HB 806 Building Standards and Emissions Reductions

Uploaded by: Cait Kerr

Position: FAV

The Nature Conservancy
Protecting nature. Preserving life.

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Maryland/DC Chapter
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Tuesday, March 1, 2022

TO: Maggie McIntosh, Chair of the House Appropriations Committee and Committee Members
FROM: Michelle Dietz, The Nature Conservancy, Director of Government Relations; and Cait Kerr, The Nature Conservancy, Conservation & Climate Policy Analyst
POSITION: Support HB 806 Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

The Nature Conservancy (TNC) supports HB 806 offered by Delegates Stein and Barve. In Maryland, TNC's work focuses on delivering science-based, on-the-ground solutions that secure clean water and healthy living environments for our communities, reducing greenhouse gas emissions and increasing resilience in the face of a changing climate. TNC has an institutional goal to help to reduce emissions by avoiding or sequestrating 3 billion metric tons of carbon dioxide per year by 2030. We are dedicated to a future where people and nature thrive together.

The buildings sector is one of the largest carbon emitting sectors in Maryland, contributing 13 percent of the state's total greenhouse gas emissions in 2017. HB 806 seeks to address this by establishing clear targets and goals to achieve emissions reductions from direct and indirect sources as well as from materials used within the government buildings. This past year, TNC participated in the Mitigation Working Group's Buildings Sub-Group to inform recommendations in the Maryland Commission on Climate Change's (MCCC) Building Energy Transition Plan, which aims to decarbonize buildings across the state. Along with our participation in the Buildings Sub-Group, TNC also provided funding to support the Maryland Building Decarbonization Study, conducted by Energy + Environmental Economics (E3), which provided the foundation for the MCCC's Plan. Within its recommendations, the MCCC asserts that "contributing to Maryland's greenhouse gas reduction goals should be demonstrably central [to] design goals in any building construction or renovation procured with any funds, loans, grants, tax or other benefit from the State of Maryland."

HB 806 puts into action the Building Energy Transition Plan's recommendations in order to set Maryland on a clear path toward significant buildings sector emissions reductions. Under this proposed legislation, government buildings lead by example through standards to achieve 50% reductions by 2030 and meet net-zero requirements by 2035. New construction will be required to comply with an all-electric construction code and building emissions standard. In every net-zero emissions scenario E3 modeled, all-electric new buildings had the lowest annual costs – including equipment, maintenance and energy. Renewable energy sources and a clean energy economy are essential parts of reaching state, national, and global low-carbon energy goals and combatting the negative health and environmental impacts caused by fossil fuels.

TNC commends Delegates Stein and Barve for continuing to raise the bar for Maryland's climate commitments and advancing climate solutions that can provide valuable environmental, economic, and public health co-benefits for years to come.

Therefore, we urge a favorable report on HB 806.

AIA MD 806
Uploaded by: Chris Parts
Position: FAV

AIA Maryland

25 February 2022

The Honorable Maggie McIntosh
Chair of the Appropriations Committee
House Office Building
6 Bladen Street
Annapolis, Maryland 21401

Re: Letter of Support for HB 806
Building Standards and Emissions Reductions – High Performance, State and Local Government Buildings

Dear Chairman McIntosh and members of the Appropriations Committee:

I am writing to voice AIA Maryland's support of House Bill 0806. AIA Maryland represents nearly 2,000 architects in the state of Maryland and advocates for the profession and the quality of the built environment. We, as architects, recognize the impact of greenhouse gas emissions and climate change as we study building sites, the interaction with the natural and built environment around a project and the people who occupy and live or work near buildings we design.

This bill is important because it takes steps now to make an impact on climate change and it asks the state to lead by example. Buildings are a source of nearly 40% of energy consumed in the US. It is clear that designing buildings to use less energy and moving buildings away from carbon-based fuel systems can both reduce energy demand and emit less carbon into our atmosphere.

Section 1 of the bill addressing High Performance Building contains recommended adjustments from some of our members that were suggested to restore the intent of the original 2008 High Performance Building Bill and to consider the way the LEED rating system works it suggests accommodations for equity of investment in rural jurisdictions that do not benefit from site-based credits of the rating system that favor a more urban building. This language has also been considered in SB0588/HB1165 and the key aspects desired are to restore the need for third party certification of LEED or Green Globes projects that was removed with 2018 legislation and the importance of accounting for location of projects that does not penalize more rural projects to spend more money on a project to achieve a level of credits because they do not benefit from being in a location of greater density and amenities.

Section 2 of the bill addresses moving the state funded building to full electrification. Many architect members are already designing projects that are all electric and we believe that there are two main reasons to support this legislation. First, the time to act is now. Pushing such regulations further down the road will mean that it will take longer to diminish energy needs and carbon consumption because we failed to act. It means that buildings that do not move toward electrification now will likely incur higher costs to convert to all electric systems in the future because it was not initially planned for and it increases the likelihood that money will need to be spent to repair catastrophic events, vs money spent proactively to diminish the chance of potential crises. Second, this bill is the result of a consensus approach that is built upon the Maryland Climate Change Commission addressing recommendations about building infrastructure that is founded on sound research and a cross-section of representatives that have considered costs and merits of decisions.

This bill ties the state funded projects to the benchmarking standards and the Building Emissions Performance Standards established in HB831. This is important as we ask the state to lead by example the information provided

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from this data will enable a better understanding of successes and challenges in implementing measures. This should also help us continue to improve on efficiency of state funded construction through greater knowledge of results and it may also help in understanding best practices in building operation when similar systems are used but may have different energy use results.

Drawing parallels to the Benchmarking and BEPS systems proposed, when we look at the AIA 2030 Commitment (our membership who have signed on to the commitment to design toward Carbon Neutral buildings by 2030), we see the value of data that we have collected. It reflects the importance of modeling buildings to meet energy performance standards. This provides the opportunity to make changes in design rather than wishing we had done something different once a project it built. We can see building energy use intensity by building types to assess how our projects are performing as compared to others. We are also able to see many more all electric projects, 669 projects in the 2020 report were done with an energy model where fuel sources were identified, but nearly half of those were 100% electric buildings.

Maryland is not acting alone in moving toward electrification and adopting guidelines like these, New York City, and Seattle have adopted similar guidelines and Washington State is nearing passage of similar legislation. We encourage you to support this legislation that aims to limit the impact the built environment on greenhouse gas emissions in Maryland and drives design to further enhance the health and well-being of our residents. We encourage you to vote with our future in mind and cast your vote in favor of HB806 to reduce greenhouse gas emissions in commercial and residential buildings.

AIA Maryland and its membership encourages steps to improve the quality of Maryland's built environment, this bill puts the states finances in support of these ends. AIA Maryland is glad to support this bill.

Sincerely,

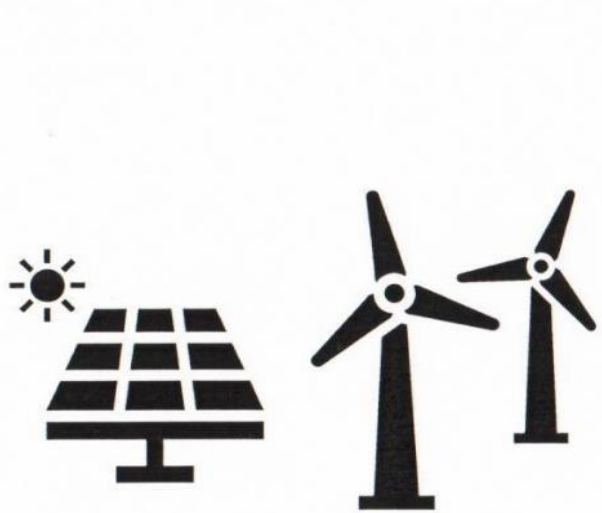
Chris Parts, AIA
Director, Past President, AIA Maryland

Stein Testimony HB 806.pdf
Uploaded by: Dana Stein
Position: FAV

HB 806

Building Standards and Emissions Reductions-High Performance, State, and Local Government Buildings

Where We Are Heading



Clean Electricity

Solar, Wind, etc.

Resilient electric grid

Bi-directional flow

Local energy storage

Electric Vehicles

Cars, Trucks, Buses, Trains, etc.

Electric Buildings

Homes, Businesses, Schools, etc.

Why Reduce Emissions from Buildings?

- The use of fossil fuels in buildings is a substantial source of CO_2emissions in Maryland. Most of this energy use is for space and water heating.
- Maryland's **2030 Greenhouse Gas Reduction** Act (GGRA) Plan, approved by the Maryland Commission on Climate Change, set a goal of electrifying fossil fuel end-uses (using natural gas and oil) in buildings.
- The 2030 GGRA plan called on the Maryland Commission on Climate Change (MCCC) to develop a Building Energy Transition Plan to identify measures and goals to decarbonize the buildings sector.

Source: Maryland Commission on Climate Change

MCCC Buildings Subgroup

MCCC established a Buildings Subgroup to develop the transition plan. The group consisted of representatives from a variety of sectors: builders, environmentalists, utilities, energy, and state and local agencies.

With the help of the consultant Energy + Environmental Economics (E3), the Buildings Subgroup developed the Building Energy Transition Plan: A Roadmap for Decarbonizing the Residential and Commercial Building Sectors in Maryland . The plan is premised on a scenario - high residential electrification combined with a flexible approach for commercial buildings that is technology neutral – that was the least expensive of the four scenarios for building decarbonization that were studied.

This plan was approved by the Commissioners as part of MCCC's annual report by a vote of **24-2** (the two "no" votes were State agencies) in November 2021.

The two core concepts of the plan, as applied to government buildings, are:

1) Construct new buildings to meet space and water heating demand without fossil fuels. An all-electric construction code for space and water heating should be adopted by 2024.

2) Implement a flexible Building Emissions Standard for buildings to reduce **direct** building emissions by 50% by 2030 and to net-zero by 2035.

