North American Gas Heat Pump Collaborative
TECHNOLOGY FOR A CLEANER FUTURE

September 6, 2023

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

RE: DOCKET NO. GO23020099 "IN THE MATTER OF THE IMPLEMENTATION OF EXECUTIVE ORDER 317 REQUIRING THE DEVELOPMENT OF NATURAL GAS UTILITY EMISSION REDUCTION PLANS" AND THE NEW JERSEY BOARD OF PUBLIC UTLITIES' NOTICE OF TECHNICAL CONFERENCE SOLICITATION OF PUBLIC COMMENT

The Collaborative is comprised of 17 gas and dual fuel utilities and energy efficiency organizations who recognize the vital role that gas heat pump technologies play in decarbonization. Our members represent over 33 million customers in the US and Canada and are focused on providing diverse solutions to equitably decarbonize with considerations for local and regional policies, climate, customer affordability, existing infrastructure, and grid composition to maximize carbon emissions reductions. The Collaborative's mission is to accelerate the adoption of innovative technologies that advance energy efficiency and facilitate the decarbonization of North America's gas network through market transformation initiatives. We are working to accelerate the commercialization of gas heat pump (GHP) technology which exceeds efficiencies of 100%. We also recognize the influential role state policy has in both development and adoption of high efficiency technologies. The Collaborative and the New Jersey Board of Public Utilities share the desire to decarbonize and lower emissions with competitive, technology-agnostic (heating) solutions. We see natural gas as a path to decarbonization with less cost to consumers, increased energy system reliability and safety.

On behalf of our members and their customers, the NAGHPC would like to provide feedback on the Future of Natural Gas Proceedings because:

- State policy should support the most efficient product offering, that is also cost-effective, lowers carbon emissions and is reliable. This includes gas-only and hybrid space heating options.
- Low carbon fuels like hydrogen blends are an important part of the decarbonization pathway and should be part of the energy mix in New Jersey.
- Supply chain stakeholders like contractors and OEMs should be included in the proceedings given their immense knowledge of the current heat pump product offerings, viability of future product offerings and state of the New Jersey residential heating market.
- Future policies should rely on field testing and research. There is currently insufficient information on the best technologies to decarbonize.

High-efficiency natural gas appliances provide reliable, practical, low cost, and low emission optionality for consumers and should not be excluded through policy. Policies should encourage all technologies that reduce energy use and GHG emissions, while also proving cost-effective and reliable. The energy savings potential and greenhouse gas reduction effects of GHP technology is paramount to the Collaborative's member utilities

like New Jersey Natural Gas. Natural gas is projected to remain at 34% of the U.S. electricity mix by 2050.[1] Decreasing the amount of natural gas that is used per product would only be a benefit towards the decarbonization path. Like electric heat pump technology, gas heat pumps have efficiencies greater than 100%. Unlike electric heat pumps, gas systems use refrigerants with low or no global warming potential (GWP), thereby rendering gas heat pumps even more climate-friendly than alternative technologies. In some areas, natural gas heated homes consume less energy than homes with high-efficiency electric air source heat pumps. While electric applications can have a higher "site" rated energy efficiency, the full-fuel cycle energy requirements—the energy used or lost in energy extraction, processing, transportation, conversion, and distribution, including the generation and transmission of electricity—may be lower in some regions for natural gas than electric applications, including air-source heat pumps and combi units.[2] The calculation of energy savings potential should therefore factor in both site and source. Finally, fuel diversity is important for a stable, low-cost energy future. Promoting only electric equipment for residential heating and cooling puts immense pressure on grid capacity, leading to issues with reliability and resiliency of the electrical grid.

Low carbon fuels like hydrogen blends are an important part of the decarbonization pathway and should be part of the energy mix in New Jersey. Decreasing the pathway for natural gas in New Jersey also diminishes the future of other fuels like hydrogen. The H2@Scale is a U.S. Department of Energy (DOE) initiative which has funded various research projects to demonstrate the viability of hydrogen. The initiative is particularly focused on lowering the cost of hydrogen and reducing carbon emissions from the fuel.[3] Removing other fuels from New Jersey would also preclude renewable natural gas (RNG) from being part of New Jersey's energy mix. RNG is derived from biogas, which is produced from decomposing organic waste from landfills, agricultural waste and wastewater.[4] These low carbon fuels could be important to future decarbonization goals and should remain an option for New Jersey.

Hybrid heating systems should remain a product possibility for New Jersey customers because they provide benefits such as increased comfort for customers while avoiding costly upgrades to electric capacity and reliably meeting winter heating demand. Hybrid systems offer a solution for efficient space heating while reducing operating costs, GHG emissions, and electric peak load. Hybrid systems should be available to both new construction and retrofit markets if it decreases GHG emissions. Hybrid systems are widely available among major manufacturers in the North American market, but the current market demand for hybrid technology is modest. Only recently, with support and incentives from utilities, local and federal governments has this technology been brought to the public interest. State policy should not exclude hybrid systems, especially given the nascent nature of the market.

Supply chain voices are key to developing energy policies, especially for upcoming technologies like gas heat pumps. Notably missing from the August 2-3 technical conference was the contractor and operating equipment manufacturer (OEM) community from the proceedings. Representation from New Jersey Air Conditioning Contractors Association (NJACCA) was not present either, which is another integral supply chain voice in New Jersey. The workforce development panel briefly discussed the present-day learning gaps regarding heat pumps and other electrification projects, but no one spoke to the lifecycle of heat pumps, nor

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1 EIA, "EIA projects that renewable generation will supply 44% of U.S. electricity by 2050," March 18, 2022, available at: https://www.eia.gov/todayinenergy/detail.php?id=51698

2 National Research Council. 2009. Review of Site (Point-of-Use) and Full-Fuel-Cycle Measurement Approaches to DOE/EERE Building Appliance Energy-Efficiency Standards: Letter Report. Washington, DC: The National Academies Press.

3 DOE, "H2@scale," available at https://www.energy.gov/eere/fuelcells/h2scale.

4 EPA, "An Overview of Renewable Natural Gas from Biogas," 2021, available at: https://www.epa.gov/sites/default/files/2021-02/documents/lmop_rng_document.pdf

their installation and/or operational nuances. While discussed throughout each panel, there was still little understanding, or discussion on the viability of heat pumps capable/sized for New Jersey customers. Proceedings should therefore continue with all key stakeholders at the table.

The NAGHPC believes it is critical to gather more information about future energy mix and product efficiency prior to new policy. Modeling and laboratory evaluations are essential for developing standards and methodology for hybrid systems rating due to the nature of hybrid system operation and integration. Research and development should evaluate different simultaneous hybrid heating systems' performance and develop sizing, installation, and modeling tools to support future field demonstrations and control development. The most efficient technology for decarbonization requires more research.

The Collaborative is confident that gas heat pump technology will be a reliable and low emission solution for customers as the market develops and matures in the upcoming years.

Thank you again for the opportunity to submit comments. Please contact Jaclyn Kahn (jkahn@resource-innovations.com) with questions about our comments.

Sincerely,

Alan García, Senior Director at NW Natural, Customer Lifecycle Management
Chair, North American Gas Heat Pump Collaborative

Members of the Collaborative

- ATCO
- CenterPoint Energy
- Enbridge Gas
- FortisBC
- Intermountain Gas Company
- APGA Research Foundation
- National Fuel
- New Jersey Natural Gas
- Northwest Natural Gas
- ONE Gas
- Peoples Gas & North Shore Gas
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