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June 5, 2024

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

Re: GeoExchange Comments *In the Matter of the Implementation of P.L. 2018, C. 17, The New Jersey Clean Energy Act of 2018, Regarding the Second Triennium of Energy Efficiency and Peak Demand Reduction Programs (Docket No. QO23030150);*

*In the Matter of the Petition of Public Service Electric and Gas Company for Approval of its Clean Energy Future-Energy Efficiency II ("CEF-EE II") Program on a Regulated Basis (Docket No. QO23120874);*

*In the Matter of the Verified Petition of Jersey Central Power & Light Company for Approval of JCP&L's Second Energy Efficiency and Conservation Plan Including Energy Efficiency and Peak Demand Reduction Programs ("JCP&L EE&C Plan II Filing") (Docket No. QO23120872);*

*In the Matter of the Petition of Atlantic City Electric Company for Approval of a Portfolio of Energy Efficiency, Building Decarbonization and Demand Response Programs, a Cost Recovery Mechanism, and Other Related Relief Pursuant to the Clean Energy Act for the Period January 2025 Through June 2027 (Triennium 2) (Docket No. QO23120871);*

*In the Matter of the Petition of Rockland Electric Company for Approval of its Energy Efficiency and Peak Demand Reduction Programs (Docket No. QO23120875);*

*In the Matter of the Petition of New Jersey Natural Gas Company for Approval of New Energy Efficiency, Building Decarbonization Stary-Up, and Demand Response Programs and the Associated Cost Recovery Mechanism Pursuant to the Clean Energy Act, N.J.S.A 48:3-87.8 et seq. And 48:3-98.1 et seq. Second Triennium (Docket No. QO23120868);*

*In the Matter of the Petition of South Jersey Gas Company for Approval of Triennium 2 Clean Energy Programs and Associated Cost Recovery Pursuant to the Clean Energy Act (Docket No. QO23120870);*

*In the Matter of the Petition of Elizabethtown Gas Company for Approval of Triennium 2 Clean Energy Programs and Associated Cost Recovery Pursuant to the Clean Energy Act (Docket No. QO23120869);*

Dear Secretary Golden:

Thank you for the opportunity to provide comments to the New Jersey Board of Public Utilities (BPU) regarding the energy efficiency Triennium 2 filings. The Geothermal Exchange Organization (GeoExchange) strongly supports the proposed Triennium 2 programs and encourages the BPU to approve

the filings, while also taking further steps to strengthen the geothermal (ground source) heat pump (GHP) incentives for commercial energy efficiency participants.

GeoExchange is a nonprofit trade association promoting the manufacture, design, and installation of GHP heating and cooling technologies. Our members include manufacturers, installers, technology providers, utilities, and others in New Jersey and across the country. GHPs are one of the most efficient heating and cooling systems available and can significantly reduce greenhouse gas emissions and energy bills for businesses, non-profits, and residents across the state. GHPs use 70% to 80% less energy than conventional heating or cooling systems according to the U.S. Department of Energy,[1] and can reduce emissions by 85-90% compared to conventional fossil fuel HVAC systems.[2]

**Summary of Recommendations:**

The proposed Triennium 2 plans provide strong support for building decarbonization using GHPs, which will result in a significant increase in GHP installations in support of New Jersey's heat pump and emissions reduction goals.[3] The plans also provide robust incentives for residential installations that do not involve building decarbonization; however, the equivalent commercial incentives are significantly lower and may miss opportunities to generate long term energy savings and peak reductions within the program. Workforce availability for GHP and clean energy installations remains a critical barrier to meeting New Jersey's heat pump deployment targets, and while the plans allocate some limited funding for workforce development, additional support will be necessary to grow a sufficiently trained workforce of heat pump installers and drillers. GeoExchange recommends the BPU:

- Support the electric utility proposed Building Decarbonization plans for GHP incentives.
- Increase the commercial GHP incentives for the base plans to at least $1,500 per ton to reflect the full grid value of GHPs.
- Approve – and expand – the proposed workforce development programs for heat pump installer, drillers, and system designers.
- Accelerate the deployment of the network geothermal proposals and expand them to other utilities.

