



Regional Greenhouse Gas Initiative Program Review
Third Program Review Comments – 1-12-22
From Middletown for Clean Energy¹ (Robert L Erickson²)

Thank you to the Regional Greenhouse Gas Initiative (RGGI) for the opportunity to provide public comment on the RGGI program.

The Middletown Energy Plan V2³ submitted for consideration to the Township of Middletown, NJ by Middletown for Clean Energy in August 2020 identified three main pillars of CO₂ emissions reduction required to drastically reduce emissions towards zero by 2050 and thus help potentially avoid the worst effects of global warming, if not too late already. As shown in included Chart 1 at the end, the three pillars, consisting of combinations of scenarios shown in Chart 1, are

- (a) 100% Clean Electric
- (b) 100% Electric Vehicles
- (c) 100% Building Electrification, e.g., the replacement of fossil fuel-based space, water and dryer heating with “cold climate” or other heat pumps.

Recommendations:

Thus, the following are recommendations for the RGGI program:

1. Lower the annual cap on RGGI power sector CO₂ emissions:

The RGGI should, as per (a) League of Women Voters of Delaware (Dec 2021) “Lower the annual cap on RGGI power sector CO₂ emissions to put RGGI regulated power sources on a path to reach zero CO₂ emissions by 2035.”⁴ (b) the Appalachian Mountain Club (Nov 2021) “RGGI states should adjust the current/adjusted cap downward to reflect actual emissions”⁵. (c) Conservation Law Foundation (Nov 2021) “Consistent with these aggressive efforts to cut greenhouse gas emissions targets and avoid or mitigate the worst impacts of climate change, the RGGI emissions cap should be designed for a trajectory reaching zero percent emissions by 2035.”⁶ (d) NRDC (Nov 2021) “The RGGI states should commit to lowering RGGI’s cap to eliminate the persistent gap between observed and projected emissions declines, and to ensure that the cap is consistent with the need to decarbonize the power sector.”⁷

The cap for years ahead and allowance pricing limits should be specified so that actual emissions in or incurred by (e.g., via leakage) each member state do not exceed projected emissions specified in laws and policy of each respective state, and result directly in substantial lowered emissions because of the cap limits and policies, and not just relatively small lowered emissions through funding state programs with part of the allowance proceeds. Through careful review, analysis, and projection, the RGGI must

also strike from its programs and policies, all pools, mechanisms, definitions, allowances, offsets^{8 9} and steps that might enable avoidance of a tighter, more meaningful cap, enable working around this cap, and/or otherwise enabling continued or even increased carbon dioxide or methane emissions that would exceed a cap specified per the preceding input. The cap should be designed to encourage renewable energy such as wind, solar and hydropower, but that does not actually increase pollution or prevent decreases, such as the potential worse situation that results from biomass-based solutions^{10 11 12 13}, leakage (see next recommendation), or other emissions. The RGGI should publish for public review the revised cap projections and how they are arrived at.

2. Prevent “emissions” leaks into RGGI states from non-RGGI states:

As per (a) League of Women Voters of Delaware (Dec 2021), “Emissions leaks have been identified by independent studies of RGGI”¹⁴. (b) EDF (Nov 2021), “Emissions leakage has the potential to undermine maximum effectiveness of state and regional policies to reduce carbon pollution”.¹⁵ (c) NRDC (Nov 2021), “NRDC encourages the RGGI states to examine the potential for emissions leakage from RGGI to non-RGGI states in the program review”¹⁶. The leakage amounts should be analyzed and included under the annual cap. Since, as an example, New Jersey is interconnected with the PJM pool, the leakage (or potential leakage) is obvious and can be seen on any instantaneous or daily basis by examining the PJM top web page and their inset “Fuel Generation Mix”, wherein coal and natural gas contribute approximately 1/3 of generation capability each, and nuclear around another 1/3, while specific renewable energy sources such as hydro, wind, and solar are just a small fraction together (approx 7 MW of 111 MW generation, or less than 7%, at approx 1 PM EST on 1/12/22)¹⁷, even though of course the actual electric flow into / out of any interconnected state in reference to emissions leakage will vary at any instant in time. But the PJM webpage inset also demonstrates the current huge dominance of fossil fuel generation capability and thus emissions in a huge power pool market, and thus pointing out there is a long way to go to 100% clean energy.

