June 12, 2023

Sherri L. Golden
Secretary of the Board
New Jersey Board of Public Utilities
44 South Clinton Ave., 1st Floor
PO Box 350
Trenton, NJ 08625-0350

Subject: Comments on FY 2024 Comprehensive Resource Analysis and Clean Energy Programs - Docket No. QO23040235 and QO23040236

Thank you for the opportunity to comment on the Comprehensive Resource Analysis (CRA) and program budgets for the New Jersey Clean Energy Program (CEP). The programs supported by the CRA and CEP budgets will be critical in meeting New Jersey's goal of 400,000 heat pumps installed by 2030,[1] and these programs will need to grow significantly to allow the state to meet its energy goals. To maximize the impact of the CEP, the Board of Public Utilities (BPU) should ensure that all programs include geothermal heat pump incentives across all programs, and for all types of buildings – commercial and residential, large and small, new construction and retrofits.

Summary of Dandelion Comments

- Dandelion supports the proposed FY 2024 budget for the new construction program, and encourages the BPU to include a prescriptive incentive for geothermal heat pumps as part of an Advanced Measure Bonus for new construction.

- Dandelion supports the inclusion of heating and cooling measures, including both air source and ground source heat pumps, in the Comfort Partners program; the program will be a critical pathway for accelerating heat pump deployment.

- BPU should further expand workforce development efforts and work with the Division of Consumer Affairs and the Department of Environmental Protection to implement license reciprocity with neighboring states and remove existing barriers to workforce growth.

Background: Geothermal Heat Pumps are Key to Meeting State Goals

New Jersey will need to rapidly accelerate the pace of heat pump deployment to meet its emissions reduction goals. New Jersey is currently rebating approximately 2,500 heat pumps per year, through both BPU and utility programs. In order to align with the state's goal of installing 400,000 heat pumps by 2030, this rate will need to increase to 57,000 heat pumps per year, an increase of more than 22 times the current rate.

[1] Governor Phil Murphy, Executive Order 316, February 15, 2023, https://nj.gov/infobank/eo/056murphy/pdf/EO-316.pdf

Geothermal (or ground source) heat pumps are among the most efficient ways to heat and cool buildings, according to the EPA,[2] and they are also the lowest cost way for homeowners to heat and cool their homes. Recent reports from the U.S. Department of Energy's National Renewable Energy Lab and other third parties estimate that one in every four heat pumps should be a ground source heat pump to maximize grid benefits relative to costs and reduce growth in peak electric load.[3] For New Jersey, this will require 100,000 of the 400,000 heat pumps by 2030 to be geothermal systems. The rebate program budgets for heat pumps will need to be dramatically increased over the coming years to support this level of installation for both air source and ground source heat pumps.

Meeting these targets will require New Jersey to deploy geothermal heat pumps through programs supporting all building types and customer sectors, including the state-run Comfort Partners, commercial and industrial programs, new construction, and State Facilities Initiative, and the utility-administered energy efficiency and beneficial electrification programs. Geothermal heat pump rebates should also be offered for all customers, regardless of existing building heating fuel; Dandelion will submit further comments regarding beneficial electrification fuel switching programs in response to the building decarbonization program proposal under docket number QO23030150.

New Construction

Dandelion Energy is pleased to see the proposed increase in the FY 2024 budget for the New Construction program, as these additional funds will support critical energy efficiency market reforms in the new construction sector. As we have submitted in previous comments on the new construction program,[4] Dandelion continues to recommend that geothermal heat pump systems be included in the revised New Construction program with a prescriptive "per-ton" rebate as an Advance Measure Bonus, and the FY 2024 budget will help support these bonus offerings.

Prescriptive incentives for geothermal heat pumps are particularly important for the New Construction program, as builders don't benefit from the long-term operating cost savings of the most efficient equipment, and are therefore potentially less motivated to pay higher up-front cost. This "split incentive" between builders and home buyers, similar to the mismatched incentives between landlords and tenants, makes rebates for new construction especially impactful. To address these challenges, New York offers the same prescriptive rebate for geothermal heat pumps in new construction as is available for retrofits, and Connecticut recently recognized the importance of doing so and is adding a new construction prescriptive geothermal heat pump bonus incentive starting in July 2023.

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[2] "Geothermal Heat Pumps," Energy Star, U.S. Environmental Protection Agency, accessed March 8, 2023, https://www.energystar.gov/products/geothermal_heat_pumps

[3] The 2019 Department of Energy GeoVision analysis identified market potential for 28 million geothermal heat pumps installed by 2050, representing 23% of households (see p. xiii, https://www.energy.gov/eere/geothermal/geovision); a Brattle Group study for Rhode Island modeled 33% of heat pumps as geothermal in their mixed-fuel scenario analysis, "Heating Sector Transformation in Rhode Island," May 2020, https://www.brattle.com/insights-events/publications/heating-sector-transformation-in-rhode- island-pathways-to-decarbonization-by-2050/; the New York Climate Action Council Scoping Plan modeled 22-23% of heat pumps as geothermal heat pumps (see Scoping Plan, Appendix G: Integration Analysis Technical Supplement, Annex 2: Key Drivers and Outputs, December 2021, https://climate.ny.gov/resources/scoping-plan/).

[4] See Dandelion comments dated July 27, 2022, and March 10, 2023.

