

Comments Regarding New Jersey Clean Energy Program New Construction Program  
Docket **QO22050327** - 7/29/22

Thank you for the opportunity to provide comments on the above proposal.

The commercial and residential building section is the second largest percentage of New Jersey's greenhouse gas emissions and furthermore, yet there is no mention of "cold climate heat pumps<sup>1 2</sup>" anywhere in the proposed NJCEP New Construction changes document indicated for this docket<sup>3</sup>. This gap is despite the fact that the 2019 EMP strategy 4.2 calls for incentives for the transition to electric heat pumps, hot water heaters and other electric appliances<sup>4</sup>. In addition, the 2019 Integrated Energy Plan cites EV and heat pumps as the key technologies to assist New Jersey in reaching its 100% clean energy goals. The recommendations below are seen as crucial steps in implementing the 2019 EMP strategy 4.2.

1. **The BPU needs to set an initial goal of 100,000 new and retrofit residential building units electrified by 2025 and 800,000 by 2030 as steps toward the NJ EMP goal of 90% electrification by 2050. And provide the requisite annual budget support to meet these goals.**<sup>5</sup>

Why? New Jersey currently has no mandate objectives nor laws nor roadmap that require any degree of Building Electrification and/or use of heat pumps by any given year. This gap exists despite an NJ executive order that calls for 50% reduction in greenhouse gas emissions by 2030, and a 2+ year old EMP whose models rely to some degree on building electrification. Per 2019 NJ statistics, the residential (heating) and commercial buildings generate 25.4 MMT (million metric tons) of greenhouse gas pollution per year – about 29% of New Jersey's total. Without any Building Electrification mandated objectives, laws or roadmap, little to nothing regarding either Building Electrification or heat pump deployment is likely to occur, and thus the 50x30 goal is effectively already greatly jeopardized unless the BPU and NJ take immediate action to rectify this gap.

Consistent with the 2019 EMP strategy 4.1 - Start the transition for new construction to be net zero carbon, we request that as part of TRC's Program Administration's compliance filing and budget, the BPU should include specific goals for the installation of cold climate heat pumps, **with a recommended required goal of 100% heat pumps for all new construction that needs HVAC equipment by 2025.**

We also ask that only cold climate heat pumps be approved for all new residential construction incentives within the Energy Star, Zero Energy Ready Homes (ZERH), ZERH plus Renewable, Energy Star Multifamily High Rise (MFHR) and the Energy Star Multifamily New Construction (MFNC) programs.

All future projects with the Division of Property Management and Construction (DPMC) should be designed to maximize the use of cold climate heat pumps. DPMC should work with BPU to redesign all projects not yet installed to use cold climate heat pumps.

2. **The BPU needs to establish an aggressive building electrification roadmap by the end of 2022. Any New Construction proposed changes must be tied to the building electrification roadmap. A roadmap is needed for any sensible clean energy investments.**<sup>6</sup>

It appears impossible to determine the value of the proposed new construction changes without the BPU illustrating exactly how these changes will fit in the yet to be provided NJ building electrification roadmap, nor exactly how much each change will contribute to New Jersey's carbon emission reduction goals on an annual basis up to and including New Jersey specific target reduction years such as 2030 and 2050. The BPU needs to provide the building electrification roadmap, and then show exactly how much each proposed new construction program or policy contributes to carbon emission reduction targets.

3. **The BPU needs to establish far stronger incentives for NJ building electrification, especially for the installation of cold climate heat pumps and building weatherization for energy efficiency.**<sup>7</sup> **And address these in any New Construction proposed changes.**

3A. In order to meet the "getting started" goal of 100,000 residential units electrified by 2025 (see 1. above), it is essential that the NJ BPU establish incentive budgets for new and retrofit residential units that guarantee at least 34,000 units electrified with cold climate heat pumps in 2023, i.e. a minimum of 17,000 new units and 17,000 retrofit units. Again, without aggressive action by the NJ BPU and state of NJ, the climate goals of 2030 and beyond are at great risk.

3B. It is recommended to establish an additional incentive of at least \$1000 for each newly constructed residential unit for cold climate heat pump installation via either upfront rebates and/or clean energy credits with 10-year payback. This incentive is intended in addition to existing proposed incentives outlined in each of the approved electric utility EE programs<sup>8</sup>.

3C. It is recommended to make the needle move by establishing an incentive of \$5000 for each retrofit of an existing owned residential unit for cold climate heat pump installation via either upfront rebates and/or clean energy credits with 10-year payback, with an equivalently appropriate amount for owner occupied or tenant occupied multi-family housing with collective HVAC. And add even more incentives if electric panel work is required. This incentive is intended in

addition to existing proposed incentives outlined in each of the approved electric utility EE programs<sup>9</sup>.