3. Lead and Provide a RGGI Clean Energy Plan (RCEP):

To meet the urgent need for the three pillars of clean energy previously identified, the RGGI should lead and team with state agencies, power providers and environment organizations to generate a proposed multi-year RGGI Clean Energy Plan (RCEP) to provide ample 100% clean electric sources spanning RGGI member states and power pools to which they belong. The forward looking RCEP should account for state standards¹⁸, and encourage stronger state standards and adherence to state standards¹⁹, while addressing reliability and storage for each member state and each power pool to which any member state belongs to. The proposed RCEP should document how the new renewable power sources to support the three pillars previously listed are going to be delivered to the public within the member states with 100% clean electric with today’s or better electric network standards over the multi-year period. Renewable power plans may include but are not limited to new offshore wind turbine expansion plans²⁰ throughout the member states, solar electric expansion throughout the member states, provision of and interconnection with hydropower sources, and encouraging clean

energy from RGGI member state power pools and interconnections, while at the same time documenting and encouraging the plan for the rapid phase out of dirty polluting power sources such as coal, oil and biomass/wood, and the transition of polluting natural gas power to clean electric during the multi-year plan period, without using offsets to hide pollution. The proposed RCEP should address “leakage” as per the prior recommendation. The proposed RCEP²¹ should also address smaller generating units towards reducing and eliminating fossil fuel emissions²². The proposed RCEP needs to extend to at least 2035, and perhaps 2050, and should be updated formally at least annually, with opportunity for public review and input. Both the RCEP and analysis and supporting data needs to be updated several times a year on-line in a publicly available website. The proposed RCEP should also cover the plan for and benefits over time on people’s health²³ of removing power plant fossil fuel pollution of various types, and also from an environmental justice perspective^{24 25 26 27}.

Regarding the reliability aspect of the proposed RCEP, the RMI outlines possible near term and longer-term solutions to network reliability.²⁸ A source of funding for RGGI reliability programs could include the recently signed Federal “Infrastructure” bill which provides “\$65 billion to improve the reliability and resiliency of the nation’s power grid.”²⁹

The proposed RCEP concept should also include real time web tools that demonstrate and publish publicly on the web a daily electric flow analysis and monthly/annual summary of what percentages and types of electric generation capability and emissions are generated and used by each pool, in each state and from each contributing utility and each power generating plant, small or large, by fuel or energy source type. This would make clear to everyone, including the public, current generation, sources, pollution, and trends in a centralized location on an ongoing basis.

4. Encourage Regional Clean Energy Pool(s):

Investigate and document plans for and the feasibility of clean energy pools.³⁰ For example, a NJ BPU³¹ (June 2021) report states “Incorporating New Jersey’s clean energy goals in the regional market is the most efficient way to provide New Jersey consumers with reliable, affordable, and carbon-free electricity”. And “Of the regional approaches evaluated by Staff, the Integrated Clean Capacity Market (ICCM) best incorporates New Jersey’s clean energy targets into the regional energy and capacity markets, which would drive significant investment in zero-carbon generation at a modest increase to current system costs, resulting in a substantially cleaner New Jersey and PJM grid.”

