

Committee: Economic Matters

Testimony on: HB397 –Public Utilities – Thermal Energy Network Systems – Authorization and Establishment -Working for Accessible Renewable Maryland Thermal Heat (WARMTH) Act

Submitting: Deborah A. Cohn

Position: Favorable

Hearing Date: February 22, 2024

Dear Chair and Committee Members:

Thank you for allowing my testimony today in support of HB397.

Maryland has committed to reducing greenhouse gas emissions (GHGs) to 60% of 2006 levels by 2031 and transitioning to a net-zero economy by 2045. Doing so will require major reductions in emissions arising from heating and cooling buildings.

Geothermal heating and cooling systems (ground source heat pumps or GHPs) generate significantly less GHGs than gas or electric resistance equipment and even less than air-source heat pumps. The [U.S. Department of Energy estimates](#) that GHPs “can reduce energy consumption and emissions up to 44% compared to air-source heat pumps and 72% compared to standard air-conditioning equipment.” GHPs require less energy than air-source heat pumps because, for both heating (including in water heaters) and cooling, GHPs use heat extracted from boreholes 300-500 feet below ground (50-60° F, year-round) rather than from the ambient air (typically, in Maryland, midwinter lows in the low- to mid-20s and mid-summer highs in the mid-to-upper 80s). The difference between geothermal and desired building temperatures is much smaller than the difference between ambient air and desired building temperatures.

Problem: While geothermal heat pumps are a well-tested technology,¹ and their use in districts, such as universities, is spreading,² their use in networked systems to heat small neighborhoods is more recent.³ Pilot projects can be useful to demonstrate proof of concept and identify program design improvements.

Solution: HB397 would create pilot projects and gather information to assess how well networked geothermal systems will work in different areas in Maryland.

Each natural gas utility would be required to develop one or two pilot thermal energy projects to replace gas infrastructure with a thermal energy network system. The gas companies would work with

¹https://www.montgomeryschoolsmd.org/siteassets/district/departments/facilities/sustainability/geothermal_green-features.pdf

² [https://www.nytimes.com/2024/01/23/climate/geoexchange-climate-colleges-heat.html?searchResultPosition=2;](https://www.nytimes.com/2024/01/23/climate/geoexchange-climate-colleges-heat.html?searchResultPosition=2)

³ Maryland would not be the first state to pilot thermal energy networked systems using geothermal heat pumps. Colorado, Massachusetts, Minnesota and New York [have passed laws](#) that allow or mandate gas utilities to undertake thermal energy network pilot projects. Illinois, Maine, Vermont and Washington are exploring similar laws. <https://energynews.us/2024/01/18/new-york-will-replace-gas-pipelines-to-pump-clean-heat-into-buildings/>

community organizations and local governments to identify projects and would build and manage the projects approved by the state Public Service Commission (PSC). The pilot projects would have to be in neighborhoods with at least 80% low- and moderate-income residents, with priority given to overburdened and underserved communities. The gas companies would need to seek federal funding for their pilots and propose a rate structure ensuring that participating customers do not pay more for utilities than if they had not participated. The gas companies would also need to collect data to help the state evaluate the pilot program.

Because HB397 enables low- and moderate-income residents to replace gas appliances with GHPs and other efficient electric appliances at no cost to themselves, it protects them from bearing the increasing costs of stranded assets, *i.e.*, gas infrastructure that would serve fewer users as more consumers shift from gas to electricity and the economy becomes decarbonized.⁴ SB570 would also protect the jobs, wages and benefits of gas company workers who could use their skills to install and service the pipelines needed by the geothermal heat pump system and would promote use of workers and small businesses in the impacted area to implement some of the changes required within buildings. And, to the extent that behind-the-meter energy conservation upgrades and substitution of highly efficient electric appliances reduce the demand for electricity, SB570 would reduce the need for costly upgrades to the electric grid.⁵

Because of the promise of significant reductions in the use of natural gas and electricity, an equitable transition for gas companies and their workers, provisions to support impacted residents and businesses, and the potential to reduce the need for investments in the electric grid, I urge a **FAVORABLE** report for HB397 in committee.

⁴ Decarbonizing the economy implies significantly reducing use of methane gas. By 2045, *i.e.*, in 21 years, most existing gas pipeline infrastructure becomes a stranded asset.

⁵ US Department of Energy [research has found](#) that installing geothermal heat pumps in nearly 80 percent of U.S. homes could reduce the costs of decarbonizing the grid by 30 percent and avoid the need for 24,500 miles of new transmission lines by 2050.