3D. Consistent with the 2019 EMP strategy 4.1 to start the transition for new construction to be net zero carbon, we request that as part of TRC's Program Administration's compliance filing and budget, the BPU should include an additional \$1,000 incentive for the installation of cold climate heat pumps for the Energy Star, Zero Energy Ready Homes (ZERH), ZERH plus Renewable, Energy Star Multifamily High Rise (MFHR) and the Energy Star Multifamily New Construction (MFNC) programs, in addition to the current incentive schedule.<sup>10</sup>

3E. Ensure that owners receive their incentives directly, and not via third parties given the concern that third parties may merely raise prices to absorb these incentives themselves.

3F. Incentives should also be established to deal with a comprehensive Building Electrification picture, including specific budget line incentives for each of cold climate heat pump HVAC installer training, retrofit and new construction electric appliances such as water heating heat pumps, induction cooktops, heat pump dryers, and electric panel upgrades, while also considering the electric panel's ability to support Electric Vehicle growth and the added need for EV charging.

3G. As of July 2022, there now is reported substantial recognition of the national need for heat pumps at the Federal level, though pending and not yet law.<sup>11 12</sup> New Jersey must ensure that it offers substantial incentives for cold climate (and geothermal) heat pumps without consideration of the Federal incentives, so that any new Federal incentives are additive together with New Jersey incentives, and thus both together would immediately ramp up the Building Electrification program, which is necessary for the future of the World and New Jersey.

Massachusetts has even a far larger heat pump rebate<sup>13</sup>. Today's New Jersey electrification incentives are clearly just a small fraction of the upfront cost of electrification including the cost of installation of "cold climate" heat pumps. New Jersey must do much better. The existing appliance incentives are small compared to the need, vary by utility, are administered by the utilities, and thus seem subject to the whims of the utilities without any obvious state control, consistency, or incentive to actually drive the necessary electrification.

**4. The BPU needs to eliminate all natural gas equipment incentives. Sadly, these still exist in the face of rapid global warming.**

New Jersey must "Avoid "Locking-in" Building Sector Emissions From Gas Appliances", which could persist for decades.

Reductions due to eliminating natural gas incentives for new and retrofit installations should be immediately diverted primarily to incentives for cold climate heat pumps, but also other Building Electrification incentives and priorities.

5. **The BPU needs to set strong building electrification residential and commercial building codes for new construction, retrofitting and remodeling. At a minimum, adopt the ICC 2021, 2024 and 2027 building energy codes with no weakening amendments.**<sup>14</sup>
6. **The BPU needs to develop and prototype a Green Jobs program to manufacture millions of cold climate heat pumps in New Jersey. Millions and millions of heat pumps are needed worldwide. Push New Jersey to be the world leader in cold climate heat pump deployment and manufacturing.**

New Jersey can partner with leading manufacturing companies to bring heat pump manufacturing Green Jobs to NJ and promote factories in economically depressed areas. New Jersey could reach out to the federal government and New Jersey congressional representatives and senators for assistance in establishing this program.

Massachusetts, New York, and Maine among others have aggressive heat pump deployment programs, and there has been recent discussion of tens of millions of heat pumps for Europe to solve its severe energy problems<sup>15</sup>. Texas has the largest United States HVAC factory<sup>16</sup>; why not New Jersey when the need cries out?

In competing with other States to acquire Green Jobs it is important to get to the market first. This has been key in offshore wind Green Jobs. The same should be made true with cold climate heat pump manufacturing Green Jobs.

And New Jersey could sponsor a joint discounted bulk cold climate heat pump purchase agreement on behalf of NJ state, county, local and school buildings, and perhaps other entities, which in turn would help scale up cold climate heat pump volume in New Jersey and potentially lower costs.

#### **Further Context for the above comments:**

The Middletown Energy Plan V2<sup>17</sup> 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.

(These three pillars are based on New Jersey’s own prior analyses, the 2019 EMP, and analysis done for the Middletown Energy Plan)

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 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 legislation<sup>18</sup>. 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 future<sup>19</sup>. RMI outlines aspects of the New Jersey EMP in a summary: “New Jersey Charts a Practical, Affordable Course to a Decarbonized Economy”<sup>20</sup>. Gaps in Building Electrification policies by the state of NJ are expressed in a recent letter to Governor Murphy.<sup>21</sup>

