



THE MARYLAND HOUSE OF DELEGATES
ANNAPOLIS, MARYLAND 21401

HB 40 —MARYLAND ENERGY ADMINISTRATION STUDY ON GEOTHERMAL
HEATING AND COOLING SYSTEM AND GEOTHERMAL ENERGY WORKGROUP

TESTIMONY OF DELEGATE LORIG CHARKOUDIAN

JANUARY 26, 2021

Chair Davis, Vice Chair Dumais, and Members of the Economic Matters Committee:

Geothermal heat pumps (GHP), also known as ground source heat pumps, use the constant temperature of the Earth to provide clean, renewable energy. Just below the surface of the Earth, the ground is a constant temperature of approximately 54° Fahrenheit. These heat pumps take advantage of the constant temperature of the Earth, and using mostly water, move heat to and from the ground through a series of pipes. As the water moves through the pipes, it is either heated or cooled by the ground. The newly cooled or heated water then returns to the heat pump and pushes out a comfortable air temperature. The beauty of this process is that it requires a small amount of electricity. For each unit of electricity used in operation, the heat pump can deliver five times as much energy from the ground. (1)

The benefits of geothermal heat pumps are many:

- GHPs extract clean energy, by heating and cooling from the earth. A reduced reliance on fossil fuels results in a lesser carbon footprint.
- Low environmental impact. For each unit of electricity used by a GHP, the system is able to move five units of cooling or heating energy from the Earth to the building. (1) GHP's use 33% to 65% less electricity than conventional heating or cooling systems. (2)
- Level seasonal electric demand, lightening the load on the electric grid during peak summer demand thus reducing the need for electricity suppliers to tap into additional electricity sources that are worse for the environment.
- GHPs constantly harvest renewable energy, and is therefore more available than traditional energy, eliminating the need for backup systems.
- No combustion takes place on-site, increasing the safety and indoor air quality.
- Long life expectancy, as the systems have few moving parts that are protected indoors, providing durability and reliability.
- Low operating cost — once installed, GHPs can be operated and maintained inexpensively. The initial investment can be recouped in two to ten years because of lower utility bills.

Geothermal Heat Pumps are manufactured in the United States, with American labor and parts. From innovative manufacturing through system design, systems for residential and commercial use are distributed and installed with local labor, creating an engine for economic growth.

(1)<https://www.epa.gov/rhc/geothermal-heating-and-cooling-technologies>

(2)<https://www.energy.gov/eere/articles/making-difference-geothermal-heat-pumps>

Geothermal systems spur the creation of skilled, well-paid jobs across the nation everywhere they are installed. Thousands of jobs can be created with increased deployment of these systems. (3) Geothermal power plants provide long-term, stable, well-paid jobs, produce nearly zero air emissions and associated health impacts, and support local and regional economic developments through decades of reliable, consistent and renewable energy production. (4)

Maryland currently offers some rebates for commercial and residential installation of geothermal heat pumps. However, this is often not enough to incentivize citizens to invest in geothermal, as there is typically a high initial investment required for a geothermal system to be installed. If Maryland were to expand incentives for GHPs, it would allow for more widespread use of geothermal energy, and a greater benefit for our residents' economically and our state environmentally.

To that end, HB 40 would require the Maryland Energy Administration (MEA) to conduct a comprehensive technical study on the status of geothermal heating and cooling systems in the State, and the potential impact of expanding and incentivizing the use of those systems throughout Maryland.

The legislation would also establish the Geothermal Energy Workgroup. The results of MEA's technical study would be submitted to the Workgroup by October 1, 2021. The membership of the Workgroup would include representatives from the General Assembly, the Administration, environmental advocacy and justice organizations, geothermal industry, and labor unions.

The Workgroup's charter would be to:

- Study the status and impact of increasing the use of geothermal heating/cooling systems in Maryland;
- Examine methods for growing the industry, with a focus on increasing its use in environmental justice communities — communities where multiple factors, including environmental and socioeconomic stressors, affect both health and the environment and contribute to persistent environmental health disparities;
- Examine methods for ensuring jobs created in this industry offer benefits and family-sustaining wages; and,
- Develop recommendations for legislation that will encourage and incentivize the use of geothermal heating/cooling systems in the State.

The MEA would report the results of the study, findings and recommendations from the Workgroup, and incentive recommendations to the General Assembly by December 1, 2021.

There is no doubt that geothermal heat pumps represent a heating and cooling technology opportunity that is essential for Maryland to meet both our infrastructure and climate change challenges for today.

I respectfully request a favorable report on HB40.

(3) <https://www.geoexchange.org/geothermal-101/>

(4) Kagel, 2006, Socioeconomics and Geothermal Energy. <http://pubs.geothermal-library.org/lib/grc/1025172.pdf>