Further Context for the above recommendations:

In order to achieve the intent of the three pillars previously mentioned, 100% clean electric is required as soon as possible. Middletown for Clean Energy has also published a letter (5/25/21) to Congressman Frank Pallone, Jr., Chairman, House Committee on Energy and

Commerce calling for similar specific objectives in Federal legislation³². Likewise, the Rocky Mountain Institute (RMI) indicates Carbon-Free Electricity, Carbon-Free Buildings, and Carbon-Free Mobility as among three essential global programs towards a carbon free future³³. RMI outlines aspects of the New Jersey EMP in a summary: “New Jersey Charts a Practical, Affordable Course to a Decarbonized Economy”³⁴. Furthermore, Middletown for Clean Energy has issued a letter (9/30/21) to Governor Murphy of NJ calling for 100% clean electric by 2035³⁵. The recommendations provided herein are also partly informed by New Jersey’s 2019 Energy Master Plan (EMP)³⁶, which provides a road map to meet the mandates of NJ’s Global Warming Response Act (GWRA)³⁷. Both the EMP and this energy plan are informed by the scientific consensus in reports such as the International Panel on Climate Change’s 2018 report, “Global Warming of 1.5°C”³⁸. This report states that “Without ... urgent [action] ... leading to a sharp decline in greenhouse gas emissions by 2030, global warming will surpass 1.5°C in the following decades”, threatening a livable world for our children. We know that the Jersey Shore is on the front lines of this crisis and is, in fact, experiencing sea level rise more quickly than the global average.³⁹ Furthermore, adaptation plans for the shore area may include large expensive sea wall projects, e.g., a \$119 billion sea wall among other alternatives.⁴⁰

Detailed New Jersey impacts are described in the “2020 NJ Scientific Report on Climate Change”⁴¹, published on June 30, 2020, by the NJ DEP. Documented impacts include higher air temperatures (including summer heat-related mortality) and associated increase in wildfires; intensity and frequency of precipitation, floods, droughts; increasing sea level rise, higher ocean temperature, and greater ocean acidification; worsening air quality; agriculture impacts; degraded and stressed water supplies; degraded terrestrial, freshwater, and marine environments; loss of plant and animal species; and increasing invasive species including pests. The degree of impact depends upon the level of future GHG emissions. The report also observes that NJ is warming faster than the rest of the US northeast region and the world. Increasing global temperatures continue to be measured⁴²: “The past decade was the hottest on record”, “2019 was the second warmest year ever”, and “...the National Aeronautics and Space Administration and the National Oceanic and Atmospheric Administration showed global average surface temperatures last year [2019] were 1.8 degrees Fahrenheit higher than the average from the middle of the last century, driven mostly by emissions of the dominant Greenhouse Gas (GHG) carbon dioxide (plus water vapor feedback) resulting from human burning of fossil fuels.

