LiUNA BWLDC (Rick Binetti) Testimony SB810 Favorab

Uploaded by: binetti, rick

Position: FAV

Chair Delores Kelley
Vice-Chair Brian Feldman
Members
Senate Finance Committee
3 East Miller Ofc Bldg
Annapolis, MD 21401

March 9, 2021

SB 810 – Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems
Position – Favorable

Good afternoon Chairman Davis and members of the House Economic Matters Committee. My name is Rick Binetti, here on behalf of LiUNA's Baltimore Washington District Council. Thank you for the opportunity to provide testimony in support of SB 810.

As we continue toward meeting greenhouse gas reduction requirements, labor must be a top priority when considering Maryland's policy. In whatever form, the transition to greener energy in Maryland MUST include a blueprint for the transition of meaningful employment for trades workers currently working in the energy industry. Hundreds of well paid, middle-class, family-sustaining jobs, with millions of manhours are on the line. They can't just go away without a statewide plan. They are simply too important to the state's economy.

That's why BWLDC supports SB 810. Much like the Clean Energy Jobs Act, it contains language that will help create a wage and benefit floor for future workers in Maryland's geothermal industry. Additionally, it also requires companies working on large scale geothermal projects to ensure that at least 10% of the construction workers on the project are apprentices participating in an apprenticeship program approved by the state or federal government.

We know there are not likely to be the same number jobs created in the green energy economy as there are today's energy economy. We have seen this thus far in MD's solar industry. Incentives and credits may be making the industry profitable, but they aren't creating the kind of middle-class, career building jobs so important to building the state's economy. We cannot let the same thing happen in the development of other clean energy industries.

But bills like this, that leverage RPS credits to create labor standards in growing industries, will ensure that building trades jobs and the environment are equally important as Maryland continues to develop effective clean energy policies.

By leveraging public infrastructure, and incentivizing geothermal on large-scale commercial or residential projects, Maryland has an opportunity to do both. Geothermal can put a lot of laborers, pipefitters, operators and many other craft people to work. RPS policies are helping grow clean energy use in Maryland. These policies should also focus on growing the middle class.

We urge a favorable report on SB 810. Thank you.

SB810_IndivisibleHoCoMD_FAV_RichardDeutschmann.pdf
Uploaded by: Deutschmann, Richard
Position: FAV

SB810 – "Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems"
Testimony before Senate Finance Committee
March 9, 2021
Position: Favorable

Madame Chair, Mr. Vice Chair and members of the committee, my name is Richard Deutschmann, and I represent the 700+ members of Indivisible Howard County. We are providing written testimony today in ***support of SB810***, which establishes Geothermal Heating & Cooling Systems as a Tier 1 resource under the Renewable Portfolio Standard. Indivisible Howard County is an active member of the Maryland Legislative Coalition (with 30,000+ members).

The Intergovernmental Panel on Climate Change (IPCC) has stated that we have less than 10 years to reduce greenhouse gas (GHG) emissions to avoid the worst effects of climate change. And, according to a study by Energy and Environmental Economics conducted for major U.S. utilities, Geothermal Heating and Cooling System are characterized as "…the low hanging fruit when it comes to saving customers money and reducing greenhouse gas emissions". In order to get to where we need to be as a state, increasing efficiency in our building heating and cooling systems, and fully electrifying our building stock, will be paramount. One of the best tools that we have at our disposal is the broader use of Geothermal Heating and Cooling systems to provide environmental control of our buildings. This bill will utilize the power of our state's Renewable Portfolio Standard, to accelerate the deployment of Geothermal Heat Pumps across the state. The results will be fewer greenhouse gas emissions, cleaner air, and better public health. It will also spur a boom in jobs for manufacturers, installers, and engineers to make this transition.

As a Licensed Professional Engineer in the State of Maryland, I have seen firsthand how Geothermal Heating and Cooling systems can be key to a broader effort to make our buildings more efficient, both at the residential and commercial/institutional levels. I was part of a team that conducted a deep energy retrofit at the New Carrollton (MD) Federal Building in 2015. As part of the strategy, geothermal wells were drilled, pipes laid, and system was integrated into the central heating and cooling plant for this 3-tower complex that houses more than 6,000 employees. As a result, energy use at the complex was slashed by more than 60%. This strategy should be rolled out across the state, and this bill, along with the new incentives it will bring, will be a big factor in Geothermal Heating and Cooling becoming the norm in our building stock.

Thank you for your consideration of this important legislation.

We respectfully urge a favorable report on SB810

Richard Deutschmann
Columbia, MD 21045

SB 810 Sponsor Amendments

Uploaded by: Feldman, Brian

Position: FAV

SB0810/193129/1

AMENDMENTS PREPARED BY THE DEPT. OF LEGISLATIVE SERVICES

08 MAR 21
18:04:26

BY: Senator Feldman
(To be offered in the Finance Committee)

AMENDMENTS TO SENATE BILL 810
(First Reading File Bill)

AMENDMENT NO. 1

On page 1, in line 10, after "standard;" insert "altering the methods by which the Public Service Commission shall determine certain energy savings;"; strike beginning with "requiring" in line 13 down through "regulations;" in line 14 and substitute "clarifying who is eligible to receive certain renewable energy credits under certain circumstances;"; strike beginning with the second "requiring" in line 16 down through "State;" in line 18; and in line 31, after "date;" insert "providing that existing obligations or contract rights may not be impaired by this Act;".