The recommendations provided herein are also partly informed by New Jersey’s 2019 Energy Master Plan (EMP)<sup>22</sup>, which provides a road map to meet the mandates of NJ’s Global Warming Response Act (GWRA)<sup>23</sup>. 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”.<sup>24</sup> 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.<sup>25</sup> Furthermore, adaptation plans for the shore area may include large expensive sea wall projects, e.g., a \$119 billion sea wall among other alternatives.<sup>26</sup>

Detailed New Jersey impacts are described in the “2020 NJ Scientific Report on Climate Change”<sup>27</sup>, 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 measured<sup>28</sup>: “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. Impacts are worldwide, for example, Utah’s Great Salt Lake is drying up.”<sup>29</sup>

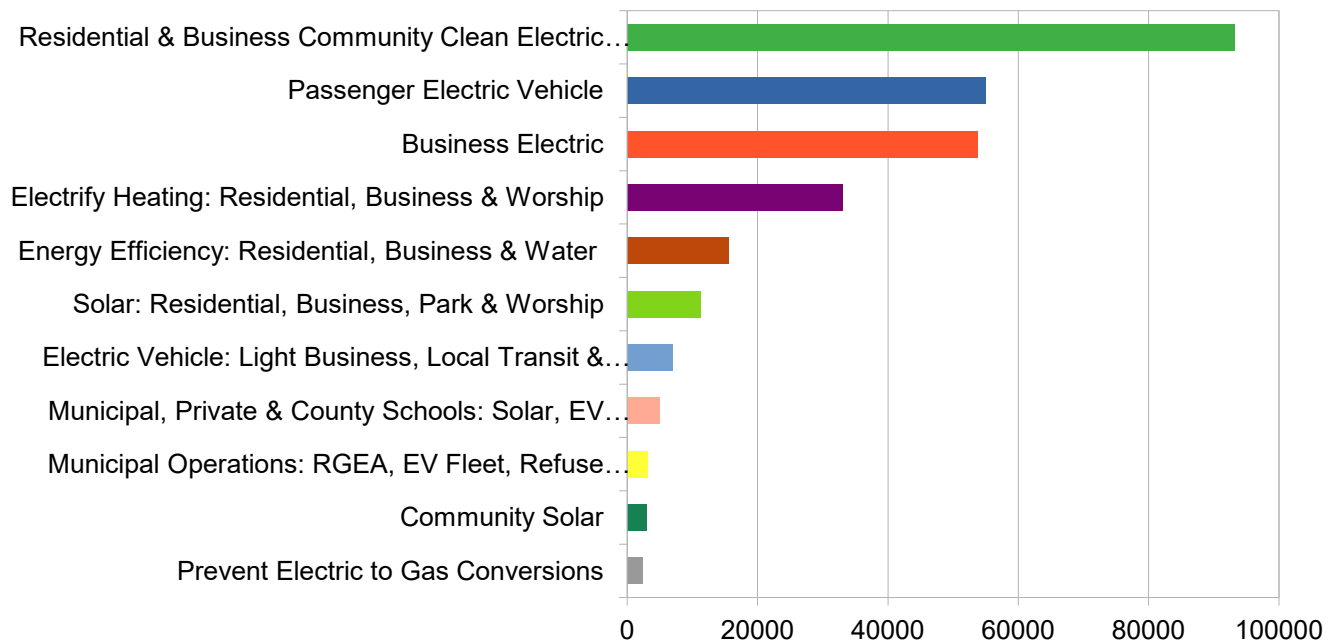
Modeling for the NJ EMP, completed by the expert Rocky Mountain Institute (RMI), has determined that the least-cost responsible solution for meeting the goals and mandates of the GWRA **would increase the state’s annual energy costs by only 0.2% of state GDP over the period 2020-2050.** (It follows that electric rate impacts should also be correspondingly small, and even smaller or with net economic gains if the societal cost of carbon dioxide and methane pollution is accounted for.) Also see Figure 8 of the NJ EMP. The RMI model conservatively assumes 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 2050<sup>30</sup>, nor the 50% GHG reduction by 2030 specified in NJ Executive Order 274<sup>31</sup>. 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 also be plainly seen in the NJ electricity Renewable Portfolio Standard<sup>32</sup>, 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 or impossible with current NJ mandates. Though of course even the RPS increase to 50% by 2033 and the NJ S2252<sup>33</sup> 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, 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, needs to phase in far more clean electricity sourcing, provide a mandate, objectives and roadmap for a Building Electrification program where none currently exists in New Jersey, provide far more substantial rebates for “cold climate” heat pumps and stop subsidizing dirty natural gas equipment.

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.