Building Decarbonization Roadmap for Maryland

Red shading indicates transition time to near-zero emissions

New Homes

All-Electric Construction Code [P]
Heat pumps for space heating/cooling and water heating
Ready for solar, EV charging, and building-grid interaction

Zero direct emissions by 2024

New Commercial

All-Electric Construction Code [P]
Heat pumps or other clean energy technologies where practical
Ready for solar, EV charging, and building-grid interaction

Zero to low direct emissions by 2024

Existing Homes

Clean Heat Retrofit Program [P]
Incentives for holistic efficiency, electrification, comfort, and safety upgrades [E]
Gradual transition to an all-electric residential buildings sector

Zero direct emissions by 2045

Existing Commercial

Building Emissions Standard [P]
Flexible, technology-neutral program
Owners choose the best path for their buildings

Net-zero emissions by 2040

Electricity Supply

Clean and Renewable Energy Standard [L]
Renewable Portfolio Standard [S]
Regional Greenhouse Gas Initiative [S]

Zero emissions by 2040 [G]

Heating Fuel Supply

Gas Transition Plan [P]
Plan for a significant reduction in gas consumption
Building Emissions Standard alternative compliance/carbon offset [P]

Low emissions by 2045

Legend: P = Proposed herein E = Existing but should be strengthened G = GGRA Plan target L = Legislation introduced S = In statute

Key Provisions of HB 806

House Bill 806 is based largely on the Subgroup's plan and recommendations for government buildings, as adopted by the MCCC.

- The state should lead in reducing carbon emissions from its buildings.
- New government buildings and local government buildings for which at least 50% of the construction costs are provided by the State, excluding schools ("Covered buildings") must comply with a DOL code that requires new buildings to meet water and space heating demand without using fossil fuels. Per HB 831, DOL is to adopt the code by 2024 and will develop a cost-effectiveness test that builders can use to apply for variances from the electric requirements on new buildings.
- Covered buildings must reduce on-site emissions by 50% by 2030 and to net-zero by 2035 under a building emissions standard adopted in HB 831. An alternative compliance pathway allows the owner of a covered building to pay a fee for building emissions that exceed the standard.

This Plan Will Reduce Emissions *and* Costs

E3 found that implementing the energy transition plan will:

- Reduce emissions from residential and commercial buildings by 95 percent by 2045 (assuming a high rate of adoption of residential heat pumps)
- Reduce construction and energy costs for all building types except for large commercial buildings
- Ramp up electricity system investments to around $1B annually by 2045
- Ramp down gas system investments, saving around $1B annually by 2045
- Provide the lowest gas rates among all scenarios modeled

Summary of the Economic Benefits of the Building Energy Transition Plan

According to an RESI (Towson University) analysis, implementing the Building Energy Transition Plan would, between 2021 and 2045, generate an **additional:**

- $16B to $67B in total economic activity;
- **$4.5B to $23B in net economic benefits;**
- 29,000 to 215,000 jobs;
- $4B to $19B in wages;
- $600M to $1.3B in county tax revenue; and
- $800M to $1.9B in state tax revenue

Source: Towson University, Regional Economic Studies Institute, "Economic Benefit Analysis of Building Energy Transition Plan Investments."

THE BALTIMORE SUN

Maryland must reduce its natural gas consumption

Commentary in support of the Climate Solutions Now Act of 2022

By: Baltimore Sun Editorial Board 2/22/22

There's an old saying (and song lyric) repeated around the State House whenever difficult issues arise before the Maryland General Assembly: Everybody wants to get into heaven, but nobody wants to die. In the context of legislative matters, it means that we can all usually agree on good outcomes, but it's how best to get there that proves daunting. In the matter of how to deal with the serious threat posed by climate change, most lawmakers (those who aren't outright global warming deniers) favor a reduced carbon footprint. But, aside from the relatively easy steps like encouraging renewables or providing incentives for homeowners to invest in insulation or other forms of conservation, the devil is inevitably in the details. That was evident last week when landmark climate legislation, the Climate Solutions Now Act of 2022, received its first hearing before the Senate Education, Health and Environmental Affairs Committee.

The sticking point? Not necessarily in setting more ambitious goals like a 60% reduction in greenhouse gas emissions by 2030 (the state is currently on track for a 40% reduction in eight years), but in specific measures to reduce natural gas consumption. And here's one that could prove a significant roadblock: The legislation would mandate that all new buildings in Maryland be powered by electricity. That prospect drew howls from Baltimore Gas and Electric and others with significant investments in natural gas distribution. And, indeed, that industry has long tried to present itself as at least a "transitional" fuel that is not as harmful as burning coal or gasoline. And there's surely no shortage of consumers who like their gas stoves, water heaters and furnaces — or at least they did prior to recent rate hikes that have raised the cost of natural gas 24% from one year ago (and may increase further as Russia threatens Ukraine).

In reality, the primary component of natural gas, methane, is a far more potent greenhouse gas than carbon dioxide. Production leakage is a major problem, but even if that were addressed, methane is still a fossil fuel and so produces carbon dioxide when it's burned. Adding natural gas capacity whether in the U.S. or elsewhere will only make matters worse. There's simply no room for further fossil fuel development if the world is serious about meeting its climate goal of no more than a 2-degrees Celsius rise (or 3.6 degrees Fahrenheit) in average temperatures this century. Switching to all-electric construction is a sensible move, particularly as its followed by greater investment in greener forms of electrical generation including wind and solar.

Nevertheless, opponents of electrification have made claims about natural gas that don't stand up to scrutiny. They have said that natural gas is more reliable (which ignores how most gas furnaces require electricity to run), that it's cheaper (the Maryland Commission on Climate Change actually found the reverse to be true), and that transitioning to electricity will harm low and moderate income households when, again, the long-term fuel costs should actually prove lower. Granted, not everyone can afford new appliances, but that requirement of the legislation is aimed primarily at new construction.

Some companies and individuals may take a financial hit as the state transitions away from natural gas, of course. But setting energy policy based on gas production or pipeline jobs is like setting Chesapeake Bay water quality goals based on the convenience to polluters. And make no mistake, Maryland is particularly vulnerable to climate change because of its coastal location. The U.S. Environmental Protection Agency has warned that rising sea levels, worsening storms, and saltwater intrusion that ruins farmland and infiltrates drinking water supplies could spell disaster for the state, particularly low-lying areas near the Chesapeake Bay and its tributaries. Maryland can't afford to wait for other states or countries to make the transition to clean energy; we must lead by example.

Lawmakers should keep this threat in mind as they consider any changes to the legislation to reduce its impact or delay its implementation. There may be a price to pay for reducing our dependence on methane but there's an even greater price to be paid by doing nothing about climate change. Build more gas pipelines and we are locking in more carbon production for decades hence. And while it's all very well to transition to electric school buses or insist new or renovated schools are energy efficient, lawmakers must insist on doing the more politically difficult things as well beginning with regulating natural gas out of all new buildings.

HB806_EnvMD_MDPIRG_3.1_FAV.pdf
Uploaded by: Emily Scarr
Position: FAV

HB806: Building Standards and Emissions Reductions
Appropriations Committee
March 1, 2022
Emily Scarr, Maryland PIRG Director emily@marylandpirg.org
FAVORABLE

Maryland PIRG is a state based, small donor funded public interest advocacy organization with grassroots members across the state. For fifty years we've stood up to powerful interests whenever they threaten our health and safety, our financial security, or our right to fully participate in our democratic society.

Environment Maryland is a citizen-based environmental advocacy organization. We work to protect clean air, clean water, and open space.

Maryland could see a critical reduction of greenhouse gas emissions and gas usage if it electrifies all of its buildings during the next 30 years. In 2021 Maryland PIRG Foundation and Environment Maryland Research and Policy Center released **Electric Buildings: Repowering Homes and Businesses for Our Health and Environment**, which found that completely repowering Maryland's homes and businesses with electricity by 2050 is expected to result in emissions reductions equal to taking more than 1 million cars off the road.

To truly reap the climate and clean air benefits of electric buildings, we also need to make sure that public buildings are included in our plan to electrify Maryland's buildings.

HB806 sets important provisions to make schools and other public buildings more towards clean electrification by setting goals for emissions reductions and requiring some new public buildings be energy efficient and all-electric.

Maryland PIRG and Environment Maryland support this bill and any provisions that move us to more aggressively transition to cleaner, safer electric buildings. In addition, we support the amendments being recommended by the Climate Partners Table.

Gas expansion, in particular, is bad for public health, the planet, and ratepayers who must bear the long term financial responsibility for today's infrastructure investments. **The best way to protect ratepayers from stranded costs associated with fossil fuel infrastructure is to not build it in the first place.**

Burning fossil fuels in our buildings is bad for our health and environment, and it contributes to dangerous air pollution in our state. The direct use of gas, heating oil, and propane in buildings, primarily for space and water heating, accounted for 13% of Maryland's greenhouse gas emissions in 2017.

Throughout Maryland, children and families are suffering from the damaging effects of living with unhealthy air quality. In October, Maryland PIRG Foundation and Environment Maryland

Research and Policy Center released "Trouble in the Air," which outlined elevated air pollution days throughout the state. The Baltimore area experienced 43 elevated air pollution days in 2020, and many metropolitan areas throughout Maryland faced similar levels of air pollution. Elevated air pollution increases the risk of premature death, asthma attacks, cancer and other adverse health impacts.

In the American Lung Association's 2021 State of the Air Report, six Maryland counties received an "F" for air quality.

The risks of fossil fuel powered buildings impact the climate and the health of Maryland children and families at all stages of power production, from extraction to transport to running appliances like gas furnaces and water heaters.

A 2019 study that looked at five major urban areas on the East Coast, including Baltimore, and found these urban areas emit more than twice the amount of methane previously estimated by the EPA, with most of these emissions coming from leaks of gas systems in homes and businesses, as opposed to natural sources or landfills.

Fossil fuels also pose a risk to our communities, as seemingly every year we hear of another explosion. The August 2020 explosion that leveled homes, killing 2 people in Northwest Baltimore, the August explosion in Columbia, Maryland that leveled a shopping center, the 2016 explosion in the Flower Branch explosion in Silver Spring Maryland that killed 7 people and left dozens hospitalized, and many other explosions big and small.

Finally, we are seeing the impacts of fossil fuel appliances directly inside of our buildings. According to the Rocky Mountain Institute, air pollution from burning fuels in buildings led to an estimated 627 early deaths in Maryland and seven billion in health impact costs in 2017. We also know that appliances, including gas stoves (which are exempt from this bill) can emit a suite of unhealthy gasses, including nitrogen dioxide, carbon monoxide and formaldehyde, all of which can exacerbate respiratory issues and lead to heart disease and cancer. Finally, Rocky Mountain Institute has shown that gas stoves alone may contribute to levels of air pollution indoors that would be illegal outdoors. Long term, we need a more aggressive plan to transition away from gas stoves towards safer alternatives.