[1] U.S. Department of Energy, "Heat Pump Systems," accessed May 6, 2024, https://www.energy.gov/energysaver/heat-pump-systems

[2] Reeg, Lauren, et. al, "Clean Energy 101: Geothermal Heat Pumps," RMI, March 29, 2023, https://rmi.org/clean-energy-101-geothermal-heat-pumps/

[3] In February 2023, Governor Murphy issued EO 316, which set a goal of 400,000 homes and 20,000 commercial buildings constructed or retrofitted with zero-carbon heating and cooling systems by 2030, and at least 10% of low- and moderate-income homes be made ready for electrification, with updates to electrical systems and other repairs. See: https://nj.gov/infobank/eo/056murphy/pdf/EO-316.pdf

**Background on Geothermal Heat Pump Systems**

GHP systems represent one of the most efficient heating and cooling systems available to businesses, schools, multifamily buildings, and homeowners. GHPs use the constant temperature of the earth to transfer heat from the ground and into buildings, even during the coldest winter weather. In the summer, they run in reverse, transferring heat from buildings into the ground, where it is stored until the winter, further improving the heating efficiency during the heating season.

*Geothermal system designs*

Geothermal heat pumps use a loop of pipe buried in the earth – typically drilled up to 500 feet or deeper – to circulate fluid which transfers heat with the heat pump equipment inside of the building. GHPs frequently use a vertically-drilled, closed-loop system to continuously circulate the fluid (usually water and biodegradable antifreeze such as propylene glycol), so there is no need to extract or inject water into the ground.[4] Key benefits of GHPs include:

- Due to the stable ground temperature, GHPs use approximately 50% less electricity than air source heat pumps over the course of a year,[5] and generate two to four times lower peak demand compared to air source heat pumps on the hottest days and coldest nights. This also yields performance efficiency more than four times higher than equivalent fossil fuel systems.[6]
    - Stable ground temperature also allows GHPs to efficiently meet 100% of a building's heating needs, without requiring any fossil fuel backup or "dual-fuel" systems on the coldest days while also keeping peak electric loads low.
- As a result of their efficiency, GHPs have the potential to produce large annual utility savings for customers. Thomas Geothermal Engineering, a longtime geothermal implementor in New Jersey, estimated that a 6-ton system would save between $3,310 and $3,978 in utility bills annually. Furthermore, Thomas Geothermal Engineering calculated that these savings would pay back system installation cost in around 11 years.[7] This payback period would be even shorter with the help of proposed utility rebates.
- GHPs also have the longest service life of any HVAC equipment; the U.S. DOE estimates that the interior heat pump equipment will last 25 years or more, and the ground loop is expected to last

[4] Additional systems designs can include horizontal systems (buried in shallow trenches rather than vertically drilled); open-loop systems which withdraw water, extract/add heat, then replace it underground; or direct exchange systems which circulate different heat transfer fluids.
[5] Ibid.
[6] While a high efficiency gas furnace may yield 98% efficiency, geothermal system efficiency is often 300%-400% or more, yielding three to four units (Btu) of energy for every one unit consumed.
[7] Jim Thomas, letter to Pinelands Preservation Alliance, May 23, 2012, https://drive.google.com/uc?export=download&id=19BxEVBpWRnF6pf7P-T7C2WCFXz8Ol0Yw.

more than 50 years.[8] GHPs also have lower maintenance and upkeep costs than other systems, as there is no exterior equipment exposed to harsh weather.

While the long-term operational cost savings from GHPs can be significant, up-front costs often remain a barrier to adoption, particularly for residential households and small businesses. Up-front incentives, such as those proposed by the utilities, therefore represent a critical element in advancing the widespread deployment of GHP systems. These energy efficiency and decarbonization incentives, particularly when combined with federal tax credits and rebate programs, can help to significantly reduce the up-front cost of GHPs systems, unlocking the long-term cost savings for residents and businesses.

- Low-income households and affordable housing buildings particularly benefit from the long-term operational savings of GHPs, significantly reducing energy costs for residents and housing providers. By leveraging a combination of federal and state-level incentives, affordable housing developments have been completed or are underway in locations such as Colorado,[9] New York,[10] Massachusetts,[11] Michigan,[12] and Wisconsin,[13] providing long-term energy savings to households that need it most.