On page 2, in line 10, strike "7–705(b), and 7–712" and substitute "and 7–705(b)".

AMENDMENT NO. 2

On page 9, in line 19, strike "system" and substitute "**PORTION OF THE SYSTEM THAT CONSISTS OF:**

1. A CLOSED LOOP OR A SERIES OF CLOSED LOOP SYSTEMS IN WHICH FLUID IS PERMANENTLY CONFINED WITHIN A PIPE OR TUBING AND DOES NOT COME IN CONTACT WITH THE OUTSIDE ENVIRONMENT; OR

2. AN OPEN LOOP SYSTEM IN WHICH GROUND OR SURFACE WATER IS CIRCULATED IN AN ENVIRONMENTALLY SAFE MANNER DIRECTLY INTO THE FACILITY AND RETURNED TO THE SAME AQUIFER OR SURFACE WATER SOURCE";

and in line 22, strike "Internet–based".

(Over)

On page 10, in line 15, strike "**, AT THE TIME OF INSTALLATION,**"; in line 16, strike "**IS CERTIFIED BY THE COMMISSION AS PROVIDING**" and substitute "**PROVIDES**".

On page 11, strike in their entirety lines 4 through 6, inclusive.

On pages 13 and 14, strike in their entirety the lines beginning with line 25 on page 13 down through line 12 on page 14, inclusive.

On page 16, in line 25, after "industry;" insert "and"; strike beginning with "at" in line 26 down through "5." in line 28; in line 29, strike "and"; and in line 30, after "(v)" insert "two representatives selected by the Baltimore–D.C. Metro Building and Construction Trades Council;

(vi) one representative selected by the Maryland State and District of Columbia AFL–CIO; and

(vii)".

On page 17, in line 17, strike the second "and"; and in line 18, after "(iv)" insert "examine methods for ensuring that geothermal installers adhere to the labor and apprenticeship requirements for large–scale geothermal projects required under § 7–704(h)(6) of the Public Utilities Article, as enacted by Section 1 of this Act; and

(v)".

On page 18, after line 8, insert:

"SECTION 3. AND BE IT FURTHER ENACTED, That a presently existing obligation or contract right may not be impaired in any way by this Act.";

and in line 9, strike "3." and substitute "4.".

CLPP testimony SB0810.pdf
Uploaded by: Goldberg, Donald M.
Position: FAV

Climate Law & Policy Project

3405 Shepherd St. Chevy Chase, MD 20815
202-390-3050
www.clpproject.org
Contact: donald@clpproject.org

Committee: Finance
Testimony on: SB0810 Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems
Organization: Climate Law & Policy Project
Submitted by: Donald M. Goldberg, Executive Director
Position: Favorable
Hearing Date: March 9, 2021

Dear Chairman and Members of the Committee:

Climate Law & Policy Project strongly supports SB810 and urges a favorable report.

SB810 requires increasing percentages of Renewable Energy Portfolio Tier 1 renewable energy credits be derived from geothermal heating and cooling systems placed in service after January 1, 2022 and eliminates the requirement that geothermal systems replace or displace inefficient heating and cooling systems that fail to meet federal Energy Star standards. It requires that at least 25% of geothermal credits come from systems installed at low or moderate housing units or institutions that serve that segment of the population. It requires that systems with 360,000 BTU capacity be installed by PSC-certified companies that meet minimum labor requirements and enroll at least 10% of their workers in certified apprenticeship programs. It increases compliance payments for geothermal systems and directs those payments into a separate fund within the SEIF to support low and moderate income installations. It requires the PSC to report on the status of geothermal systems in the State. It creates a Geothermal Energy Workgroup and requires the Maryland Energy Administration to conduct a study of geothermal energy and submit it to the Workgroup.

Geothermal energy is an essential technology for reducing greenhouse gas (GHG) emissions and ensuring access to clean, efficient and inexpensive energy. Air sourced and ground-sourced (geothermal) heat pumps have been identified by the Maryland Commission on Climate Change as a key technology for decarbonizing buildings in the State. While ground-source heat pumps are more expensive to install than air-sourced ones, they are much cheaper to operate and save money over their lifetimes.

It is appropriate that a specific percentage of Maryland renewable energy credits be derived from geothermal, which is one of the cleanest energy sources in the RPS (along with wind, solar, small hydro and ocean). Compared to the power sector, building decarbonization can be more difficult and costly, hence, more in need of incentives, such as RECs. RECs can help overcome the higher upfront cost of installing geothermal, which often prevents it from being utilized despite its lower lifetime cost.

It is also appropriate to direct a high percentage of REC-supported geothermal to low and moderate income households and institutions that serve them. These households often have the highest energy bills but receive little benefit from programs like EmPOWER Maryland, which are designed to lower energy bills through efficiency. This is due, in part, to preexisting conditions, such as mold, which may preclude making buildings more air tight. Heat pumps are ideal in these situations because they do not affect a building's ability to "breathe".

Developing geothermal, especially for low and moderate income residents, is both equitable and essential if Maryland is to meet its Greenhouse Gas Reduction Act goals, and we urge passage of SB810.