HB806 will:

- Alter the definition of "high performance buildings" to include schools and other public
- Require all existing state and local government buildings to reduce their direct greenhouse gas emission to net-zero by 2035
- Require all new state buildings and local government buildings that are at least 50% funded by the state to be built to an all-electric code for water and space heating

We respectfully request a favorable report.

IPL testimony on HB 806.pdf
Uploaded by: Jonathan Lacock-Nisly
Position: FAV

Interfaith Power & Light (DC.MD.NoVA)
900 Massachusetts Ave NW
Washington, DC 20001
202-525-9397 • jonathan@ipldmv.org

Jonathan Lacock-Nisly, Director of Faithful Advocacy
February 25, 2022

Testimony on HB 806 –
HB 806: Building Standards and Emissions Reductions
Appropriations Committee

Position: Favorable

Interfaith Power & Light (DC.MD.NoVA) supports HB 806.

Maryland faith communities have long been taking action to green our houses of worship as a way to care for our climate and our neighbors, and we call on our elected officials to help in our efforts to start ***turning away from burning***–moving from burning gas and other fossil fuels in our buildings to clean and affordable electric heat pumps. With fully 40% of our state's climate pollution coming from our buildings, we know that there is a direct line between the gas, oil, and propane burned to heat our buildings and our water, and the extreme weather, flooding, and sea-level rise that is becoming all-too-common in Maryland.

In the past year, many congregations have been learning more about the danger that burning gas poses to our health and our climate. The **Sikh Spiritual Center in Rockville** is one of many congregations across our region that have participated in a gas leak tagging event. Using a handheld methane leak detector, they **were able to find a number of leaks in the gas network right outside their house of worship.**

At left, children from Tifereth Israel Congregation monitor gas leaks near Silver Spring. At right, members of the Sikh Spiritual Center in Rockville prepare to head out for their own leak tagging expedition.

Sadly, this is not surprising. Comprehensive leak monitoring in Washington, DC, both by the District government and volunteers, as well as leak monitoring other places across the country, has shown that **the gas networks beneath our streets, bringing gas to our furnaces and water heaters, leak constantly.** Our leaky gas networks are a climate catastrophe, releasing methane gas with 80 times the warming power of CO2 directly into the atmosphere.

A recent report from Stanford University shows that **those leaks don't stop when gas pipes enter our homes.** Our gas appliances are constantly releasing low-level methane leaks, with about 80% of leaks coming when appliances are turned off. That's on top of the dangerous indoor air pollution gas appliances produce when they're turned on, harming our lungs and endangering our most vulnerable neighbors.

Across Maryland, faith communities are starting the work of turning away from burning, choosing healthy and clean electric appliances over gas, oil, and propane. **We call on you to pass HB 806 and its essential climate-friendly buildings provisions.**

In January, over 100 people of faith from across Maryland gathered on zoom to learn about the harm caused by burning gas and show support for clean building legislation in Maryland.

Members of the Jewish Climate Action Network DMV celebrate Tu BiShvat, the new year of the trees, with a call to turn away from burning gas.

Testimony in SUPPORT of HB0806.pdf
Uploaded by: Joseph Jankowski
Position: FAV

Testimony in SUPPORT of HB0806 – Building Standards and Emissions Reductions -
High Performance, State and Local Government Buildings, State Operations and Eligible Projects

Dear Chair McIntosh and members of the Appropriations Committee,

I support HB0806.

The Eastern Shore of Maryland will be subject to sea level rise before most of the area of the United States due to human induced climate change. This bill proposes actions which Maryland can take to reduce greenhouse gas emissions which are a major cause of human induce climate change.

My waterfront home is located on coastal bays of the Eastern Shore of Maryland. My home's existence and value is threated by rising sea levels. Action is required by my state legislators to protect me and my family from future harm, which has been clearly identified by U.S. scientists.

Respectfully,

Joseph Jankowski
Berlin, Maryland 21811

hb806, high performing buildings, 2022.pdf
Uploaded by: Lee Hudson
Position: FAV

Delaware-Maryland Synod
Evangelical Lutheran Church in America
God's work. Our hands.

Testimony Prepared for the
Appropriations Committee
on
House Bill 806
March 1, 2022
Position: **Favorable**

Madam Chair and members of the Committee, thank you for this opportunity to support advancing a net-zero energy regime in Maryland's building inventory. I am Lee Hudson, assistant to the bishop for public policy in the Delaware-Maryland Synod, Evangelical Lutheran Church in America. We are a faith community with three synods in every part of our State.

Adding public schools and other public facilities to the High Performance Building standards will increase the portfolio of present and future structures that contribute to GGRs. We support that policy and its goal and ask your favorable report.

Lee Hudson

5699 Meridale Rd. Baltimore, MD 21228 410-230-2860 800-869-5492 fax 410-230-2871

MBIA Letter of Support HB 806.pdf
Uploaded by: Lori Graf
Position: FAV

MARYLAND BUILDING INDUSTRY ASSOCIATION
11825 West Market Place | Fulton, MD 20759 | 301-776-6242

March 1, 2022

The Honorable Maggie McIntosh
House Appropriations Committee
House Office Building, Room 121,
6 Bladen St., Annapolis, MD, 21401

RE: HB 806 Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

Dear Chairwoman McIntosh:

The Maryland Building Industry Association, representing 100,000 employees statewide, appreciates the opportunity to participate in the **HB 806 Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects**. MBIA **Supports** the Act in its current version.

This bill would alter the definition of high-performance building to include schools and public safety buildings. MBIA supports this measure. While we discuss how to combat climate change and create climate it is important that the Stat take a leading role. MBIA supports changing the definitions of High Performance Buildings and we look forward to working with the State government to upgrade schools and public safety buildings to meet these standards.

We know that Climate Change is a priority in this state. We believe that the State Government should lead the way on these initiatives, prior to requiring private entities to make significant and costly changes that will have adverse effect on housing affordability.
For these reasons, MBIA respectfully requests the Committee give this measure a favorable report. Thank you for your consideration.
For more information about this position, please contact Lori Graf at 410-800-7327 or lgraf@marylandbuilders.org.

cc: Members of the House Appropriations Committee

AISC Support of MD HB 806.pdf
Uploaded by: Max Puchtel
Position: FAV

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February 25, 2022

House Appropriations Committee
Maryland General Assembly
Room 121
House Office Building
Annapolis, Maryland 21401

RE: HB 806 - AN ACT concerning Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

Good Morning, and thank you to the Chair and members of the Committee for the opportunity to provide testimony in support of HB 806.

My name is Max Puchtel, and I am the Director of Government Relations and Sustainability for the American Institute of Steel Construction. We are a non-partisan, not-for-profit technical institute and trade association that has been the leading advocate and trusted resource for the American structural steel industry since 1921.

Us steel folks have the most experience with Buy Clean policies. When the Buy Clean CA Act first passed in 2017, steel was the only primary structural material covered in the law. For years we worked diligently and cooperatively with CA's Department of General Services, not to fight the law, but to positively align its implementation with the realities of our industry's supply chain.

I am happy to say that the constructive lessons-learned from that experience are present in this Maryland version of the bill. Most notably:

- All relevant structural products are included, providing an equal playing field for the building construction industry.
- Environmental industry standards are rigorously applied for life cycle assessment (LCA) practices, Environmental Product Declaration (EPD) creation, and industry conformance

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for Product Category Rules (PCRs). These safeguards promote fair comparison between products and allow our domestic producers to compete effectively.

High-quality regulations such as these produce even-handed, rational, and smart Buy Clean policies. HB 806 is a sensical bill that will establish Maryland as a leader in climate change action.

On behalf of the American Institute of Steel Construction and the State of Maryland steel fabrication community, I urge you to support this bill.

Thank you,

Max Puchtel, SE, PE, LEED Green Associate
Director of Government Relations and Sustainability
American Institute of Steel Construction

LH Testimony 3-1.pdf
Uploaded by: Virgilio Barrera
Position: FAV

Good afternoon, I'm Lio Barrera, the Director of Government and Public Affairs at LafargeHolcim.

Thank you for the opportunity to provide testimony on HB 806 the "Building Standards and Emissions Reductions'' bill. I am providing this testimony on behalf of LafargeHolcim, a local producer of cement and concrete with operations throughout Maryland. Our dedicated manufacturing professionals and engineers help provide building materials that support our entire state, including material used to develop the Purple Line, route 200 Inter-County Connector, and the Woodrow Wilson bridge.

LafargeHolcim is a global leader in developing green cement and concrete technology, as illustrated by our Net-Zero commitment (the first construction materials supplier to do so), and also with the production of OneCem, a lower carbon cement. This material and others reduce our environmental footprint without sacrificing performance or durability.

People often use the terms "cement" and "concrete" interchangeably so I always like to cover the basics. Cement is a binder in concrete and concrete is the finished product which we see in everything from sidewalks, homes, roads, bridges, dams, and skyscrapers. In fact, concrete is the second most used material in the world second only to water.

We all recognize the built environment is a major source of carbon emissions accounting for approximately 40 % of global emissions. A number that is likely to grow over the next two decades as population growth continues, urban migration increases, and more infrastructure is needed to support our communities.

I believe the adoption of this bill can help unlock the future of sustainable construction through the establishment of a low carbon procurement preference for state procurement projects. The state can use its purchasing power to drive innovation and help reduce carbon emissions in Maryland.

On behalf of LafargeHolcim and our 650 employees in Maryland, I respectfully ask that you favorably report this legislation.

Letter in support of HB0806.pdf
Uploaded by: Benjamin Roush
Position: FWA

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February 25, 2022

Delegate Dana Stein

Taylor House Office Building, Room 251
6 Bladen St., Annapolis, MD 21401

Subject: **Myths About Building Electrification**

Delegate Stein,

I am a past Chair of the Board for the Maryland Chapter of the US Green Building Council, Chair of the AIA Baltimore Committee on the Environment, and I have long attended the Maryland Green Building Council meetings that are open to the public. I am a Principal at FSi, with 37 employees—we are mechanical and electrical engineers with a strong focus in green and net zero building. As you can see in my signature line below, I am a licensed mechanical engineer, a licensed fire protection engineer, and a certified commissioning professional. I can count myself among only a handful of people in the country with this broad set of certifications to understand, design, and operate building mechanical equipment.