*Emission benefits in New Jersey*

The extremely high efficiency performance of GHPs also results in significant emissions reductions to help New Jersey meet its climate goals:

- A recent report by the New Jersey Department of Environmental Protection (DEP) found that the 3,000 existing GHP installations in the state avoid approximately 66,000 metric tons of greenhouse

[8] U.S. DOE, "5 Things You Should Know about Geothermal Heat Pumps," August 1, 2017, https://www.energy.gov/eere/articles/5-things-you-should-know-about-geothermal-heat-pumps
[9] "Willoughby Corner, a New 400-Unit Affordable Housing Development in Lafayette ," Colorado Construction and Design, accessed May 15, 2024, https://ccdmag.com/project-updates/willoughby-corner-lafayette/
[10] Hoffman, Connor, "Housing Authority recognized for geothermal work | Local News," Lockport Journal, July 22, 2017, https://www.lockportjournal.com/news/local_news/housing-authority-recognized-for-geothermal-work/article_17ea7655-8d2c-5556-b1b8-b56574069e89.html and Galindo, nadia, "Affordable housing project to use geothermal energy," News 12 Westchester, November 1, 2023, https://westchester.news12.com/affordable-housing-project-to-use-geothermal-energy
[11] "Healey-Driscoll Administration Awards $27 Million to Decarbonize Affordable Housing Across Massachusetts," Office of the Governor of Massachusetts, November 21, 2023, https://www.mass.gov/news/healey-driscoll-administration-awards-27-million-to-decarbonize-affordable-housing-across-massachusetts
[12] Venclovaite-Pirani, Amanda, "What to know about affordable housing at 121 Catherine St." The Michigan Daily, February 19, 2024, https://www.michigandaily.com/news/ann-arbor/everything-you-need-to-know-about-affordable-housing-at-121-catherine-st/
[13] Phillipps, Samantha, "Prairie Heights: Breaking New Ground in Affordable Housing," West CAP, May 2, 2023, https://westcap.org/2023/05/prairie-heights-breaking-new-ground-in-affordable-housing/

gas emissions every year.[14] Importantly, larger commercial, public, and academic buildings represent over 75% of the energy and emissions savings, demonstrating the significant savings potential of large-scale geothermal deployments.

- The New Jersey DEP concluded that while GHP adoption continues to grow at a rate of more than 1,500 tons of capacity annually, "enhanced policies and an increase in financial incentives and customer awareness will be needed to spur growth of this technology to achieve our statewide emissions reduction goals."[15]

The DEP report recognized that up-front costs can pose a barrier for some, and recommends studying new financial incentive programs "targeting specific segments of the building sector to overcome cost barriers, reduce fossil fuel use, and improve energy equity in New Jersey."[16]

*Significant electric grid benefits of GHPs*

The high efficiency of GHPs results in significantly lower electric demand than other heating and cooling systems – particularly during the hottest and coldest hours of the year, precisely when the electric grid is most stressed.

- A November 2023 study by the Oak Ridge National Laboratory estimated that widespread deployment of geothermal heat pumps could save a cumulative total of more than $1 trillion dollars in energy system costs nationwide through 2050.[17] This included a decrease of 185 GW of nationwide winter peak capacity by 2050.[18]
    - The study estimated that the widespread adoption of GHPs would have positive impacts on electric and gas ratepayers alike. Gas infrastructure development will slow, resulting in consumer savings of $19B per year by 2050.[19] Furthermore, because GHPs reduce

[14] Gergely, Rya, Anthony Bevacqua, and R. Christopher Barry, New Jersey Ground Source Heat Pump Baseline Report, New Jersey Department of Environmental Protection Bureau of Climate Change & Clean Energy, December 2023, p. ES1, https://dep.nj.gov/wp-content/uploads/cleanenergy/new-jersey-ground-source-heat-pump-baseline-report_final.pdf
[15] Ibid, p. 23.
[16] Ibid, p. 25.
[17] Liu, Xiaobing, et. al., "Grid Cost and Total Emissions Reductions Through Mass Deployment of Geothermal Heat Pumps for Building Heating and Cooling Electrification in the United States," Oak Ridge National Laboratory, November 2023, p. xii, https://info.ornl.gov/sites/publications/Files/Pub196793.pdf
[18] Ibid, p. xix. The "EFS + GHP" scenario models 68% electrification of residences and 49% electrification of businesses, representing approximately 100 million GHP systems installed; this yields a peak reduction of 1.85 kW per system (primary residential systems). See https://www.census.gov/quickfacts/fact/table/US/HCN010217 for source of 144 million residences and https://www.eia.gov/pressroom/releases/press485.php for source of 5.9 million commercial buildings.
[19] Ibid, p. xii.

electricity demand, electric rates will decrease as well, saving ratepayers money across the board.

