than double New Jersey's current load demands. As stated above, PSEG recommends that NJDEP share its modeling assumptions to solicit feedback prior to conducting its analysis.

Standard Design

Technology-Specific Standards

PSEG recommends that any performance standard approach (lb/MWh) should include technology-specific standards. Natural gas combined-cycle EGUs are operated significantly different from simple-cycle combustion turbines. In addition, newer units are more efficient than older units.

A similar argument can be made for emission or fuel permit caps. Modeling must be conducted to ensure that caps are not too restrictive, thereby preventing the operation of New Jersey's clean fleet over dirtier, less-efficient power plants from other states as the state's load demands increase due to aggressive electrification of the transportation and building sectors.

The primary goal of any state-specific reduction program for EGUs should be reduction of emissions from the sector, both CO_2 and NOx, over a baseline analysis of no state-specific CO_2 reduction program for EGUs. This analysis should reflect the increased load demands due to aggressive electrification of the transportation and building sectors, while comparing the emissions impact from EGUs from the baseline (current emissions profile) to the suggested EGU emission reduction strategies.

Renewable Energy Requirements

It is PSEG's position that NJDEP should not require merchant power plant owners/operators to rely on only in-state renewables to comply with the performance standards. As stated above, New Jersey is a member of PJM. The market dictates what are the most cost-effective energy types and location of energy sources (traditional power plants, renewables and other energy forms of distributed generation or storage) within PJM's regional grid. State energy agencies can develop programs that require in-state construction of renewable energy capacity, such as New Jersey's solar and offshore wind programs. However, many of these agencies recognize the need for a broader program, such as New Jersey's Renewable Portfolio Standard (RPS), which allows electricity suppliers to procure credits from qualified renewable energy resources located anywhere within PJM.

Requiring merchant power plant owners/operators to build and/or contract with new, in-state renewable capacity may not be the most cost-effective compliance option. Such a requirement may result in the decision to not build the new, in-state renewable resource coupled with the retirement of the clean, efficient in-state natural gas EGU. As stated above, the premature retirement of this cleaner asset could result in increased emissions due to leakage.

In addition, the installation of new, in-state renewable capacity may not always result in a decrease of in-state fossil fuel-fired generation. Generation from any renewable resource would offset generation of the marginal unit within PJM, unless there are transmission constraints. Marginal generators are the last unit(s) dispatched to meet a given level of demand. These generators are dispatchable units that can ramp up and down in response to changes in demand. Marginal generators in the PJM market

continue to change every year. In 2019, coal units were 24.4% and natural gas units were 69.4% of marginal resources.[2]

Compliance Flexibility

It is PSEG's position that any standard established provides for flexibility due to variability in temperature/load demands. Temperature/load demand can fluctuate year-to-year, season-to-season, etc. Programs, such as RGGI, have long-term compliance periods to accommodate for such variability.

As stated above, any standard must provide flexibility to address future increased electricity demand due to electrification of the transportation and building sectors.

Boilers

The NJDEP solicited input on various potential emission reduction options including: bans, phase-outs, and fleet standards. In addition, NJDEP sought feedback on timing, applicability and costs. The NJDEP acknowledged that electrification technology is here, but is currently not cost effective. PSEG agrees with this statement. PSEG stresses that load growth from electrification of both the transportation and building sectors will increase the need for capital investment in electric infrastructure, offsetting and likely reversing any load decreases from energy efficiency in the long-term.

The EMP contemplates 2030 as a potential time to target electrification of existing buildings. PSEG recommends initial boiler electrification projects to focus on new construction, thereby minimizing impact to existing load. As mentioned above, PSEG believes that NJDEP needs to work closely with other state agencies to develop a detailed roadmap that outlines the timeline for cost-effective, economy-wide emission reductions.

[2] Monitoring Analytics, PJM State of the Market Report 2019. March 12, 2020.