At your request, I am writing a letter to address some misconceptions around building electrification. As you'll see, each of these is a persistent myth because it contains a kernel of truth, but is not the whole picture. Buildings can electrify now, for less money, and within grid constraints. Particularly for new construction, continuing to allow natural gas buildings is a disservice to consumers and a downright waste of taxpayer funding.

Myth: "too expensive":

Heat Pumps at their most basic form are just the same thing as commercial air conditioners, with an extra valve to reverse refrigerant flow (aka the reversing valve). They have a very nominal cost over a traditional furnace and AC unit, and are often cost neutral or cost negative when the total system installation including gas service and piping is included.

The Interagency Commission on School Construction has the data on this, all three net zero schools in Maryland were built at the same cost as other traditional schools, in their bid year. IAC released a report showing the total cost of building the schools averaged 3% more, including the substantial cost of solar panels, and simple math using $2 per watt and the area of the solar arrays shows that means net zero ready schools (everything except solar panels) can be built for less than traditional schools.

For all electric projects without a requirement to be net zero ready, in our own practice we have seen many projects save overall cost by omitting natural gas service, which more than covers the small incremental cost of heat pumps. Compelling alternatives now exist for all former

natural gas uses. We have chefs asking for all electric kitchens, laundry staff praising electric washing equipment, and maintenance personnel praising heat pumps for comfort and maintainability. It can be done, at the same cost, right now. Requiring high performance buildings only decreases the size and cost of the HVAC as other systems are improved. See the attached data on net zero school costs.

In existing buildings, several bills in session address the cost of replacing existing gas systems using Empower Maryland funds, and assistance to the most impacted low-income populations. Cost for existing building switchover is not a reasonable argument to anyone who has read those bills.

Myth: "grid can't handle it":

Pepco release a report last year showing the grid would need to grow 1.4% to 1.7% over the next 30 years (to 2050) to handle all new and existing buildings AND all transportation energy: (https://edocket.dcpsc.org/apis/api/filing/download?attachId=140553&guidFileName=1211ecc8-254d-4fc1-9143-10c8442e3fbc.pdf) It offered a handy retrospective that in some points in the grid history, the growth rate has approached 10%. This can be done now, at a low cost to the consumer, if properly directed.

Additionally, we know that the natural gas infrastructure in this country is rapidly aging and failing, releasing methane with its ~30x the global warming potential of CO2 into the air. The Rocky Mountain institute has a report out showing most gas infrastructure we install now will be abandoned after 2035 due to rising costs: https://rmi.org/insight/clean-energy-portfolios-pipelines-and-plants/ Allowing our schools, public buildings, and other tax payer funded projects to install natural gas is a waste of state money over the life of the building. Allowing private buildings to install natural gas now is a disservice to owners and occupants.

Myth: "heat pumps don't work in the cold"

In cold weather climates, there has long been a perception that heat pumps don't work when it's cold, which is no longer true. There are multiple brands of Variable Refrigerant Flow (VRF) systems that work at full capacity down to 5 degrees Fahrenheit, with a few notable brands that work down to -15 degrees F. The lowest recorded temperature at Deep Creek in western MD was -5 degrees in the last 20 years, and the closest available ASHRAE weather data for far western MD, for Morgantown, WV, has a design temperature of 7.4 degrees F, with a 5 year return extreme temperature of -3.6 degrees F. (http://ashrae-meteo.info/v2.0/index.php?lat=39.64&lng=-79.92&place=%27%27&wmo=724176&ashrae_version=2013) These temperatures are well within the engineering range of modern commercial heat pumps. Heat pumps are available in a

wide variety of configurations, are just as flexible for use as natural gas equipment, and are at a similar price point when the cost of natural gas service is included in the cost calculation.

Of course, there are also ground source (aka geothermal) systems, which are not outside temperature dependent at all, but we must acknowledge that these systems have a cost premium not present in other heat pump systems, with a long payback. Ground source is not required for any climate in Maryland.

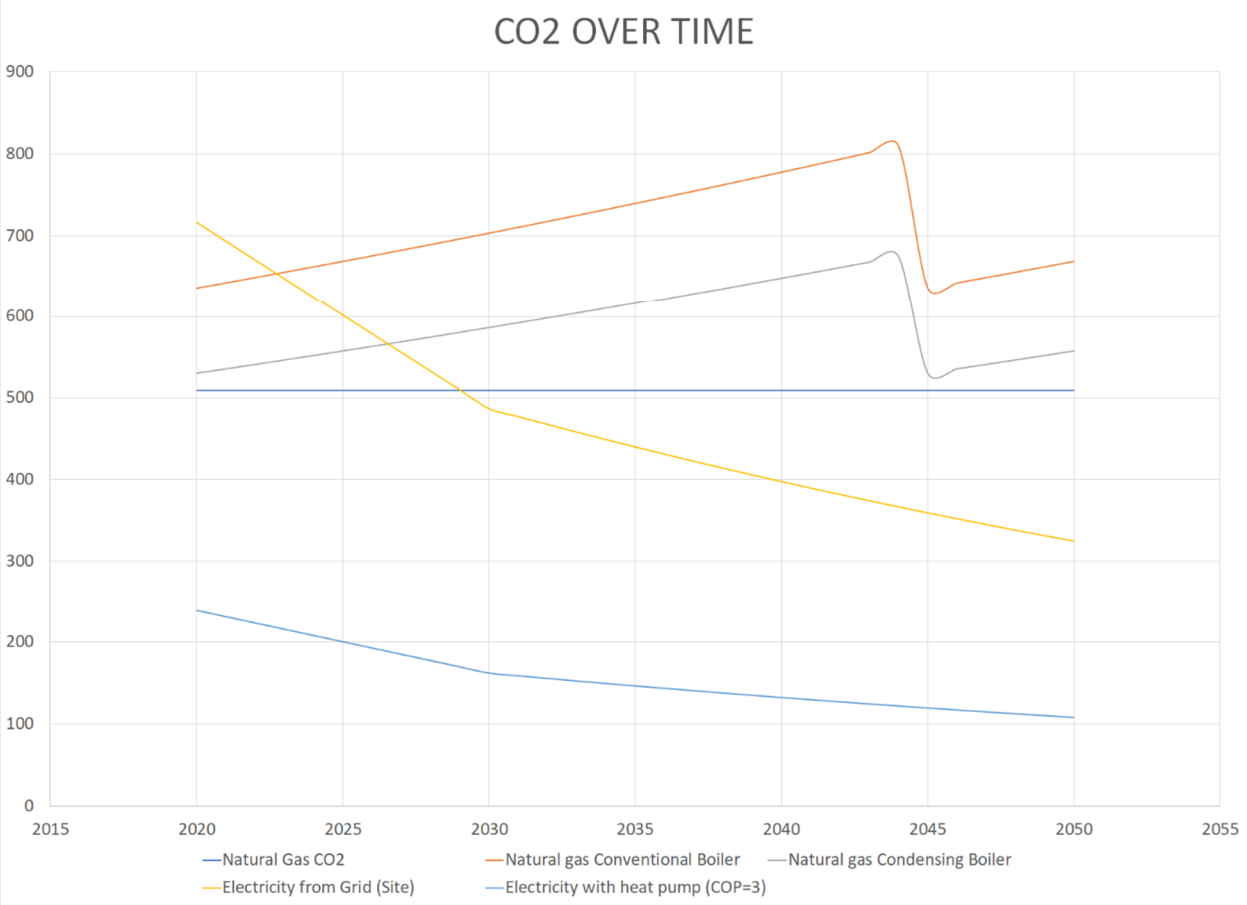
Myth: "grid electric emits more carbon than gas"

This gets thrown out all the time, and it is true that our current grid emissions are nearly the same as natural gas emissions on a per unit energy basis. There is a big caveat--this misses that natural gas equipment is only 80% efficient for a code minimum furnace or boiler. Comparing electric resistance (like a tea kettle) to natural gas, and including efficiency, they're essentially at par for carbon emissions, but as we hit our 2030 60% target and net zero carbon by 2045 in our electric grid (as proposed in the climate bill), the electric resistance carbon emissions continue to improve while the natural gas only decreases in efficiency over time, emitting more and more carbon until the end-of-life equipment replacement.

Heat pumps, with their 3x less energy use already emit ~3x less carbon than natural gas on aa per unit energy basis. The energy code mostly requires the use of heat pumps in modern commercial buildings and can be amended to limit electric resistance except in a few key circumstances, and to entirely prohibit the use of natural gas. This is an easy change for the energy code, and is my recommended pathway to direct building electrification. The technology already exists to use heat pumps for building heating and water heating, and other states like New York and Washington already have an all-electric energy code requiring heat pumps.

(continued) Myth: "grid electric emits more carbon than gas"

Here is a graph I made showing lbs. CO2/MWH and years, using EPA data specific to our grid, really demonstrating that heat pumps are superior and just get better over time. Note that this uses what's currently in legislation, not the revised 60% by 2030 and 0% by 2045 carbon emission targets, which will only accelerate the improvement:



Myth: "gas equipment will work in a power outage":

There is a persistent idea that gas equipment can work without electric power. There are some very select cases, mostly older equipment, where this is true. Think of direct venting fireplaces and wall heaters, and very old natural draft boilers. These are notable because these appliances direct vent the combustion products into the space, significantly increasing indoor air pollutants and risks for asthma and other issues, and when malfunctioning create tremendous carbon monoxide risk. They have pilot lights that continuously waste energy year-round. Modern gas appliances have glow plug ignitors and safety valves, which will not allow gas flow without proof of ignition. Modern boilers have forced air induction fans and controls, both of which require power to operate. Hot water boilers have electric pumps for system operations. House furnaces have fans and safety valves and controls, all of which require power. Even modern gas stoves have glow plugs and electronic ignition for the oven and cooktop.