- A study published in 1998 by the Oak Ridge National Laboratory found that following the widespread introduction of GHPs in on-base housing at Fort Polk, LA, the community was able to reduce their peak electricity demand by 43.5%.[20] While air conditioning and heat pump technologies have improved in the subsequent decades, this significant performance advantage demonstrates how GHPs have a long history of positive impacts for the electric grid.
- A 2022 study of building electrification scenarios and winter peak demand found that under inefficient electrification scenarios such as electric resistance heating (coefficient of performane [COP] of 1), meeting peak demand with renewables would require up to a 28x increase in January wind generation, or a 303x increase in January solar generation. Moving to high efficiency electrification with a COP of 6 (such as a network geothermal system) can substantially shrink this winter peak—requiring only 4.5x more generation from wind or 36x more from solar.[21]
- A 2019 report from the New York State Energy Research and Development Authority (NYSERDA) calculated an "inverse cost shift" of more than $7,000 for residential GHP installations, which helps to drive down electric rates for non-heat pump customers. Customers switching from a fossil fuel furnace to a heat pump will see their electric usage increase, including higher payments for electric transmission and distribution. Since these higher payments are typically more than it costs the utility to serve the increased heat pump load, these payments put downward pressure on electric rates for all customers. [22]

**GeoExchange Supports the Triennium 2 Filings, Recommends Additional Opportunities**

GeoExchange strongly supports the proposed Triennium 2 program filings, and urges the BPU to approve the plans in support of New Jersey's energy efficiency and emission reduction goals. GeoExchange also recommends the BPU adopt additional opportunities for commercial GHP installations and for workforce development in the utility programs, as described below.

***1. Support the electric utility proposed Building Decarbonization plans for GHP incentives***

[20] https://digital.library.unt.edu/ark:/67531/metadc694790/m2/1/high_res_d/638196.pdf
[21] Buonocore, J.J., Salimifard, P., Magavi, Z. *et al.* Inefficient Building Electrification Will Require Massive Buildout of Renewable Energy and Seasonal Energy Storage. *Sci Rep* **12**, 11931 (2022). https://doi.org/10.1038/s41598-022-15628-2
[22] "New Efficiency: New York Analysis of Residential Heat Pump Potential and Economics," NYSERDA, January 2019, p. 58-61, https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/PPSER/NYSERDA/18-44-HeatPump.pdf

The proposed building decarbonization incentives from Public Service Electric & Gas (PSE&G), Atlantic City Electric (ACE), Jersey Central Power & Light (JCP&L), and Rockland Electric Company (RECO) represent robust incentives that will significantly accelerate the deployment of high efficiency GHP systems as replacements for existing fossil fuel customers across the state. The proposed incentives under the energy efficiency and building decarbonization program for GHP systems are detailed in Table 1.

These incentive levels would place New Jersey on par with GHP incentive levels available in other states in the region which have seen significant growth in GHP installations in recent years, including New York and Massachusetts (up to $25,000 per house, $35,000-45,000 in disadvantaged communities), Connecticut ($15,000 per home or $4,000/ton for commercial customers), and Maryland (up to $10,000 per home). As the plan filings generally do not include substantial details regarding the implementation and eligibility requirements for the building decarbonization programs, GeoExchange looks forward to working with the utilities and the BPU to ensure the incentives support high quality GHP installations in accordance with International Ground Source Heat Pump Association (IGSHPA) standards for design and installation.

**Table 1: Proposed Energy Efficiency and Building Decarbonization Incentives for GHP Systems**

<table>
<tr><th rowspan="2"></th><th colspan="2">Energy Efficiency</th><th colspan="2">Building Decarbonization</th></tr>
<tr><th>Residential</th><th>Commercial & Multifamily</th><th>Residential</th><th>Commercial & Multifamily</th></tr>
<tr><td>PSE&G</td><td rowspan="4">Coordinated proposal:<br>Up to $10,000 per home;<br><br>50% adder for low-income multifamily</td><td rowspan="4">Coordinated proposal:<br>Up to $500 per ton;<br><br>30% adder for low-income multifamily</td><td>$25,000 per system (full displacement)</td><td>$6,500 per 10,000 BTUh + contractor bonus up to $750</td></tr>
<tr><td>ACE</td><td>$4,500<br>per 10,000 BTUh</td><td>$5,400<br>per 10,000 BTUh</td></tr>
<tr><td>JCP&L</td><td colspan="2">$4,500 per 10,000 BTUh;<br>Up to 25% adder for low-income</td></tr>
<tr><td>RECO</td><td colspan="2">$4,500 per 10,000 BTUh +<br>$500 contractor bonus; potential LMI adders</td></tr>
</table>

***2. Increase the commercial GHP incentives for the base plans to at least $1,500 per ton to reflect the full grid value of GHPs***

One area for improvement in the proposed plan filings is the incentive levels for GHP installations in commercial, industrial, and multi-family buildings, which are significantly lower than the equivalent residential incentives. As described above, the New Jersey DEP GSHP Baseline Report highlighted the significant energy savings and emissions value of large commercial systems and recommended "targeting

specific segments of the building sector to overcome cost barriers, reduce fossil fuel use, and improve energy equity in New Jersey."[23]

Increased focus on commercial system incentives is particularly important given the sizable grid benefits they provide, as well as the complementary federal tax credits for commercial systems.