Dandelion is in active discussion with homebuilders in New Jersey regarding installing ground source heat pumps for hundreds of homes at once in their new neighborhood developments. A prescriptive rebate is needed to make these types of developer investments possible at the scale needed to meet New Jersey's decarbonization targets.

Comfort Partners

It is critical that the Comfort Partners program support as many heat pump installations as possible, including geothermal heat pumps. Dandelion supports the inclusion of heating and cooling electrification measures into Comfort Partners offerings, and BPU should clearly establish the Comfort Partners program as a core pathway for deploying more heat pumps across the state.

It is especially important for low- and moderate-income households to have access to high-efficiency geothermal heat pumps as an HVAC option. Geothermal heat pumps use half of the electricity of air source heat pumps over the course of the typical year, resulting in 50% savings on heating and cooling bills for residents compared to air source systems. Now is an ideal time to accelerate the Comfort Partners heat pump offerings, as New Jersey can leverage rebates of up to $8,000 from the Inflation Reduction Act to further bring down costs for heat pumps, including geothermal systems.

Workforce Development

Dandelion supports the inclusion of funding within the CRA straw proposal for workforce development studies and programs, and encourages the BPU to further expand workforce development efforts in order to meet the deployment targets of the CEP. Expansion of the heat pump workforce, to include heat pump installers, electricians, and geothermal drillers, will be critical for New Jersey to meet its climate targets. Additional funding for workforce development programs will help address the critical workforce shortages in the energy efficiency industry and remove a key barrier to expanded heat pump adoption.

Dandelion also strongly encourages the BPU to assess existing workforce licensing barriers, including the lack of license reciprocity. Dandelion would be operating in New Jersey today, but existing licensing barriers make it impossible for new businesses to move into the state. For example, the State Board of Examiners of Heating, Ventilating, Air Conditioning and Refrigeration (HVACR) Contractors has established license requirements that make it impossible for out-of-state professionals to move to New Jersey and get re-licensed in their same profession.

New Jersey has not granted license reciprocity for HVACR professionals from any other state (see Figure 1); similar barriers exist for other license categories such as geothermal drillers. New Jersey must position itself so that workers who are skilled, licensed in other states, and enthusiastic to be installing heat pumps are able to move into the state. Companies that want to expand and do business in New Jersey must be able to do so – otherwise, New Jersey will not be able to reach its climate goals.

Figure 1. New Jersey Lacks HVACR License Reciprocity with Any State

State Board of Examiners of Heating, Ventilating, Air Conditioning and Refrigeration (HVACR) Contractors

HVACR Reciprocity with Other States

The HVACR Board has considered whether or not the licensure standards of other States are equal to or comparable with, those of the State of New Jersey, in compliance with N.J.A.C. 13:32A-2.5, and secondly if that State reciprocates with the State of New Jersey.

STATE	RECOPROCITY GRANTED	RECOPROCITY DENIED
Alabama		02/07/17
Alaska		10/02/18
Arizona		09/05/17
Arkansas		05/02/17
California		09/05/17
Colorado		
Connecticut		09/05/17
Delaware		02/07/17
Florida		02/07/17
Georgia		09/05/17
Hawaii		
Idaho		
Illinois		02/07/17
Indiana *		09/05/17
Iowa		
Kansas		
Kentucky		07/05/17
Louisiana		05/02/17
Maine		
Maryland		02/07/17
Massachusetts		03/06/18
Michigan		
Minnesota		
Mississippi		06/05/18
Missouri *		10/02/18
Montana		
Nebraska		
Nevada		09/05/17
New Hampshire		
New Mexico		09/05/17
New York		02/07/17
North Carolina		07/05/17
North Dakota		
Ohio		02/07/17
Oklahoma		07/05/17
Oregon		06/05/18
Pennsylvania		02/07/17
Puerto Rico		
Rhode Island		07/05/17
South Carolina		07/05/17
South Dakota		
Tennessee		02/07/17
Texas		02/07/17
Utah		
Vermont		
Virginia		07/05/17
Washington *		10/02/18
Washington, DC		10/02/18
West Virginia		09/05/17
Wisconsin		06/05/18
Wyoming		

* These states do not have State licensing for HVACR contractors.

Source: https://www.njconsumeraffairs.gov/hvacr/Documents/HVACR-Reciprocity-with-Other-States.pdf

The BPU should work with the Division of Consumer Affairs and the Department of Environmental Protection to ensure that license requirements that are a barrier to successful geothermal heat pump deployment are removed. This should include:

- Align geothermal drilling license standards with national standards, such as the National Groundwater Association geothermal drilling certification.

- Establish functioning license reciprocity for HVACR and geothermal drillers with neighboring states. While current legislation and regulations ostensibly allows for license reciprocity, the current examining boards have been unwilling to implement the reciprocal license provisions in practice.

- Update licensing requirements to be based on testing and experience, without requiring that training took place in New Jersey. Continuing to require in-state training and experience for workers moving to New Jersey will significantly slow the development of heat pump businesses and job growth within the state. While current legislation and regulations allow for out-of-state training to qualify, the current examining boards have been unwilling to give credit for out-of-state education and experience in practice.

Conclusion

New Jersey has set strong goals for renewable energy deployment, and must now ensure it has the programs and budgets in place to rise to the challenge. The CEP provides a critical opportunity to drive renewable energy deployment across the state, and we look forward to working with the BPU to achieve our collective clean energy goals.

Respectfully submitted,

Heather E. Deese
Senior Director, Policy and Regulatory Affairs
Dandelion Energy