Thank you.  
 Robert Erickson  
 Middletown, NJ

---

- 1 <https://rmi.org/its-time-to-incentivize-residential-heat-pumps/>
- 2 <https://www.energy.gov/eere/buildings/articles/cold-climate-air-source-heat-pumps-innovative-technology-stay-warm-winter>
- 3 [https://nj.gov/bpu/pdf/publicnotice/FY23\\_NC\\_ProposedChanges\\_Final.pdf](https://nj.gov/bpu/pdf/publicnotice/FY23_NC_ProposedChanges_Final.pdf)
- 4 <https://www.nj.gov/governor/news/news/562020/approved/20200127a.shtml>
- 5 [5/2/2022 Letter to NJ Governor Murphy](#) from NJ 50 x 30 (50% GHG reduction by 2030) Building Electrification Team
- 6 [5/2/2022 Letter to NJ Governor Murphy](#) from NJ 50 x 30 (50% GHG reduction by 2030) Building Electrification Team
- 7 [5/2/2022 Letter to NJ Governor Murphy](#) from NJ 50 x 30 (50% GHG reduction by 2030) Building Electrification Team
- 8 Table 6, Appendix A, page 72  
[https://njcleanenergy.com/files/file/1/FY23%20Program%20Administrator%20\(TRC\)%20Filing%20RB%20\(MI\).pdf](https://njcleanenergy.com/files/file/1/FY23%20Program%20Administrator%20(TRC)%20Filing%20RB%20(MI).pdf)
- 9 Table 6, Appendix A, page 72  
[https://njcleanenergy.com/files/file/1/FY23%20Program%20Administrator%20\(TRC\)%20Filing%20RB%20\(MI\).pdf](https://njcleanenergy.com/files/file/1/FY23%20Program%20Administrator%20(TRC)%20Filing%20RB%20(MI).pdf)
- 10 Table 6, Appendix A, page 72  
[https://njcleanenergy.com/files/file/1/FY23%20Program%20Administrator%20\(TRC\)%20Filing%20RB%20\(MI\).pdf](https://njcleanenergy.com/files/file/1/FY23%20Program%20Administrator%20(TRC)%20Filing%20RB%20(MI).pdf)
- 11 <https://www.theatlantic.com/science/archive/2022/07/manchin-schumer-inflation-reduction-climate/670981/>
- 12 “US Gets Reset on World Climate Stage”, New York Times, 7-29-22
- 13 Massachusetts has up to a \$10,000 whole home heat pump rebate as of this writing.  
<https://www.masssave.com/en/saving/residential-rebates/heat-pump>
- 14 [5/2/2022 Letter to NJ Governor Murphy](#) from NJ 50 x 30 (50% GHG reduction by 2030) Building Electrification Team
- 15 <https://www.bloomberg.com/news/articles/2022-05-06/heat-pumps-are-the-ultimate-climate-techno-fix-but-not-a-silver-bullet#xj4y7vzkg>
- 16 <https://www.goodmanmfg.com/about/plant-locations>
- 17 <http://climate.smiller.org/energy-plan/Middletown-2020-Energy-Plan/MiddletownEnergyPlan-V2-2020-8-8.pdf>
- 18 <http://climate.smiller.org/letter/2021-5/2021-5-25CleanFutureAct-PalloneLetter-comments-FINAL-B.docx>
- 19 <https://rmi.org/our-work/>
- 20 <https://rmi.org/new-jersey-charts-a-practical-affordable-course-to-a-decarbonized-economy/>

- 
- 21 Letter to NJ Governor Murphy from NJ 50 x 30 (50% GHG reduction by 2030) Building Electrification Team, 5/2/22
  - 22 <https://www.nj.gov/emp/>
  - 23 <https://www.state.nj.us/dep/aqes/oce-publications.html>
  - 24 <https://www.ipcc.ch/sr15/>
  - 25 <https://www.app.com/story/news/local/land-environment/2019/12/13/new-jersey-ground-zero-sea-level-rise-says-scientist/4411122002/>
  - 26 “\$119 Billion Sea Wall Could Save New York...”, New York Times, 1/17/20
  - 27 <https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf> Executive Summary, pages v to xv
  - 28 “2nd-Hottest Year Ever Closes Out Warmest Decade”, New York Times, 1/16/20
  - 29 <https://theweek.com/climate-change/1014203/salt-lake-city-could-be-plagued-by-poisonous-arsenic-laced-dust-clouds-if>
  - 30 <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.”
  - 31 <https://nj.gov/infobank/eo/056murphy/pdf/EO-274.pdf>
  - 32 <https://www.njcleanenergy.com/renewable-energy/program-activity-and-background-information/rps-background-info>
  - 33 [https://www.njleg.state.nj.us/2018/Bills/S2500/2252\\_U2.HTM](https://www.njleg.state.nj.us/2018/Bills/S2500/2252_U2.HTM)