Dandelion Energy Testimony on SB 810.pdf
Uploaded by: Hannun, Kathy
Position: FAV

March 5, 2021

Chair Delores Kelley and Members
Finance Committee
Miller Senate Building
Annapolis, MD 21401

Re: <u>SUPPORT</u> – SB 810 – Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems (Feldman)

Dear Chair Kelley, Vice Chair Feldman and Members of the Senate Finance Committee:

On behalf of Dandelion Energy, I ask for your support for Senate Bill 810, which will provide meaningful incentives for homeowners in the state of Maryland interested in going geothermal, increasingly open the market to lower-to-middle class homeowners, and attract new geothermal installers such as Dandelion to bring jobs and economic development to the state of Maryland.

The Dandelion team began working on creating a more cost-effective geothermal solution while working at Google parent company Alphabet's X lab. In May 2017, Dandelion launched as an independent company and has since grown to become the largest residential geothermal installer in the United States.

Our goal is simple: to make geothermal energy affordable and accessible to any homeowner across the United States. Our product and operational innovations have cut costs and improved system performance. However, upfront cost barriers remain one of the primary factors limiting the adoption of geothermal technology today, even when homeowners see large savings over a 20-year period.

Should this bill become law, we would take action to enter the State of Maryland, open a warehouse in the state, and make our solution available to all homeowners, not just the top tier income earners. Going geothermal is not just an environmental decision, it's an economic one. With proper state incentives, like the ones contemplated in this bill, Dandelion can offer homeowners the option to finance the system and see savings on day one. This is what has truly opened the market in states such as New York and Connecticut where we currently operate.

Typically, more than 70% of energy usage in homes comes from heating, cooling, and water heating. Installing a geothermal heating and cooling system can reduce annual energy bills by $1,500 to $2,000 or more, reduce a home's carbon emissions by as much as 80%, and eliminate the need to buy heating fuel.

Today, 17.5% of Maryland's greenhouse gas emissions come from fuel use in buildings. We cannot reach our climate goals and without cleaning up residential heating and cooling — and geothermal is the most efficient solution for decarbonizing homes.

Dandelion Energy asks that you pass this critical piece of legislation to help Maryland meet its climate targets, open the market to lower-to-middle class homeowners, and attract new installers such as Dandelion to the state.

Sincerely,

Kathy Hannun

President and Co-Founder

Dandelion

SB 0810 Geothermal Renewable Energy Portfolio Stan

Uploaded by: Hartwell, Staci

Position: FAV

NAACP
Maryland
STATE CONFERENCE

March 5, 2021

SB 0810 Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems

Position Favorable

TESTIMONY

On behalf of the NAACP Maryland State Conference of the NAACP, I strongly urge a favorable report on SB 0810, *Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems.*

Limited income households, communities of color, and other disadvantaged communities stand to benefit the most from renewable energy deployment through energy bill reduction and improved public health outcomes, but often have the least access to the benefits of renewable energy programs.

SB 0810 would create incentives for more renewable deployment by including geothermal in our renewable portfolio standard. Yet, more importantly it would ensure low- and moderate-income households are the beneficiaries of this addition by calling for 25% of the systems to be installed in homes and community centers that house and serve low- and moderate-income ratepayers.

Low- and moderate-income Marylanders would be able to see the benefits and be able to recoup the savings on their energy bills within 2 to 10 years through savings on their utilities. Maryland's low-income residents pay 550% more as a portion of their income for energy than non-low-income Marylanders. The majority of these households are Black, Hispanic or Asian household. Covid- 19 has exacerbated this inquiry with over209,000 residents in arrears in the Pepco and BGE territories.

By deploying geothermal energy in homes, we could improve indoor air quality that could result in improved health outcomes for low- and moderate-income households.

SB 0810 would also create a strong growing geothermal industry that provides family sustaining jobs and a sustainable planet. The bill calls for installers to provide healthcare, apprenticeship opportunities as well as family sustaining wages.

For all of the above reasons, the Maryland State Conference of the NAACP urges a favorable report on SB 0810. Thank you for your time and consideration.

Respectfully submitted,
Staci Hartwell, Co-Chair
NAACP Maryland State Conference
Environmental and Climate Justice Committee
877 Cloudleap Court, Suite 200
Columbia, Maryland 21045
NAACPMaryland.org
617 257 8893

SB810_fav_geothermal RPS_MLC CJW_3.9.21.pdf
Uploaded by: McGilvray, Laurie
Position: FAV

Committee: **Finance**
Testimony on: **SB0810 - Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems**
Organization: **Climate Justice Wing of the Maryland Legislative Coalition**
Person Submitting: Laurie McGilvray, Co-Chair
Position: **Favorable**
Hearing Date: **March 9, 2021**

Dear Mr. Chairman and Committee Members:

Thank you for allowing our testimony today in support of SB0810. The Maryland Legislative Coalition's Climate Justice Wing, a statewide coalition of over 50 grassroots and professional organizations, strongly urges you to vote favorably on this bill. The bill will alter the renewable energy portfolio standard (RPS) to require a percentage of energy from Tier 1 renewable sources to come from geothermal heating and cooling systems each year; require the Public Service Commission (PSC) to adopt regulations; require electricity suppliers to pay compliance fees into the Maryland Strategic Energy Investment Fund; establish a Geothermal Energy Workgroup; require the Maryland Energy Administration (MEA) to conduct a study on geothermal heating and cooling systems; and require MEA, in consultation with the Workgroup, to develop recommendations for an incentive structure and report the results and recommendations to the General Assembly.