- The increased efficiency of GHP systems compared to other electrification alternatives yields significantly lower peak demand for heating and cooling – particularly on the coldest and hottest days, precisely when the grid is already under the higher demand stress. This is particularly important for customers utilizing electric resistance heating or older and less efficient air source heat pump systems – precisely the customers targeted by the energy efficiency incentives. Increased commercial incentives would help address the up-front cost barriers faced by these customers, yielding significant reductions in annual kWh consumption along with large decreases in peak demand to serve these customers.
- New Jersey businesses, schools, municipalities, and non-profits can also leverage increased federal tax credits from the Inflation Reduction Act, which can cover 30% to 50% of the cost of a geothermal system. This means that investments in GHP systems produce magnified benefits for New Jersey – every dollar invested in GHPs by New Jersey utilities, businesses and non-profits will return between 30% - 50% into the state in the form of federal tax incentives.
- As the federal tax credit alone are often not enough to overcome up-front cost barriers for smaller businesses and cash-constrained organizations, energy efficiency program incentives therefore represent a critical component of the financial value stack to bring high efficiency GHP projects to fruition.

A commercial program incentive of at least $1,500 per ton will provide a sufficient level of up-front incentive to help significantly increase the adoption of GHP systems among businesses, schools, and non-profit organizations across the state.

### *3. Approve – and expand – the proposed workforce development programs for heat pump installers, drillers, and system designers*

Workforce availability for GHP and clean energy installations remains a critical barrier to meet New Jersey's heat pump deployment targets. The proposed Triennium 2 plans provide support for facilitating workforce development in order for New Jersey to reach its clean energy goals, but the scale of the investment does not sufficiently match the scope of the current workforce challenges.

[23] NJ DEP baseline report, p. 25.

The filed plans rightly encourage training of the existing workforce and recruiting new employees from diverse backgrounds to become trained in energy efficiency. The plans recognize the expanding industry needs and the rapid evolution of technology that requires additional training. As a result of these increasing demands on the energy efficiency industry, GeoExchange recommends that the BPU direct the utilities to allocate a minimum of 2% of their total Triennium 2 budgets to workforce development.

**Table 2: Workforce Development Funding in Utility Filed Plans**

| | Workforce Development Budget | Total Budget | Workforce Development as percentage of total budget |
|---|---|---|---|
| **PSE&G** | $42.97M | $3,422.21M | 1.26% |
| **JCP&L** | $1.5M | $964.2M | 0.16% |
| **ACE** | $1.73M | $526.06M | 0.33% |
| **RECO** | $0.240M | $54.92M | 0.44% |
| **NJNG** | $1.5M | $482.4M | 0.31% |
| **SJG** | $0.800M | $425.0M | 0.19% |
| **ETG** | $0.700M | $246.9M | 0.28% |

GeoExchange also recommends that the BPU require that utilities coordinate their workforce development plans across utilities and ensure that the programs offer in-depth training which provides industry-relevant certifications for workers, including geothermal professional development programs for drillers, installers, and system designers. Workers are often employed in multiple service territories, making it important that utilities offer consistent workforce programs. It is also important to support thorough training that aligns with industry certifications to ensure that training programs provide high-quality training that yields high-quality jobs. While refresher courses and webinars can supplement long-term professional development, they cannot grow a robust workforce. Detailed, rigorous courses that provide workers with extensive technical skills are critical to the growth of the clean energy industry.

Key among these supported courses should be the International Ground Source Heat Pump Association (IGSHPA) Accredited Installer training[24] and the Certified GeoExchange Designer[25] course as supported training opportunities.