Notably, home scale generators are sometimes powered using utility natural gas, and for this one case, they are both safe (when outdoors) and effective. However, the vast majority of homeowners do not have generators, and they can continue to maintain gas service to those generators. I understand there is nothing in the current bills preventing gas usage beyond building HVAC and domestic water heating. If or when gas service becomes too costly, those generators can be replaced with a battery backup in homes that choose to want backup power systems. There is no current requirement forcing any homeowner to buy backup power systems and only a small handful of commercial buildings are required to have backup power systems (hospitals, emergency operations, hazardous occupancies, non-ambulatory care, etc. As a firm, we have designed some of the first emergency operations buildings with battery backup instead of backup generator in the country. Again, the current legislation seems to only address building heating and cooling, and generators are perfectly acceptable.

Myth: "Maryland will be the first to require an all electric energy code":

Seattle beat the pack and was first to require all new building and major retrofit projects to electrify using heat pumps specifically for building heating and service water (domestic) water heating, in the 2018 code cycle. The 2021 Washington State Energy Code, adopted in 2023, will bring the rest of Washington State along. New York City has done the same beginning in 2023, six municipalities in California are already all electric, and Washington DC adopted Appendix Z to the International Energy Conservation Code, allowing a pathway for net zero buildings (which are combustion free) to have preferential code treatment.

All electric energy codes exist already with great examples of thoughtful ways to electrify buildings while allowing targeted exemptions for industrial and process uses. Maryland will be with the leaders in building electrification, but certainly not the first. Note that the 2024 code cycle would be the first available opportunity for an all-electric code adoption in Maryland, which won't apply until 2026, so there are several years for the industry to adjust. The equipment already exists, this is just a matter of political will.

Building Energy Performance Standards (BEPS):

Other jurisdictions, most notably Washington State, Denver, and Washington DC already have a Building Energy Performance Standard in place, addressing the worst performing existing buildings. As written in HB0806, there is a strong push to remove fossil fuels from buildings, but then no energy requirement. This will lead to increased grid demand and a higher cost for all ratepayers in the end. For state buildings, it will also lead to higher energy rates, with the state already spending in excess of $600,000 per day on energy.

Other Amendments:

Specific to House Bill 0806, I have provided input to the Climate Partners Group combined amendments. I strongly encourage you to add an energy efficiency component for both new buildings and the Building Energy Performance Standards addressing existing buildings. There are several good ways to do this modeled by other states, and we encourage additional discussion and amendment to adopt energy efficiency standards.

If there is an additional meeting or additional support you need in this discussion about building electrification, I'm happy to help.

FSi Engineers

Ben Roush, PE, FPE, LEED AP BD+C, ASHRAE BEMP and BEAP, Certified Commissioning Professional

Principal

New Schools in Maryland Must Be Net Zero

What is a "net-zero" school? A net-zero school is a school whose input of energy is equal to or less than its output.

Net-Zero schools have many benefits. Net-zero (NZE) and NZE-ready schools are much cheaper to operate and often are less expensive to build. After payroll, the biggest line item for school districts is operating costs of buildings–most of which is due to energy costs. Looking only at costs, net-zero schools are by far the superior option.Their initial construction costs are lower than or the same as traditional construction, and their operational costs are far less.

NZE schools offer features like "daylighting"--using daylight controls that "know" when to lower the brightness of artificial light– and improved ventilation and air quality, which are known to improve student learning and health. Maryland already encourages school districts to set targets to increase renewable energy, decrease greenhouse gas emissions, and to construct net-zero schools, but has only taken tentative steps toward making its schools net-zero.

There's never been a better time to invest in net-zero schools. Pursuant to the Built to Learn Act, Maryland is investing significantly in new school construction. In 2021, the Interagency Commission on School Construction approved $545 million of state funds for the construction of 23 new schools in Maryland. We should seize the opportunity to make these new schools net-zero.

We owe it to our children and grandchildren to transition our schools to net-zero. The United Nations' Intergovernmental Panel on Climate Change warns that we are still on the trajectory of catastrophic global warming of 2.7 celsius by the century's end. Even if we stopped emitting greenhouse gases today, the gases we have already emitted will linger in the atmosphere for decades and continue to cause global warming. If we are to limit global warming to 1.5 celsius -- the goal set in the Paris Climate Accord -- we need a 50% reduction in greenhouse gas emissions by 2030. ***The 2020s are the only decade we have left to make that target.***[1] And, to be clear, meeting the target of 1.5 celsius of warming is only the best *bad* decision we have--it still promises sea level rise, more powerful storms, devastating wildfires, and sharp species decline. If we don't sufficiently reduce emissions this decade, we will set off a domino effect of escalating disasters.

Schools are "beacon" projects. They educate our children and our communities about both the benefits of and the imperatives for changing to clean, renewable energy, reducing our energy use, and improving health for students and teachers.

Gas delivery rates are expected to increase. The Maryland Commission on Climate Change has projected that gas delivery rates are likely to increase by 2 to 5 times the current rate for consumers left on the gas system[2], making it all the more important that all Maryland schools transition from fossil fuels.

Construction Costs of Newly Constructed Net-Zero Schools In Baltimore and Howard County

Included below are construction costs for three schools and the energy use of Wilde Lake Middle School, which is actually net negative (meaning it produces more energy than it uses). Due to Covid, one-year performance data on Holabird Academy and Graceland is not yet available. Using Montgomery County Public Schools as a baseline (which likely on average has better energy performing schools than much of Maryland), Maryland schools have an average energy use intensity of **54 kBTU** per square foot per year. Wilde Lake has an energy use intensity of **13.7 kBTU** per square foot per year and produces twice as much energy as it consumes.

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[1] https://insideclimatenews.org/news/27082019/12-years-climate-change-explained-ipcc-science-solutions

[2] See MCCC Building Energy Transition Plan.

School construction costs from 2016 - 2021 have averaged between $335-$405 per square foot.

Data from Interagency Commission on School Construction.	Average Building Construction Cost Without Site Preparation (per square foot)	Average Building Construction Cost With Site Preparation (per square foot)
July 2021	$341	$405
July 2018	$302	$360
July 2016	$282	$335.58

Wilde Lake Middle School ($329 per sq ft, with site preparation & solar panels)
Columbia, Maryland

- New Net-Zero LEED Platinum
- Completion date: August 2017
- Total construction cost including site preparation and solar panels: $35,000,000 or $329/square foot
- Energy produced during performance period: 821,618 kWh (approximately 2X use)
- Energy use during performance period: 428,301 kWh
- Net Energy Use: -393,317 kWh (meaning this school's energy use is net-negative)
- Energy Use Intensity (EUI): 13.7 kBTU/sq ft/yr

Graceland Park / O'Donnell Heights Elementary/Middle ($358.16 per sq ft, with site preparation & solar panels)- Baltimore, Maryland

- Design Started: 2015/2016
- Construction Purchase Order: June 4, 2018
- Substantial Completion Phase 1 (Replacement Building): August 26, 2020
- Construction cost, including site and solar panels: $33,752,000.00 or $358.16/square foot

Holabird Academy ($364.30 per sq ft with site preparation & solar panels)
Baltimore, Maryland

- Design Started: 2015/2016
- Substantial Completion Phase 1 (Replacement Building): August 26, 2020
- Construction cost, including site and solar panels: $34,330,500.00 or $364.30/square foot

Montgomery County Public Schools Average Energy Use:
2017 average energy use intensity: 54 kBTU per sq ft per year (for comparison: MCPS conventional schools use 54kBTU/sq ft/year compared to Wild Lake's 13.7 kBTU)

For more information contact MLC Climate Justice Wing at mlcclimatejusticewing@gmail.com.

HB806_IndivisibleHoCoMD_FWA_BrianWessner.pdf
Uploaded by: Brian Wessner
Position: FWA

HB806 – Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

Testimony before

Appropriations Committee

March 1, 2022

Position: Favorable With Amendments

Madame Chair, Mr. Vice Chair and members of the committee, my name is Brian Wessner, and I represent the 750+ members of Indivisible Howard County. Indivisible Howard County is an active member of the Maryland Legislative Coalition (with 30,000+ members). We are providing written testimony today in ***support of HB806***, to establish Building Emission Standards for public state and local government buildings, require an all-electric construction code for all new public buildings, and set up requirements identifying the maximum acceptable global warming potential for various types of building materials, We appreciate the leadership of Delegate Stein in moving this bill.

Solving the climate issues facing Maryland is not a one-size-fits-all effort. With 13% of Maryland's greenhouse gases (GHC) coming directly from the building section, success requires setting aggressive goals for GHG reduction in order to meet or exceed Maryland's goals. With amendments outlined in this testimony, including the priority amendments being put forth by Maryland Climate Partners and the Climate Justice Wing (see attached), HB806 targets these elements of a lasting solution through:

- **Updating the definition of covered buildings** to include all state buildings and local government buildings where the state provides 50% of the construction costs. Schools are not covered. Proposed amendment, supporting attached amendments put forth by the Maryland Climate Partners and the Climate Justice Wing, include:
  - Ensure that all schools are considered covered buildings by requiring they meet or exceed LEED Silver certification (not just equivalency).

- **Requiring an all-electric construction code** for new residential and commercial covered buildings. Proposed amendments, supporting attached amendments put forth by the Maryland Climate Partners and the Climate Justice Wing, include:
  - Schools should be included, becoming models for the rest of society, with codes that are stronger, or at a minimum comparable, to other building standards. Built to Learn funding should be used in creating all-electric schools.

- New construction codes should apply to all buildings, regardless of the level of state funding, avoiding building fossil fuel dependent buildings that will require future, and more expensive and disruptive retrofits.