Climate Change, Greenhouse Gas Emissions, and Buildings: Maryland is already experiencing the effects of climate change as seen in hotter summers, extreme precipitation, and rising sea levels. The state must be on a path to near net zero greenhouse gas (GHG) emissions or 80-95% reduction by 2050 pursuant to the 2019 Greenhouse Gas Reduction Act Draft Plan in order to avoid the worst impacts of a changing climate. Buildings (e.g., residential and commercial) are one of the largest sources of GHG emissions. Furthermore, heating and cooling is the largest slice of the GHG pie for buildings. The solution is to electrify buildings as quickly and efficiently as possible, and geothermal heating and cooling can play a big part.

Why Geothermal and RPS Tier 1? Heat pump technology transfers heat from a source to a sink; a geothermal heat pump uses the constant temperature of the ground. Because the ground temperature doesn't change, it is a much more efficient heat exchanger than air and much less expensive to run. Geothermal is healthier because there is no combustion of fossil fuels, which means better indoor air quality. Unlike other states where geothermal technology has been deployed more widely, it is relatively rare in Maryland, and promises to be a future source of high-paying jobs. Adding geothermal heating and cooling to Tier 1 of the RPS, along with an effort to develop additional incentives for geothermal, will move Maryland forward toward greater deployment of geothermal systems and help reduce GHG emissions in the State.

For these reasons, we urge you to vote favorably for SB0810.

SB810_fav_geothermal RPS_TPMEC_3.9.21.pdf
Uploaded by: McGilvray, Laurie
Position: FAV

TAKOMA PARK MOBILIZATION

Environment Committee

Committee: **Finance**
Testimony on: **SB0810 - Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems**
Organization: **Takoma Park Mobilization Environment Committee**
Person Submitting: Laurie McGilvray, Co-Chair
Position: **Favorable**
Hearing Date: **March 9, 2021**

Dear Mr. Chairman and Committee Members:

Thank you for allowing our testimony today in support of SB0810. The Takoma Park Mobilization (TPM) is a grassroots organization based in Takoma Park, Montgomery County and the Environment Committee is focused on state and local climate change issues. We strongly urge you to vote favorably on this bill. The bill will alter the renewable energy portfolio standard to require a percentage of energy from Tier 1 renewable sources to come from geothermal heating and cooling systems each year; require the Public Service Commission (PSC) to adopt regulations; require electricity suppliers to pay compliance fees into the Maryland Strategic Energy Investment Fund; establish a Geothermal Energy Workgroup; require the Maryland Energy Administration (MEA) to conduct a study on geothermal heating and cooling systems; and require MEA, in consultation with the Workgroup, to develop recommendations for an incentive structure and report the results and recommendations to the General Assembly.

City of Takoma Park Climate Resolution: On March 4, 2020, the Takoma Park City Council passed the 2020 Climate Emergency Response Framework Resolution. The resolution adopts a climate action framework of priority strategies and potential policy changes for buildings, transportation, and renewable energy. The resolution outlines strategies to achieve net zero emissions city-wide by 2035 and be fossil fuel-free by 2045. Priority strategies include: provisions to improve the efficiency of all types of buildings; accelerate the transition to 100% renewable electricity; and phase-out fossil fuels. Currently, many buildings in the City use natural gas for heating and cooling. Electric heat pumps provide the greatest opportunity to move off fossil fuels for heating and cooling. Geothermal technology, must play a big part, both for new construction and for replacing heating and cooling systems at the end of their lifecycle.

Climate Change, Greenhouse Gas Emissions, and Buildings: Maryland is already experiencing the effects of climate change as seen in hotter summers, extreme precipitation, and rising sea levels. The state must be on a path to near net zero greenhouse gas (GHG) emissions or 80-95% reduction by 2050 pursuant to the 2019 Greenhouse Gas Reduction Act Draft Plan in order to avoid the worst impacts of a changing climate. Buildings (e.g., residential and commercial) are one of the largest sources of GHG emissions. Furthermore, heating and cooling

is the largest slice of the GHG pie for buildings. The solution is to electrify buildings as quickly and efficiently as possible.

Why Geothermal and RPS Tier 1? Heat pump technology transfers heat from a source to a sink; because the ground temperature doesn't change, geothermal is a much more efficient heat exchanger than air and much less expensive to run. Geothermal is healthier because there is no combustion of fossil fuels, which means better indoor air quality. Geothermal technology is relatively rare in Maryland, although it promises to be a future source of high-paying jobs. Adding geothermal heating and cooling to Tier 1 of the RPS, along with an effort to develop additional incentives for geothermal, will move Maryland forward toward greater deployment of geothermal systems, reduce GHG emissions in the State, and help Takoma Park meet its climate change goals.

For these reasons, we urge you to vote favorably for SB0810.

SB0810_RPS_and_GEOTHERMAL_MLC_FAV.pdf
Uploaded by: Plante, Cecilia
Position: FAV

MARYLAND LEGISLATIVE COALITION

TESTIMONY FOR SB0810
RENEWABLE PORTFOLIO STANDARD AND GEOTHERMAL HEATING AND COOLING SYSTEMS

Bill Sponsor: Senator Feldman
Committee: Finance
Organization Submitting: Maryland Legislative Coalition
Person Submitting: Cecilia Plante, co-chair
Position: FAVORABLE

I am submitting this testimony in favor of SB0810 on behalf of the Maryland Legislative Coalition. The Maryland Legislative Coalition is an association of activists - individuals and grassroots groups in every district in the state. We are unpaid citizen lobbyists and our Coalition supports well over 30,000 members.