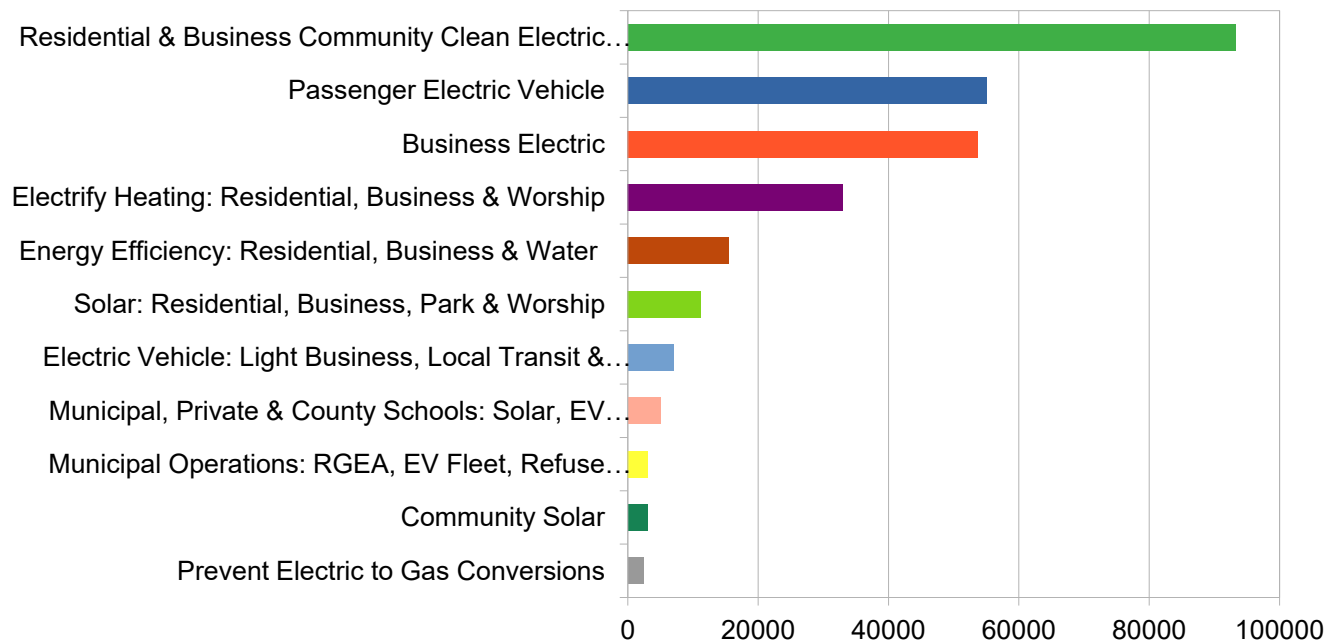
Modeling for the NJ EMP, completed by the expert Rocky Mountain Institute (RMI), has determined that the least-cost responsible solution for meeting the goals and mandates of the GWRA would increase the state’s annual energy costs by only 0.2% of state GDP over the period 2020-2050. Also see Figure 8 of the NJ EMP. The RMI model conservatively assumes NO benefit to offset the cost, NO decrease in the price of renewable energy over time, and NO technological advances. Taking any of these into account would *reduce* solution cost well below usual costs, thus saving considerable taxpayer money. The NJ EMP also states that “New Jersey can meet Global Warming Response Act and 100% clean energy targets by aggressively deploying existing technologies today and adopting new technologies as they become cost-competitive.”

Yet, as acknowledged by the NJ EMP Figure 1 Reference 2 curve (page 23) existing NJ mandates (existing policies – also see Figure 7) do not bring NJ anywhere near the NJ EMP target of 100% clean electric and 80% GHG reduction by 2050⁴³, nor the 50% GHG reduction by 2030 specified in NJ Executive Order 274⁴⁴. Rather, the NJ EMP Reference 2 curve indicates only about 40% GHG reduction by 2050 and only about a 30% reduction by 2030, thus demonstrating existing NJ mandates fall far short of NJ’s own targets, though executive order 274 may help reduce the 2030 gap. But the 2050 gap can be plainly seen in the NJ electricity Renewable Portfolio Standard⁴⁵, which tops out at only 50% renewable electricity in 2033. When this RPS standard is considered together with the lack of any NJ specific penetration objectives for building electrification, e.g., heating via heat pumps and in fact even continued incentives for gas equipment, this makes reaching these GHG reduction targets improbable with current NJ mandates. Though of course even the RPS increase to 50% by 2033 and the NJ S2252⁴⁶ requirement for “at least 2 million of the total number of registered light duty vehicles in the State shall be plug-in electric vehicles by December 31, 2035” and “at least 85 percent of all new light duty vehicles sold or leased in the State shall be plug-in electric vehicles by December 31, 2040” are important steps towards the 2050 and 2030 targets. But yet far more needs to be done to meet the New Jersey GHG reduction targets. In short, though out of scope for these recommendations to the RGGI, New Jersey also needs to drastically increase its RPS standards from the current limit of 50% in 2033 to achieve 100% clean electric by 2035, and mandate for a Building Electrification program where none currently exists in New Jersey.