- The IGSHPA Accredited Installer course supports installers, drillers, contractors, home builders, and other stakeholders in understanding the technical aspects of GHP technology, leading to high-quality installations and improved system performance.
- The IGSHPA Certified GeoExchange Designer course provides an advanced course for engineers, architects, and installers to build the necessary skills to design efficient and effective GHP systems for a variety of building types.
- The utility programs should also support training opportunities for geothermal drillers, including incentives to improve accessibility and reduce costs for geothermal drilling training such as those approved by the New Jersey DEP for continuing education credits.[26]

Including these courses in the Triennium 2 program offerings will send a strong message that New Jersey values the energy savings potential of GHPs.

### *4. Accelerate the deployment of the network geothermal proposals and expand them to other utilities*

In their Triennium 2 Energy Efficiency filing, both PSE&G and NJNG proposed networked geothermal demonstration plans, which have significant potential to dramatically expand the deployment of high efficiency GHP systems.

- **PSE&G:** Participants will have GHPs installed and connected to one or more shared loops, with customers paying a fixed monthly rate based on their estimated bill savings for a 10-year period. PSE&G will rely on stakeholder engagement to identify potential project sites, to promote the project, and to assist in coordinating customer participation.[27] PSE&G hopes to use available knowledge from existing and ongoing networked geothermal projects to maximize the success of their program. In their filing, PSE&G anticipates that the project will qualify for an investment tax credit of 40% of eligible construction expenses.[28]

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[24] https://igshpa.org/accredited-installer-training/
[25] https://igshpa.org/certified-geoexchange-designer/
[26] See "New Jersey Well Driller and Pump Installer Continuing Education Program Instructions," New Jersey Department of Environmental Protection, April 3, 2024, https://www.nj.gov/dep//watersupply/pdf/course-list-well-2026.pdf
[27] Clean Energy Future - Energy Efficiency II Program Plan: PSE&G, December 1, 2023, p. 47-48. *Docket No. QO23120874*
[28] In certain "energy communities" within New Jersey, this credit could increase to 50%; see: https://energycommunities.gov/energy-community-tax-credit-bonus/

- **NJNG:** Similarly, NJNG intends to pursue a "District Geothermal Heating" study to develop plans for the deployment of a geothermal loop system to reduce the need for conventional heating and cooling mechanisms. NJNG will hire a consultant to identify eligible sites and potential contractors, with a priority for low- and moderate-income communities.[29] From this initial feasibility study, NJNG hopes to understand some of the largest barriers to GHP adoption, how to facilitate workforce development related to networked geothermal systems, and potential for later expansion of the system. NJNG will fund the cost of the study, as well as design and installation costs, although participating customers would be responsible for the costs of their own equipment. The NJNG plans also did not specify how much funding would be allocated towards their networked geothermal project.

GeoExchange strongly supports the proposed networked geothermal projects within the utility building decarbonization filings and urges the BPU to approve the plans. When done right, these projects can provide significant improvements in efficiency over existing fossil fuel alternatives. Some projects will provide greater community and utility benefits than others, so we encourage the BPU to review the utility development of the pilot programs to help identify high-quality project sites that can maximize affordability while also providing technical, programmatic, and regulatory learning opportunities for how to install and operate these systems most efficiently. Thermal energy networks, including those owned by utilities, also offer opportunities for community ownership of thermal energy assets, and the BPU should encourage the utilities to work closely with the prospective communities to design and develop these systems. GeoExchange encourages the BPU to set timelines for the studies to accelerate the potential learning opportunities and recommends that the utilities and BPU hold dedicated public engagement sessions – targeted at building owners, architecture and engineering firms, and community members – to build support for the projects and solicit inputs of potential locations, participants, and system designs.

BPU should also direct South Jersey Gas and Elizabethtown Gas to similarly explore networked geothermal system pilot projects as part of their building decarbonization programs. Networked geothermal systems will be important in laying the foundation for expanded development of geothermal projects in the future, and GeoExchange looks forward to supporting the deployment of these pilot projects as a downpayment on broader GHP deployment in New Jersey.

**Conclusion**

Geothermal systems offer nearly unlimited potential to New Jersey in meeting its energy goals in an efficient, low-carbon, cost-effective manner. GeoExchange is excited about the potential for

[29] SAVEGREEN Program Plan: New Jersey Natural Gas, December 1, 2023, p. 46-47. *Docket No. QO23120868*

geothermal heating and cooling in the state, and we encourage the BPU to approve the building decarbonization and networked geothermal programs, while strengthening the commercial incentives and workforce development programs proposed in the utility filings. We look forward to working with the BPU to reinforce the important role of GHPs in helping New Jersey to meet its energy policy goals.

Sincerely,

Ryan Dougherty
President
Geothermal Exchange Organization