Our Renewable Portfolio Standard (RPS) is a mess. We currently consider black liquor and incineration as Tier 1 energy sources, and although they clearly meet the requirement of Renewable, they do not in any way meet the requirement of being Clean Energy. Geothermal is different. It is Clean, Renewable energy, and should be added as a Tier 1 energy source to the RPS.

This bill would make a place for Geothermal heating and cooling systems as a Tier 1 energy source, alongside of wind and solar. Not only does this make sense, but this bill goes further in targeting geothermal to low-income housing and schools that have a large number of students who qualify for free and reduced meals. Finally, it also specifies that jobs related to geothermal must be family-sustaining jobs with health care and other benefits.

Our members strongly support clean, renewable energy and we believe that putting geothermal in the RPS as a Tier 1 energy source is a positive step in reducing Maryland's reliance on dirty energy.

We support this bill and recommend a **FAVORABLE** report in committee.

MGA Senate Testimony on GREC Bill.pdf
Uploaded by: Santry, Adam
Position: FAV

MARYLAND GEOTHERMAL ASSOCIATION

March 5, 2021

Chairman Delores Kelley and Members
Finance Committee
Miller Senate Building
Annapolis, MD 21401

Re: SUPPORT – SB 810 – Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems (Feldman)

Dear Chair Kelley, Vice Chair Feldman and Members of the Senate Finance Committee:

The Maryland Geothermal Association (MGA) asks that you move favorably on Senate Bill 810 -- Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems. MGA represents the residential and commercial drillers, installers and manufacturers that comprise our State's geothermal industry.

By harnessing the thermal energy in the ground beneath our feet, geothermal systems are the most efficient, reliable, and lowest carbon approach to electrifying heating and cooling in buildings. Geothermal heat pumps (GHPs) are recognized by the U.S. Environmental Protection Agency as among the most efficient heating and cooling technologies currently available and are up to 500% more efficient than standard heating systems. According to Maryland Commission on Climate Change's "Decarbonizing Buildings in Maryland" report, released in September of 2020, geothermal heat pumps are up to 500% more efficient than standard heating systems and outperform all other electrification technologies, such as air source heat pumps, and offer even greater emissions reduction.

Furthermore, as has been noted in several of your committee hearings this session, the most recent Annual Maryland Public Service Commission Report shows that a staggering 82.6% of all RECs retired in Maryland are generated outside of the State. Our RPS is currently benefitting other states from a dollars and jobs perspective; this bill would go a long way in changing that since geothermal systems require the building of actual infrastructure here in the State by Maryland workers.

All that being said, the geothermal industry is where solar and wind were 15 years ago. Customer adoption is just beginning to accelerate. Despite the high efficiency and tremendous potential of GHPs, they currently account for only a small fraction of the heating and cooling market. This, historically, is due to higher up-front costs, low consumer awareness, and inadequate state incentives.

MGA is working with our fellow industry stakeholders and supporters – including environmental justice advocates and labor organizations – to overcome existing awareness and cost barriers. SB 810 will

provide the incentives we need to dramatically grow the GHP market here in the state of Maryland and allow us to invest in the cleanest and most efficient electrification technologies to benefit our economy, our environment, and ALL Marylanders, not just the top-income earners.

HB 810 creates a modest carveout for RECs generated by geothermal systems installed after December 31, 2021. Within that carveout, the bill also requires that 25% of all projects benefit low and moderate income homeowners and communities, which will ensure a more equitable deployment of GHPs in our state.

It also requires that all larger-scale projects – specifically, multifamily housing and commercial projects such as schools, hospitals, office buildings, etc. – be installed by companies that provide family sustaining wages, health-care, career advancement training, fair scheduling, employer-paid workers' compensation and unemployment insurance, a retirement plan, paid time off, and the right to bargain collectively for wages and benefits. Additionally, for those large-scale projects, the bill also requires that the installation company must ensure that at least 10% of the employees working are enrolled in an apprenticeship program approved by and registered with the State or the Federal Government.

As Maryland moves to meet the State's ambitious target to reduce emissions by 40% by 2030 and 80-95% of gross emissions by 2050 as outlined in the 2019 Greenhouse Gas Reduction Act (GGRA) Draft Plan, it will need not only to decarbonize its electricity grid, but to dramatically reduce its reliance on the fossil fuel energy sources that currently heat the majority of the State's residential and commercial buildings. About 17.5% of Maryland's greenhouse gas emissions come from heating and cooling in buildings. High-efficiency GHPs must be part of the solution.

How Geothermal Heat Pumps Work

GHPs work by collecting heat from the ground, where it remains a constant 55 degrees Fahrenheit year-round and transferring it to heat a home or business. In the summer, the system works in reverse, collecting heat from the building and transferring it to the ground.

Installation takes place in two steps. First, a contractor drills holes underground and insert buried pipes filled with fluid (called ground loops) that are used to transfer heat between the building and the ground. (The loops are either vertical or horizontal loops depending on the installation site.) The contractor then connects these loops to the interior of the building. Second, the contractor installs a heat pump inside the building that exchanges and concentrates heating energy between the building and the loops. The system life is estimated at up to 24 years for the heat pump and 50+ years for the ground loop.