- **Requiring compliance with building emissions standards.** These standards require all buildings – both new and existing – over 25,000 sq. ft. must comply by January 1, 2025, reduce net GHG emissions by 50% by January 1, 2030, and achieve net zero GHG emissions by January 1, 2035. These targets apply to direct emissions only and are based on 2025 baselines. Proposed amendments, supporting attached amendments put forth by the Maryland Climate Partners and the Climate Justice Wing, include:

  - Include indirect, not just direct emissions, in the building emissions standards
  - Set the baseline for achieving reductions to 2023
  - Add a requirement to measure and report direct emissions and electricity use to MDE annually starting in 2025

- **Updating the definition of high-performance buildings** to include buildings that achieve at least a LEED Silver rating and achieves 5 points or less in the combined credit for transit and surrounding density and diverse uses. Proposed amendments, supporting attached amendments put forth by the Maryland Climate Partners and the Climate Justice Wing, include:

  - Redefine when high-performance building standards are required to apply to buildings constructed with at least 25% state and local government funds
  - Define high-performance as requiring LEED Silver certification (not just equivalency)

- **Incorporating the Buy Clean Maryland Act** which requires establishment of the Maximum Acceptable Global Warming Potential for certain building materials by January 1, 2024 and specifies how to calculate the global warming potential. Waivers can be authorized based on material costs, delays, or a single source for the material. Proposed amendment, supporting attached amendments put forth by the Maryland Climate Partners and the Climate Justice Wing, include:

  - Remove the ability to grant a waiver based on a single source of an eligible material. If the material is acceptable it should be used.

- **Requiring development of an Interagency Climate Action Plan,** by January 1, 2025. The plan must show how to achieve net zero direct and indirect emissions from all state operations.

These actions, when taken together, contribute to the overall effort to achieve Maryland's GHG reduction goals.

Thank you for your consideration of this important legislation.

We respectfully urge a favorable report with amendments.

Brian Wessner
Columbia, MD 21044

Amendments coordinated by the Maryland Climate Partners

Goal: Our value is that government buildings, including schools, should be models for the rest of society and lead the way towards more sustainable, carbon-friendly practices. While HB806 makes some steps in this direction, they are not enough. The provisions relating to public buildings should be strengthened to A) raise the standard and B) apply that standard to more buildings.

1. **Adjust the Definition of High-Performance Buildings and when they are required**

The "high performance buildings" define a more environmentally friendly building standard and the conditions where a public building is required to meet that standard. The standard should be strengthened and apply to more publicly funded buildings.

- Public buildings, as defined in HB0806, are those public buildings that are constructed with at least 50% of state or local government funds. We believe this will be confusing and will arbitrarily exempt some schools. We should always set an example with our schools, and we should not have schools be at a lower standard than other buildings
    - Redefine when the high-performance building standards are required to apply to buildings constructed with at least 25% of state or local government funds.
    - Define high-performance as requiring a of LEED Silver certification (not just equivalency)

2. **Add language from SB0528 that requires high-performance buildings to acquire energy from renewable resources (wind, solar, geothermal, ocean, small hydro)**
    - We believe that solving the problem of carbonization in buildings will require changes to the energy consumption that buildings get from the grid. If a building meets the standard of a high-performance building, it should not only be constructed and certified to a LEED Silver standard, but it should also ensure that it is not pulling dirty energy from the grid.
        - Include schools in the requirement to be LEED Silver
        - Include requirement for high-performance buildings to acquire energy from renewable sources

3. **Apply All-Electric Construction Code to All Buildings**

    HB0831 set an all-electric construction code, which is referenced in HB0806, however, schools were exempted from the all-electric requirement.

        - Schools should not be exempted from the all-electric construction requirement
            - Our public buildings, including our schools, should be models for the rest of society, and should be stronger, or at a minimum comparable, to other building standards.
            - It is our understanding that HB806 addresses construction standards for new public buildings, potentially based on levels for state funding. We support stronger goals for state buildings, but the new construction codes laid out in HB 806 should apply to all buildings, regardless of level of state funding.

- If we don't apply the all-electric standard to all buildings, every time we build a building that is not all-electric, it is one more building we will have to retrofit. Retrofitting is far more expensive than building the all-electric in the first place.

- With a state surplus and plans to spend significant money on schools through the Built to Learn funding, this is the ideal time to pay-it-forward. Building schools with fossil fuel infrastructure will require far more funds in the future to operate and eventually retrofit.

4. **Building Emission Performance Standards -** While the bill currently includes requirements for direct emissions (*defined as "onsite fuel combustion, e.g., gas used onsite for water and/or space heating, cooking, and refrigerant leaks"*), the bill should be amended to include performance measures for improved energy efficiency (e.g., site electricity use), such as: maintaining and retro-commissioning building energy systems; implementing HVAC scheduling and other smart control systems; and making building shell and other energy efficiency improvements, as recommended by the MD Commission on Climate Change's Building Energy Transition Plan (see p. 23). Improved building energy efficiency will reduce overall electricity demand (helping grid transition) and can result in smaller sized heating and cooling systems.
    - Include all emissions (not just direct emissions) in the Building Emissions Performance Standards
    - Set the baseline for achieving reductions from 2025 to 2023 levels
    - Add a requirement to 'Measure and report direct building emissions and site electricity use to the Department (MDE) annually beginning in 2025'
    - Set a baseline and Building Emission Standard by building type to make it easier to manage from a building owner standpoint

5. **Reduce the reasons to waive the requirement to acquire eligible materials**
    - Having only one source to acquire an eligible material should not be a reason to get a waiver

Additions to Ensure that HB806 is Equivalent to SB528

- Add a pilot for a net zero schools program that will utilize a Net Zero Pilot grant fund
- Add a requirement for the MCEC Climate Catalytic Capital Fund (C3).
- For Building Emission standards, include a requirement for the same reduction for 'site energy use intensity' as requested (but not already in) SB528

HB0806_Public_Buildings_ClimatePartners_FWA.pdf
Uploaded by: Cecilia Plante
Position: FWA

marylandclimatepartners

Testimony for HB0806

Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

Bill Sponsor: Delegate Stein
Committee: Appropriations
Position: FAVORABLE WITH AMENDMENTS

The undersigned organizations express their strong support for **HB0806 Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects,** and thank the sponsor, Delegate Stein, for introducing such an important and necessary piece of legislation. We support this bill and offer several amendments that strengthen the legislation (listed below).

This bill takes aim at the greenhouse gas emissions from government buildings (both state and local), and redefines what we should consider a high-performance building. In our efforts to turn our economy away from one that is built on dirty fossil fuels into a clean energy economy, decarbonizing buildings is a very important strategy, and large public buildings are a great place to start. We know that this is not an easy problem to solve. It will take a great deal of effort and resolve and will involve making real changes to the requirements for building new buildings and the process of electrifying existing buildings.

We support the all-electric building code specified in the bill. Starting in 2023, it would require new public buildings (state buildings and local government buildings that were constructed with more than 50% of state funds) to have water and space heating provided without the use of fossil fuels. We understand that in order to solve the problem of building carbonization, you have to contain the problem first, and requiring new buildings to be all-electric is the perfect way to do this.

We also agree with the need to develop Building Emissions Standards to understand and measure the emissions that each building is producing. Not only do we need standards developed, but there should be requirements for the state to report the emissions, as well as requirements to decrease the emissions in a decisive manner. This legislation creates a pathway for compliance with the new Standards, and a step-down in emissions. Compliance with the Building Emissions Standards is required for all government buildings greater than 25,000 sq. ft. by 2025. Additionally, buildings covered by this legislation should achieve reductions in direct emissions (those produced in heating and cooling the building) of 50% by 2030 and net zero by 2035. Finally, reporting by the Maryland Department of General Services would start in 2023.

Finally, we support the inclusion of requirements to set the maximum acceptable global warming potential for materials used in building construction, and then require state procurements to only specify materials that meet or are *lower than* the maximum acceptable global warming potential.

We also agree with the importance of creating an Interagency Climate Action Plan. As specified in the bill, this plan will be developed by January 1, 2025 and will describe how to achieve net zero direct emissions (from gas infrastructure used for heating and cooling) and indirect emissions (energy, which includes fossil fuel energy, from the grid) for all state operations.

Because we have spent decades building fossil fuel infrastructure into every building that we have developed, it will take a great deal of effort to undo all of that. In this great undertaking, we need leadership and guidance, and we believe that this bill provides a very positive roadmap.

As stated previously, we have attached amendments that we believe will strengthen the bill and we look forward to working with the sponsor and leaders throughout the legislature on these proposed amendments.

Thank you for your consideration of HB0806 Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects. We support this bill and we urge a **FAVORABLE** vote from the Committee with the inclusion of these amendments.

Endorsing Organizations

350 Baltimore
350 Montgomery County
Adat Shalom Climate Action
AIA Maryland
Assateague Coastal Trust
Audubon Naturalist Society
Casa de Maryland
Cedar Lane Unitarian Universalist Church
CHEER
Chesapeake Bay Foundation
Chesapeake Climate Action Network Action Fund
Chesapeake Physicians for Social Responsibility
Chispa MD
Clean Air Prince Georges
Clean Air Prince Georges
Clean Water Action
Climate Law & Policy Project
Climate Parents of Prince Georges
Climate Reality Montgomery County
Climate Solutions
Climate Stewards of Greater Annapolis
Climate XChange - Maryland
Coalition For Smarter Growth
Columbia Association Climate Change
Concerned Citizens Against Industrial CAFOs
Do The Most Good Montgomery County
Echotopia
Elders Climate Action
Environmental Justice Ministry
Frack Free Frostburg
Glen Echo Heights Mobilization
Greenbelt Climate Action Network
HoCo Climate Action
Howard County Indivisible
Howard County Sierra Club
Interfaith Power and Light, DC, MD, NoVa
Labor Network for Sustainability
Laurel Resist
Locust Point Community Garden
Maryland Environmental Health Network
Maryland League of Conservation Voters
Maryland Legislative Coalition
Maryland NAACP State Conference, Environmental Justice Committee
Maryland Poor People's Campaign
MCPS Clean Energy Campaign
MD Campaign for Environmental Human Rights
Mid-Atlantic Ministry of Maryland
MoCo DCC
Montgomery Countryside Alliance
Montgomery County Faith Alliance
Mountain Maryland Movement
National Parks Conservation Association
Nuclear Information & Resource Service
Potomac Conservancy Sustainability Advisory Committee
Sierra Club, Maryland Chapter
Strong Future Maryland
Sunrise Baltimore
Takoma Park Mobilization Environment Committee
Talbot Rising
The Climate Mobilization Montgomery County
The Nature Conservancy
Unitarian Universalist Legislative Ministry
Wicomico NAACP
WISE

HB0806 Amendments coordinated by the Maryland Climate Partners

Goal: Our value is that government buildings, including schools, should be models for the rest of society and lead the way towards more sustainable, carbon-friendly practices. While HB806 makes some steps in this direction, they are not enough. The provisions relating to public buildings should be strengthened to A) raise the standard and B) apply that standard to more buildings.

