From: William O"Sullivan
To: DEP NJDEP-BAQP; Steitz, Francis
Subject: [EXTERNAL] Reducing CO2 emissions (follow up recommendations to 2/25/20 workshop)
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Following is a summary of recommendations, most based on comments I made at the 2/25/20 workshop. I have included some additional recommendations not voiced at the workshop.

1. Efficiency

a. Update State of the Art (SOTA) manuals for fuel burning to include energy efficiency measures, possibly including minimum energy efficiency.

b. Update general permits for fuel burning to include energy efficiency measures, possibly including minimum energy efficiency.

c. Lower the thresholds for SOTA for fuel burning to 1 million btus per hour heat input.

d. Require annual tune ups for all fuel burning equipment which obtain air permits (any fuel burning equipment over 1 million btus per hour heat input). Tune ups should minimize air pollutant emissions, especially fine particles, including black carbon, and maintain the design efficiency of the fuel burning unit. (Note that many, if not most, homeowners with fossil fuel furnaces have annual tune ups on much smaller units, typically about 100,000 btus per hour.)

e. Work with the BPU to provide efficiency guidance to owners and operators of fuel burning equipment that does not require air permits.

2. New fossil fuel fired power plants

a. Require that any new combined cycle power plants also have peaking capability, so they can change from intermediate and base load electricity providers to peak load providers as the need for intermediate and base load fossil fuel electricity declines with the expected increases in renewables.

3. Existing fossil fuel fired electric generation

a. Require that inefficient fossil fueled fired peakers be phased out over the next 10 years.

b. Encourage combined cycle gas fired electric generation as long as there is significant coal fired capacity in PJM. A modern combined cycle gas fired electric generator has less than 30% the CO2 emissions of most existing coal fired electric generators. Gas will continue to be a good alternative to coal for electric generation. Most use of gas for electric generation can be phased out as renewables grow over the next 30 years.

c. Maintain sufficient natural gas fired turbines for peaking and emergency use for times when there is insufficient wind and solar generation. Expand uses of battery storage to reduce the need for gas and oil fired peaking capacity, but do not rely completely on batteries for all peaking needs.

4. Emission Trading and performance standards.

a. A combination of cap and trade programs for a fuel burning source category and

performance standards for individual emission units can provide regionwide reductions in emissions and protection of local public health.

a. Do not rely solely on regional emission trading to reduce CO2 emissions for protection of public health and EJ. Cap and trade programs are not designed for protection of public health in all locations.

b. RGGI CO2 leakage - Fix the leakage problem, where the RGGI cap and trade program causes electric generation in NJ to be less and electric generation in coal burning PJM states to be more, causing higher CO2 emissions in PJM than would have occurred without NJ in RGGI. Note that with or without leakage, CO2 emissions in PJM are expected to decline. However, without a fix to the way electricity is dispatched across PJM, the leakage problem is likely to slow the PJM CO2 decline (resulting from prolonged use of coal), resulting in more CO2 than if NJ had not rejoined RGGI. If the leakage problem is confirmed and not fixed within an expeditious timeframe, consider withdrawing from RGGi.

c. EJ - Maintain and consider improvements to NJ's performance standards for individual fuel burning units. Ensure that those performance standards are protective of local public health by subjecting fuel burning sources to air quality modelling for NOx, NO2, and fine particles. Screening modelling will show that most modern fuel burning sources do not cause exceedance of health standards. However, diesel engines and other old sources with short stacks and nearby property lines may cause unacceptably high local concentrations of air pollutants.

5. Other measures

a. Immediately begin work on consideration of non CO2 greenhouse gas regulations. Start a stakeholder process as soon as possible. The extra 6 months scheduled for these regulations should be used effectively to develop meaningful measures and regulations to reduce the short term GHG, especially methane and black carbon. NJ can and should be a leader in the regulation of the short term GHG. Recommendations on reducing short term GHG from the 2019 hearing report of the NJ Clean Air Council should be implemented.

b. Methane leaks from gas pipelines - Leakage of natural gas from leaks is a significant public concern, and such leaks can be avoided and corrected with available technology. NJ's legacy of old gas distribution systems sets the stage for leadership and action. Set a goal to eliminate natural gas leaks in NJ. Build off the successful ongoing programs of the natural gas providers to reduce large leaks. There should be regulations that mandate fixing leaks within defined timeframes, the largest leaks most expeditiously. The cost of fixing leaks in NJ should be reflected in the delivery price of natural gas. Also, continue to work with other states on reducing methane emissions from natural gas extraction and processing.

c. Methane leaks from landfills - NJ has a good landfill regulatory program that requires landfill gas collection and methane reduction. NJ legislation on testing and preventing hydrogen sulfide (H2S) emissions from landfills has also been helpful in also reducing methane emissions. The use of engines to burn landfill gas should be reconsidered if those engines emit high amounts of CO, fine particles (including black carbon), NO2 and NOx. NJ should review its existing landfill regulations and programs to ensure that landfill air contaminant emissions are being minimized. NJ should share its landfill air pollution control successes with other states with landfill emissions issues.