Ratepayer Impact

For electric utilities, GHPs offer significant grid benefits by increasing baseload demand without meaningfully increasing seasonal peaks. This is in contrast to technologies such as air source heat pumps (AHPs), which provide electrification benefits, but also increase peak usage dramatically. A

study by the Brattle Group found that fully electrifying Rhode Island's heating sector using GHPs would only minimally impact peak demand and leave energy prices unchanged, whereas switching to AHPs would nearly double the peak and increase electricity prices by up to 20%.

Impact of geothermal on jobs in Maryland

Geothermal energy is a labor- and capital-intensive industry that creates high-paying jobs in Maryland. Just as the solar industry retrained local contractors, the geothermal industry does the same for the HVAC contractors and for oil, gas, and water well drillers. Geothermal installation jobs are high-skill and high-wage, with geothermal drillers making $75,000 to $120,000 or more per year. We estimate that each system installation creates 1 week's worth of work for a crew of 5. A steady stream of geothermal installation work supplements income for HVAC professionals, or in the case of well drillers, helps keep their companies in business. Many well drillers now make the majority of their income from geothermal projects, since the same rigs and equipment used to drill water wells are used for geothermal. Without the presence of geothermal projects in Maryland, this industry would shrink greatly and we would lose much of our in-state well drillers and drilling expertise. Even today, many Maryland-based companies that provide geothermal services travel out of state to find work in better market opportunities, particularly in neighboring Mid-Atlantic states and New England.

Access by Low- and Moderate-Income Families and Individuals

MGA is focused on ways to democratize the geothermal market and enable any homeowner to afford and install a geothermal system and see instant energy bill savings. We are striving to find ways to enable geothermal providers to enter the market, create a new wave of good-paying clean energy jobs, and significantly lower the energy bills and carbon footprint of Maryland's households and businesses. Increased incentives would help open up the market to lower and middle-class homes and drive the kind of customer adoption and innovation we've seen with solar throughout the State. We are hopeful this bill, should it become law, would serve to democratize geothermal efficiency and savings and make it accessible to all.

Once again, the Maryland Geothermal Association asks that you pass this important piece of legislation to grow GHPs in Maryland and help establish our state as a national leader in the adoption of clean, renewable heating and cooling technologies.

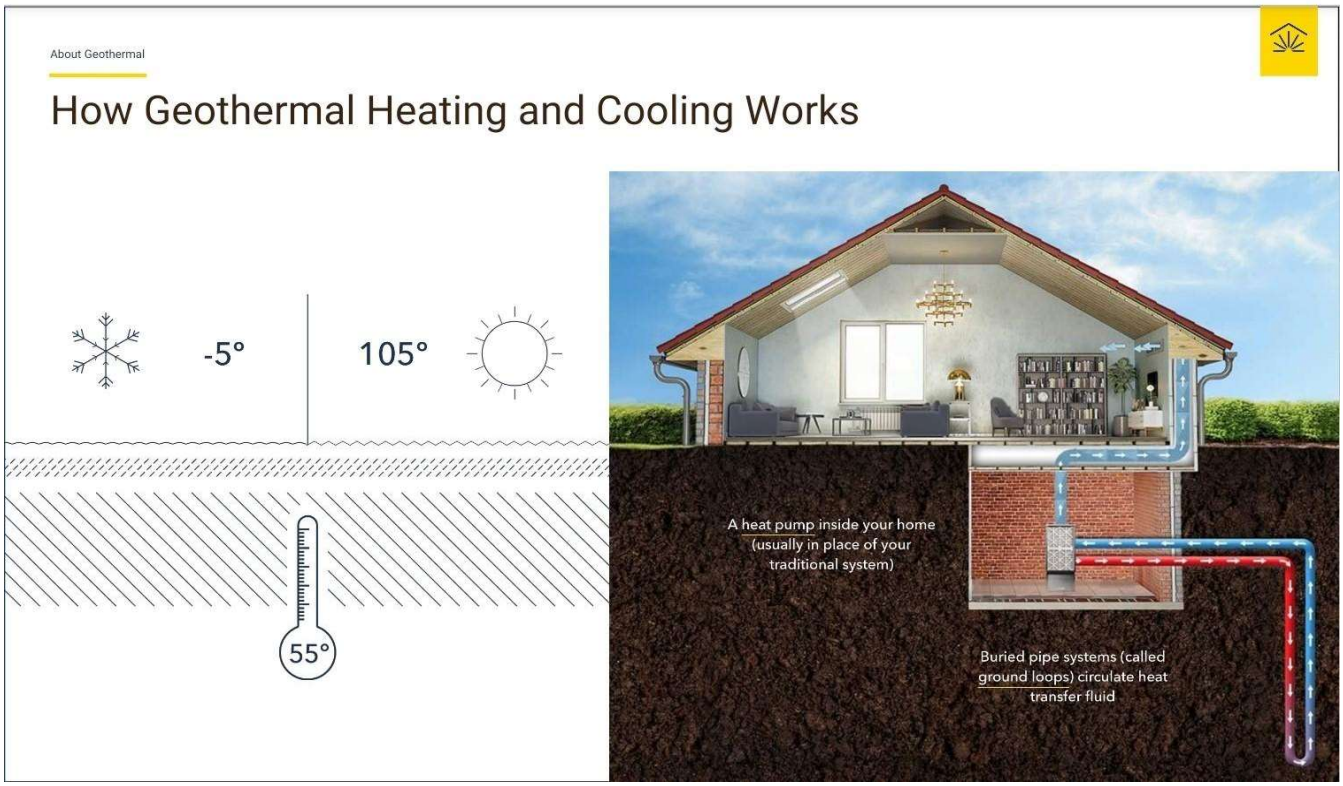
Sincerely,

Adam Santry

Adam Santry
President

1 State Circle
Annapolis, MD 21401

410.268.3099



Geothermal heat pumps work by collecting heat from the ground, where it remains a constant 55 degrees Fahrenheit year-round and transferring it to heat a home or business. In the summer, the system works in reverse, collecting heat from the building and transferring it to the ground.