Chart 1 Extracted from [proposed] Middletown, NJ Energy Plan V2
Representative Scenarios for Middletown Greenhouse Gas (CO2) Emission Reduction

Chart 1 shows estimated tons of Greenhouse Gas emission reduction for each scenario in 2030 relative to 2018.

If implemented, reductions projected for 2030 total 266K tons or 38% of Middletown's 705K pro-rata tons of New Jersey tons in 2018.



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- 1 <http://climate.smiller.org/>
 - 2 Robert Erickson is a member of Middletown for Clean Energy, a primary author or co-author of several Middletown for Clean Energy documents, and a retired resident of Middletown, NJ, with no current or prior affiliation with either the power, fossil fuel or green industries.
 - 3 <http://climate.smiller.org/energy-plan/Middletown-2020-Energy-Plan/MiddletownEnergyPlan-V2-2020-8-8.pdf>
 - 4 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session3/LWVD_Public_Comment_2021-12-13.pdf
 - 5 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session2/AMC_Public_Comment_2021-12-02.pdf
 - 6 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session2/Conservation_Law_Foundation_Public_Comment_2021-11-29.pdf
 - 7 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session2/NRDC_Public_Comment_2021-11-29.pdf
 - 8 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session2/Southern_Environmental_Law_Center_Public_Comment_2021-11-29.pdf
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 - 10 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session2/Southern_Environmental_Law_Center_Public_Comment_2021-11-29.pdf
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 - 12 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session2/CJA_Public_Comment_2021-12-03.pdf
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 - 14 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session3/LWVD_Public_Comment_2021-12-13.pdf
 - 15 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session2/EDF_Public_Comment_2021-11-29.pdf
 - 16 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session2/NRDC_Public_Comment_2021-11-29.pdf
 - 17 <https://www.pjm.com/> (See “Fuel Generation Mix” insert. Anecdotally, this insert has been sampled several times over approximately 2 years by the author, and approximately the same situation observed)

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- 18 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session2/CJA_Public_Comment_2021-12-03.pdf
- 19 https://www.rggi.org/sites/default/files/Uploads/Program-Review/2021_Comments/Session2/EDF_Public_Comment_2021-11-29.pdf
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- 32 <http://climate.smiller.org/letter/2021-5/2021-5-25CleanFutureAct-PalloneLetter-comments-FINAL-B.docx>
- 33 <https://rmi.org/our-work/>
- 34 <https://rmi.org/new-jersey-charts-a-practical-affordable-course-to-a-decarbonized-economy/>
- 35 <http://climate.smiller.org/50x30/50x30sept30gov.pdf>
- 36 <https://www.nj.gov/emp/>
- 37 <https://www.state.nj.us/dep/aqes/oce-publications.html>
- 38 <https://www.ipcc.ch/sr15/>
- 39 <https://www.app.com/story/news/local/land-environment/2019/12/13/new-jersey-ground-zero-sea-level-rise-says-scientist/4411122002/>
- 40 [“\\$119 Billion Sea Wall Could Save New York...”, New York Times, 1/17/20](https://www.nytimes.com/2019/12/13/us/politics/119-billion-sea-wall-new-york.html)
- 41 <https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf> Executive Summary, pages v to xv
- 42 “2nd-Hottest Year Ever Closes Out Warmest Decade”, New York Times, 1/16/20
- 43 <https://www.nj.gov/emp/energy/>: “The [NJ] Energy Master Plan defines 100 percent clean energy by 2050 as 100 percent carbon-neutral electricity generation and maximum electrification of the transportation and building sectors, which are the greatest carbon emission producing sectors in the state, to meet or exceed the GWRA mandates.”
- 44 <https://nj.gov/infobank/eo/056murphy/pdf/EO-274.pdf>
- 45 <https://www.njcleanenergy.com/renewable-energy/program-activity-and-background-information/rps-background-info>
- 46 https://www.njleg.state.nj.us/2018/Bills/S2500/2252_U2.HTM