1. **Adjust the Definition of High-Performance Buildings and when they are required**

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    - Redefine when the high-performance building standards are required to apply to buildings constructed with at least 25% of state or local government funds.
    - Define high-performance as requiring a of LEED Silver certification (not just equivalency)

2. **Add language from SB0528 that requires high-performance buildings to acquire energy from renewable resources (wind, solar, geothermal, ocean, small hydro)**

- We believe that solving the problem of carbonization in buildings will require changes to the energy consumption that buildings get from the grid. If a building meets the standard of a high-performance building, it should not only be constructed and certified to a LEED Silver standard, but it should also ensure that it is not pulling dirty energy from the grid.
    - Include schools in the requirement to be LEED Silver
    - Include requirement for high-performance buildings to acquire energy from renewable sources

1. **Apply All-Electric Construction Code to All Buildings**

HB0831 set an all-electric construction code, which is referenced in HB0806, however, schools were exempted from the all-electric requirement.

- Schools should not be exempted from the all-electric construction requirement

    1. Our public buildings, including our schools, should be models for the rest of society, and should be stronger, or at a minimum comparable, to other building standards.
    2. It is our understanding that HB806 addresses construction standards for new public buildings, potentially based on levels for state funding. We support stronger goals for state buildings, but the new construction codes laid out in HB 806 should apply to all buildings, regardless of level of state funding.
    3. If we don't apply the all-electric standard to all buildings, every time we build a building that is not all-electric, it is one more building we will have to

retrofit. Retrofitting is far more expensive than building the all-electric in the first place.

4. With a state surplus and plans to spend significant money on schools through the Built to Learn funding, this is the ideal time to pay-it-forward. Building schools with fossil fuel infrastructure will require far more funds in the future to operate and eventually retrofit.

2. Building Emission Performance Standards

While the bill currently includes requirements for direct emissions (*defined as "onsite fuel combustion, e.g., gas used onsite for water and/or space heating, cooking, and refrigerant leaks"*), the bill should be amended to include performance measures for improved energy efficiency (e.g., site electricity use), such as: maintaining and retro-commissioning building energy systems; implementing HVAC scheduling and other smart control systems; and making building shell and other energy efficiency improvements, as recommended by the MD Commission on Climate Change's Building Energy Transition Plan (see p. 23). Improved building energy efficiency will reduce overall electricity demand (helping grid transition) and can result in smaller sized heating and cooling systems.

- Include all emissions (not just direct emissions) in the Building Emissions Performance Standards
- Set the baseline for achieving reductions from 2025 to 2023 levels
- Add a requirement to 'Measure and report direct building emissions and site electricity use to the Department (MDE) annually beginning in 2025'
- Set a baseline and Building Emission Standard by building type to make it easier to manage from a building owner standpoint

1. Reduce the reasons to waive the requirement to acquire eligible materials

- Having only one source to acquire an eligible material should not be a reason to get a waiver

2. Additions to Ensure that HB806 is Equivalent to SB528

- Add a pilot for a net zero schools' program that will utilize a Net Zero Pilot grant fund
- Add a requirement for the MCEC Climate Catalytic Capital Fund (C3).
- For Building Emission standards, include a requirement for the same reduction for 'site energy use intensity' as requested in SB528

HB806 - Building Standards and Emissions Reduction

Uploaded by: Dakota Matthews

Position: FWA

Rural Maryland Council
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Office: 410-841-5772 • Fax: 410-841-5987 • TTY: 800-735-2258
Email: rmc.mda@maryland.gov
Website: www.rural.maryland.gov
John Hartline, Chair
Charlotte Davis, Executive Director

Testimony in Support with Amendments of
House Bill 806 - Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects
House Appropriations Committee
March 01, 2022

The Rural Maryland Council supports with amendments House Bill 806 - Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects. This bill will qualify schools and public safety buildings with certain environmental certifications to be considered a high-performance building. The bill also lists eligible materials for capital projects which includes wood eligible materials. The RMC would like to amend this language to make the wood eligible materials locally sourced.

Using local materials and owned businesses have great financial impacts on local economies. A study from Civic Economics, looked at Arizona and found that at a locally owned office supply company, 33.4 percent of revenue remained in the local economy, compared with just 11.6 percent of a national company with a presence in the state. The study also looked at the potential impact of the City of Phoenix contracting with this local firm and found that given a one-year, $5 million contract for office supplies, an additional $1 million would stay in the area's economy, while only $580,000 of the $5 million would remain local with the national company.

Requiring the wood materials used for the capital projects defined in this bill to be locally sourced will be environmentally and economically beneficial to Maryland. Using local wood sources will promote Maryland's forestry industry and the jobs that are associated with them. It will also ensure that the wood being used has been harvested locally, reducing the carbon footprint from shipping across states or from overseas. The RMC respectfully requests an amendment to House Bill 806 to add locally sourced wood.

The Rural Maryland Council respectfully requests your favorable support with amendments of HB-806

The Rural Maryland Council (RMC) is an independent state agency governed by a nonpartisan, 40-member board that consists of inclusive representation from the federal, state, regional, county and municipal governments, as well as the for-profit and nonprofit sectors. We bring together federal, state, county and municipal government officials as well as representatives of the for-profit and nonprofit sectors to identify challenges unique to rural communities and to craft public policy, programmatic or regulatory solutions.

House Bill 806 - Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

Amendment one

On page 5 line 2, strike “and”; on line 6, strike the period after “PROJECT” and replace with a semicolon; and on line 7, insert 4 and add the department, where applicable, establish environmentally friendly procurement process that establishes a local purchasing preference.

HB0806 - Proposed Amendments.docx.pdf
Uploaded by: Diana Younts
Position: FWA

HB0806 Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

Amendments coordinated by the Maryland Climate Partners

Goal: Our value is that government buildings, including schools, should be models for the rest of society and lead the way towards more sustainable, carbon-friendly practices. While HB806 makes some steps in this direction, they are not enough. The provisions relating to public buildings should be strengthened to A) raise the standard and B) apply that standard to more buildings.

1. **Adjust the Definition of High-Performance Buildings and when they are required**

The "high performance buildings" define a more environmentally friendly building standard and the conditions where a public building is required to meet that standard. The standard should be strengthened and apply to more publicly funded buildings.

- Public buildings, as defined in HB0806, are those public buildings that are constructed with at least 50% of state or local government funds. We believe this will be confusing and will arbitrarily exempt some schools. We should always set an example with our schools, and we should not have schools be at a lower standard than other buildings
    - Redefine when the high-performance building standards are required to apply to buildings constructed with at least 25% of state or local government funds.
    - Define high-performance as requiring a of LEED Silver certification (not just equivalency)

2. **Add language from SB0528 that requires high-performance buildings to acquire energy from renewable resources (wind, solar, geothermal, ocean, small hydro)**
    - We believe that solving the problem of carbonization in buildings will require changes to the energy consumption that buildings get from the grid. If a building meets the standard of a high-performance building, it should not only be constructed and certified to a LEED Silver standard, but it should also ensure that it is not pulling dirty energy from the grid.
        - Include schools in the requirement to be LEED Silver
        - Include requirement for high-performance buildings to acquire energy from renewable sources

3. **Apply All-Electric Construction Code to All Buildings**

    HB0831 set an all-electric construction code, which is referenced in HB0806, however, schools were exempted from the all-electric requirement.

        - Schools should not be exempted from the all-electric construction requirement
            - Our public buildings, including our schools, should be models for the rest of society, and should be stronger, or at a minimum comparable, to other building standards.

- It is our understanding that HB806 addresses construction standards for new public buildings, potentially based on levels for state funding. We support stronger goals for state buildings, but the new construction codes laid out in HB 806 should apply to all buildings, regardless of level of state funding.

- If we don't apply the all-electric standard to all buildings, every time we build a building that is not all-electric, it is one more building we will have to retrofit. Retrofitting is far more expensive than building the all-electric in the first place.

- With a state surplus and plans to spend significant money on schools through the Built to Learn funding, this is the ideal time to pay-it-forward. Building schools with fossil fuel infrastructure will require far more funds in the future to operate and eventually retrofit.

4. **Building Emission Performance Standards -** While the bill currently includes requirements for direct emissions (*defined as "onsite fuel combustion, e.g., gas used onsite for water and/or space heating, cooking, and refrigerant leaks"*), the bill should be amended to include performance measures for improved energy efficiency (e.g., site electricity use), such as: maintaining and retro-commissioning building energy systems; implementing HVAC scheduling and other smart control systems; and making building shell and other energy efficiency improvements, as recommended by the MD Commission on Climate Change's Building Energy Transition Plan (see p. 23). Improved building energy efficiency will reduce overall electricity demand (helping grid transition) and can result in smaller sized heating and cooling systems.
    - Include all emissions (not just direct emissions) in the Building Emissions Performance Standards
    - Set the baseline for achieving reductions from 2025 to 2023 levels
    - Add a requirement to 'Measure and report direct building emissions and site electricity use to the Department (MDE) annually beginning in 2025'
    - Set a baseline and Building Emission Standard by building type to make it easier to manage from a building owner standpoint

5. **Reduce the reasons to waive the requirement to acquire eligible materials**
    - Having only one source to acquire an eligible material should not be a reason to get a waiver

Additions to Ensure that HB806 is Equivalent to SB528

- Add a pilot for a net zero schools program that will utilize a Net Zero Pilot grant fund
- Add a requirement for the MCEC Climate Catalytic Capital Fund (C3).
- For Building Emission standards, include a requirement for the same reduction for 'site energy use intensity' as requested in SB528

HB806-FWA-CJW-App-Building Emissions.pdf
Uploaded by: Diana Younts
Position: FWA

Committee: Appropriations
Testimony on: HB806 - Building Standards & Reductions -High Performance, State & Local Government Buildings, State Operations, Eligible Projects
Organization: MLC Climate Justice Wing
Submitting: Diana Younts, co-chair
Position: Favorable with Amendments
Hearing Date: March 1, 2022

Dear M. Chair and Committee Members,

Thank you for allowing our testimony today in support of HB806. MLC's Climate Justice Wing is a statewide coalition of over 50 grassroots and grasstops organizations. We support this legislation, with some important tweaks and amendment proposals.