Installation takes place in two steps. First, a contractor drills holes underground and insert buried pipes filled with fluid (called ground loops) that are used to transfer heat between the building and the ground. (The loops are either vertical or horizontal loops depending on the installation site.) The contractor then connects these loops to the interior of the building. Second, the contractor installs a heat pump inside the building that exchanges and concentrates heating energy between the building and the loops. The system life is estimated at up to 24 years for the heat pump and 50+ years for the ground loop.

Foundation Housing Testimony on GREC SB 810 2021.p
Uploaded by: Travis, Todd
Position: FAV

March 5, 2021

Chairman Delores Kelley and Members
Finance Committee
Miller Senate Building
Annapolis, MD 21401

Re: <u>SUPPORT</u> – SB 810 – Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems (Feldman)

Dear Chair Kelley, Vice Chair Feldman and Members of the Senate Finance Committee:

Foundation Housing asks that you move favorably on SB 810 -- Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems. Foundation Housing is a 501(c)(3) nonprofit committed to creating solutions to address the affordable housing crisis nationwide. In the State of Maryland, Foundation Housing owns over 13 properties representing more than 1500 units with several additional properties planned. All of the properties owned by Foundation Housing meet the definition of "low or moderate income housing" as defined by this bill.

Part of Foundation Housing's mission is to promote federal, state, and local policies that preserve and upgrade the existing inventory of assisted, affordable, multifamily housing. SB 810 firmly advances our mission by creating a meaningful, dedicated funding source that will allow low or moderate income multifamily housing owners to cost-effectively replace antiquated boilers running on fuel oil or natural gas with clean, efficient, and environmentally friendly geothermal heat pumps.

Replacing outdated heating, cooling, and hot water systems with a geothermal heat pump can reduce total energy bills by 50% or more. Geothermal heat pumps also protect residents from extreme bills by maintaining their efficiency even during the coldest and warmest days of the year. Lowering monthly bills and preventing sudden bill shocks has a huge impact on the monthly and annual budgets of the population that Foundation Housing serves and would provide immediate monetary benefits to low and moderate income residents. In cases where residents do not directly pay for their energy bills, installing a geothermal system will increase property value and allow property owners to better recapitalize and rehab existing units. These improved operating efficiencies are directly correlated with improved living conditions in the future.

Beyond the monetary benefits, replacing fossil-powered heating and cooling systems with

geothermal provides residents with tangible health and comfort benefits, since fossil systems increase the likelihood of indoor pollutants building up inside of residences. Geothermal systems allow for dramatically-increased indoor air quality. Providing safe, clean and healthy living to the residents we serve is core to our mission and yet another reason Foundation Housing is in favor of this Bill.

This bill has the potential to make Maryland a national leader in installing geothermal heating and cooling systems in low and moderate income communities and become a model for other states. Foundation Housing asks that you vote favorably on this legislation.

Sincerely,

Todd Travis

President and Chief Operating Officer Foundation Housing

SB 810 ABC UNF
Uploaded by: Jackson, Marcus
Position: UNF

Associated Builders and Contractors, Inc.

Maryland Joint Legislative Committee

The Voice of Merit Construction

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March 9, 2021

TO: FINANCE COMMITTEE

FROM: ASSOCIATED BUILDERS AND CONTRACTORS

RE: S.B. 810 – RENEWABLE ENERGY PORTFOLIO STANDARD AND GEOTHERMAL HEATING AND COOLING SYSTEMS

POSITION: OPPOSE

Associated Builders and Contractors (ABC) opposes S.B. 810 which is before you today for consideration. The intent of the bill is good. Reducing utility cost for low income residents and facilities which serves low income areas by increasing Geothermal system installations, the method is not good. It puts the onus on the resident or building owner to identify and complete paperwork to get a rebate/discount on electricity cost.

To get more systems installed tax rebates/credits, other incentives have to be made at the development stage and go to the developer. These systems are not installed because they are very expensive and have a very long ROI. If we incentivize the installation of high efficiency systems, (geothermal and others, including: windows, doors, insulation and roofing as well) in a low income development, the residents will see the return every month in their utility bills.

With that in mind, we suggest the following amendments to S.B. 810:

Page 3
line 18 – Strike - government should be;

Line 19 – If the system produces electricity production beyond consumption should feed the grid and spin the meter backwards and the market energy credits paid to the consumer. Without this costly battery storage systems are required which is another disincentive at the development stage.

Page 6
Line 2 – 28% is about a 30% annual increase and all other years are about 10% increases.

Page 10
Line 13 – 360,000 btu capacity is a 3 ton system which is a small residential system, why is that the specified capacity
Line 20 – define "Affordable"
Line 23 – define "Fair Scheduling"
Line 28 – Strike - all employees in Maryland already have the right to bargain collectively for wages and benefits and the means and methods are well defined in the labor laws

Page 16
Line 27 – add "at least two representatives of independent industry trade associations."

On behalf of the over 1,500 ABC business members in Maryland, we respectfully request an unfavorable report on S.B. 810.

Marcus Jackson, Director,
Government Affairs

SB0810_Unfavorable_Stanek.pdf
Uploaded by: Stanek, Jason
Position: UNF

STATE OF MARYLAND

PUBLIC SERVICE COMMISSION

March 9, 2021

Chair Delores G. Kelley
Senate Finance Committee
Room 3 East, Miller Senate Office Building
Annapolis, MD 21401

RE: SB 810 – Unfavorable – Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems

Dear Chair Kelley, Vice Chair Feldman and Committee Members:

Senate Bill 810 creates a carve-out beginning in 2022 for the newly defined post-2021 geothermal systems, similar to those for solar and offshore wind. While the Commission does not oppose the idea of a carve-out for geothermal systems, the Commission has identified several technical concerns with implementing this bill.

First, geothermal systems have historically represented a low percentage of Renewable Energy Credits ("RECs") in Maryland. In 2020, all previously certified geothermal systems generated 2,158 RECs, which would equal 0.0036% of retail electric sales. To meet the 1% carve-out by 2026 would require increasing the number of RECs by 278% from the current level. While there are some incentives available through EmPOWER Maryland and other state programs for geothermal systems, there is a substantial risk that sufficient geothermal systems may not be deployed to meet the new requirements. The cost of the Renewable Portfolio Standard ("RPS") may be more expensive to ratepayers if suppliers need to pay alternative compliance payments in lieu of purchasing RECs for compliance with the law.

Second, there are several provisions of the law that present resource and implementation issues for the Commission. SB 810 requires that at least 25% of the post–2021 geothermal carve out come from systems installed on low income facilities, places certain requirements for the employees of a post–2021 geothermal system with a 360,000 BTU capacity, and requires the Commission to adopt regulations providing for the certification of installation companies. The Commission may have difficulty determining if a system meets these requirements and specifically does not have expertise in reviewing or analyzing how companies would comply with employment, salary and benefits required by the legislation.

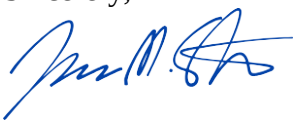
SB 810 requires the Commission to file reports by December 1, 2021 and December 1, 2022 on the status of the implementation of geothermal heating and cooling systems in the State, including information on the number of geothermal systems installed, the feasibility of increasing incentives to promote geothermal systems and an assessment of best practices. The

Commission would need to hire a consultant to assist in the development of regulations and the two reports.

A potential solution to the issues raised in this legislation is to more closely examine the current state of geothermal systems in Maryland as proposed under HB 40. The results of the HB 40 study could be used to determine an appropriate path forward to further incentivize and deploy geothermal systems in Maryland to meet the renewable energy needs of residential and non-residential customers.

The Public Service Commission has been in communication with the sponsor regarding possible remedies for the above concerns. Thank you for the opportunity to provide testimony regarding SB 810. Please contact my Director of Legislative Affairs, Lisa Smith, at 410-336-6288 if you have any questions.

Sincerely,



Jason M. Stanek
Chairman

SB0810 (HB1007) - LOI.pdf
Uploaded by: Fahrig, Landon
Position: INFO

Maryland Energy Administration

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor
Mary Beth Tung, Director

TO: Members, Senate Finance Committee
FROM: Mary Beth Tung – Director, MEA
SUBJECT: SB0810 (HB1007) - Renewable Energy Portfolio Standard and Geothermal Heating and Cooling Systems
DATE: March 5, 2021

MEA Position: Letter of Information

MEA generally supports diverse options when it comes to combating greenhouse gas emissions, while promoting the reliability and resiliency of energy within the State. However, Senate Bill 810 raises some concerns of which this committee should be aware.

Limiting ACP uses to the same technology that falls short of RPS requirements creates a disincentive for development. In this instance, the geothermal industry can reap Tier 1 RECs or geothermal carve-out RECs by developing new geothermal systems. However, if the industry *does not* respond by developing new geothermal systems, the industry will be guaranteed to reap the benefits of geothermal ACP, which is likely to have a significantly higher $/energy unit price, and therefore benefit.

The bill requires that RECs be divided into categories based on income level. The current REC market would have to be overhauled to include income information, forcing suppliers to seek personal information unrelated to electricity supply.

The limitations on 360,000 BTU systems creates barriers to adoption of clean energy for ratepayers with large thermal energy needs, while targeting the largest users of thermal energy would actually provide the greatest benefit. By tying energy projects to social priorities, it reduces the likelihood that a private entity will make in-state investments in energy equipment.

Lastly, though the bill makes efforts to promote equity, geothermal energy has a high, up-front, incremental cost that may be unattainable for low income residents. RECs, on the other hand, only provide benefits after the initial cost hurdles have been cleared. This will lead to adoption by those who can afford the significant up-front expense and who can tolerate the timeline needed to realize the financial benefit, likely at the exclusion of those who cannot.

MEA currently operates a program to reduce the up-front barriers to adoption of geothermal heat pumps. With greater funding, MEA could increase the benefit of that program specifically for low-to-moderate income ratepayers (MEA's solar incentives operate in this manner). However, several legislative efforts this session have already largely exhausted the funding source for that and other MEA programs.

MEA urges the committee to consider the proceeding prior to issuing its report.