The Maryland Commission on Climate Change (MCCC), in its 2021 report, recommends that the building sector reduce their greenhouse gas emissions 100%. Buildings are 40% of Maryland's greenhouse gas emissions, of which 13% are direct emissions, primarily from gas to fuel space and water heating systems. Buildings also consume 90% of the electricity generated.

The MCCC also recommended a pathway to achieve those emission reductions. HB806, as currently written, follows a more modest path forward than recommended by the MCCC[1]:

- **Building Emission Standards**: For **existing** state and local government buildings greater than 25,000 square feet with at least 50% funding from the State (excluding schools), HB806 sets **Building Emission Standards** that require that they reduce their direct emissions (*i.e.*, the emissions from gas boilers) 100% by 2035, with an interim target of 20% reduction by 2030. It also requires buildings to begin reporting their energy use in 2025 (i.e., benchmarking); and

- **All Electric New Construction Code**: For **new** state and local government buildings with at least 50% funding from the state (excluding schools), HB806 requires that they be constructed to an all electric code for water and space heating and to implement the International Green Construction Code.

- **Interagency Climate Plan**: HB806 requires that an **Interagency Climate Plan** be developed to address direct and indirect emissions by 2025. "Indirect" emissions are the emissions produced by Buildings' outsize draw on the grid, which is not clean. Buildings, for instance, could reduce their indirect emissions by establishing energy efficiency targets that would modify buildings' energy use.

What are Greenhouse Gases and What does "Direct" Greenhouse Gas Emissions Mean? Greenhouse gases are the gases that create global warming. They include carbon dioxide and methane. Methane is 86 times more potent than carbon dioxide. Methane is the primary component of natural gas. *Direct* greenhouse gas emissions

[1] A companion bill, HB831 being heard in the Environment & Transportation Committee addresses emissions from commercial and residential buildings.

are those emissions produced by a buildings' gas-fired boilers (and boilers fired by other fossil fuels) and to a lesser extent, gases produced by stoves.

What are Building Emission Standards? Building Emission Standards are a critical tool that provides a flexible pathway for building owners to eliminate greenhouse gas pollution from existing buildings by setting **greenhouse gas reduction targets.** The Performance Standards should also set a pathway for energy use reduction (as suggested in the following amendments.

The MCCC also projected that as more of the building sector electrifies, natural gas rates will increase 2-5 times current rates by 2045, making it all the more important to transition off of gas soon. If we do not transition, state and local governments **AND SCHOOLS** will be faced with drastically increased operating costs as fixed utility costs will be spread to fewer and fewer ratepayers. Compounding this situation, is that the 3 Maryland Gas utilities have projected that rate surcharges will rise from $150 million annually to $450 million annually to cover the cost of a separate program (the STRIDE Program). See Attached information sheet prepared by the Office of People's Counsel.

Necessary Amendments:

Schools: At a minimum, HB806 should conform to SB528 (The Climate Solutions Now Act) that includes schools in the all electric construction and IgCC building codes and creates a funded Pilot Project for Net-Zero schools. Because it has been demonstrated that Net-Zero and Net-Zero ready schools are comparable in cost to build as conventional schools, this Committee should strengthen the school provisions and require that all new schools be net-zero or net-zero ready. SB528 (proposed by Senate Chair Pinsky), HB1290 (proposed by Chair MacIntosh), HB365 (proposed by Delegate Korman, and HB1165 (proposed by Delegate Forbes) all have stronger provisions for schools than does HB806, which in fact weakens the existing building standards for schools from current building requirements. See also, Maryland Matters: Net-Zero Schools

Energy Efficiency: It is equally critical to increase the energy efficiency of our buildings by setting energy use intensity targets. One key reason buildings constitute 40% of Maryland's greenhouse gas emissions is because of their outsize draw on the grid, which is not yet clean. As we transition to a fossil free economy, we need to reduce the buildings sector's draw on the grid in order to maintain the integrity of the grid. We therefore ask that HB806 require an energy use intensity reduction pathway.

Benchmarking: The beginning date for benchmarking buildings should begin in 2023. Not only is it an easy requirement to implement, but the data from benchmarking is foundational to the success of building emissions standards.

All-Electric New Construction: Should be a requirement for all buildings, to conform with SB528, Climate Solutions Now.

Climate Catalytic Capital Fund (C3 Fund): SB528 gives additional funding to the MCEC (Maryland's Green Bank) to create a special fund to achieve the objectives of the Senate and House Climate bills, including creating a green bonds program. Green Banks leverage public monies with private funds. For every $1 of public investment, the C3 fund would generate $4 to $10 of private capital and could give public buildings greater access to capital.

Authority to Enact Local More Stringent Standards: The bill should be clarified that it does not affect the authority of a county, municipality, or other local government to enact building emissions or energy standards that are at least as stringent as the standards established in the bill.

For these reasons, we urge you to adopt our proposed amendments and vote favorably for HB806.

MLC Climate Justice Wing:

Assateague Coastal Trust
Maryland Legislative Coalition
MD Campaign for Environmental Human Rights
Chesapeake Climate Action Network
WISE
Frack Free Frostburg
Mountain Maryland Movement

Howard County Indivisible
Howard County Sierra Club
Columbia Association Climate change and sustainability advisory committee
HoCo Climate Action
CHEER
Climate XChange - Maryland
Mid-Atlantic Field Representative/
National Parks Conservation Association
350 Montgomery County
Glen Echo Heights Mobilization
The Climate Mobilization Montgomery County
Montgomery County Faith Alliance for Climate Solutions
Montgomery Countryside Alliance
Takoma Park Mobilization Environment Committee
Audubon Naturalist Society
Cedar Lane Unitarian Universalist Church Environmental Justice Ministry
Coalition For Smarter Growth
DoTheMostGood Montgomery County
MCPS Clean Energy Campaign
MoCo DCC
Potomac Conservancy

Casa de Maryland
Nuclear Information & Resource Service
Clean Air Prince Georges
Laurel Resist
Greenbelt Climate Action Network
Maryland League of Conservation Voters
Unitarian Universalist Legislative Ministry of Maryland
Concerned Citizens Against Industrial Cafos
Wicomico NAACP
Chesapeake Physicians for Social Responsibility
Chispa MD
Climate Law & Policy Project
Maryland Poor Peoples Campaign
Labor for Sustainability
The Nature Conservancy
Clean Air Prince Georges
350 Baltimore
Maryland Environmental Health Network
Climate Stewards of Greater Annapolis
Talbot Rising
Adat Shalom Climate Action
Chesapeake Earth Holders
Climate Parents of Prince Georges
Echotopia
Maryland NAACP State Conference, Environmental Justice Committee

NZE Schools Factsheet 1.29.22.2 (1).pdf
Uploaded by: Diana Younts
Position: FWA

marylandclimatepartners

New Schools in Maryland Must Be Net-Zero

What is a "net-zero" school? A net-zero school is a school that generates as much as — and sometimes more than — the energy it uses.

Net-zero schools have cost benefits. Net-zero energy (NZE) schools and net-zero ready (NZR) schools (which are ready to receive but not yet equipped with solar panels) are much cheaper to operate and often are less expensive to build. In many school districts, energy costs are second only to salaries. Batesville, Arkansas used its energy cost savings from the installation of solar panels to raise teachers' salaries. Looking only at costs, net-zero schools are by far the superior option.

Construction Costs of Net-Zero Energy Schools in Baltimore and Howard County

Included below are construction costs for three new NZE schools and the energy use of Wilde Lake Middle School, which is actually net negative — it produces more energy than it uses. Due to COVID-19, one-year performance data for Holabird Academy and Graceland Park/O'Donnell is not yet available. Wilde Lake has an energy use intensity (EUI) of **13.7 kBTU** per square foot per year and produces twice as much energy as it consumes. For comparison, Montgomery County Public Schools have an average EUI of **54 kBTU** per sf/yr.

According to the Interagency Commission on School Construction, Maryland average school construction costs with site preparation from 2015 to 2021 have ranged from $261 to $405 per square foot.[5]

Bid Year	Without Site Preparation (per square foot)	With Site Preparation (per square foot)
2021	$341	$405
2020	$329	$392
2019	$318	$378
2018	$302	$360
2017	$293	$349
2016	$282	$336
2015	$233	$261

Wilde Lake Middle School, Columbia ($320 per square foot with site preparation & solar panels)

- Net-Zero LEED Platinum
- Completion date: August 2017
- Bid year: 2015
- Construction cost, including site preparation and solar panels: $34,000,000
- Energy produced during performance period: 821,618 kWh
- Energy use during performance period: 428,301 kWh

- Net Energy Use: -393,317 kWh (net-negative)
- Energy Use Intensity: 13.7 kBTU/sf/yr

Graceland Park / O'Donnell Heights Elementary/Middle School, Baltimore ($358 per square foot, with site preparation & solar panels)

- Net-Zero LEED Platinum
- Completion date: September 2020
- Bid year: 2018
- Construction cost, including site and solar panels: $33,752,000
- Energy performance not yet determined due to COVID-19

Holabird Academy, Baltimore ($364 per square foot with site preparation & solar panels)

- Net-Zero LEED Platinum
- Completion date: September 2020
- Bid year: 2018
- Construction cost, including site and solar panels: $34,330,500
- Energy performance not yet determined due to COVID-19

The MCCC Has Projected A Dramatic Increase in Gas Delivery Rates. The Maryland Commission on Climate Change has projected that gas delivery rates are likely to increase by 2 to 5 times the current rate for consumers left on the gas system,[4] making it all the more important that all Maryland schools transition from fossil fuels and reduce overall energy use. (And these projections did not account for the War in the Ukraine.) See also a chart prepared by the Office of Peoples' counsel for increased gas costs associated with a separate program, the STRIDE program.

There's never been a better time to invest in net-zero schools. Pursuant to the Built to Learn Act, Maryland is investing significantly in new school construction. In 2021, the Interagency Commission on School Construction approved $545 million of state funds for the construction of 23 new schools (unfortunately, none NZE) and there are additional funds in the pipeline. We should seize this opportunity to make these new schools net-zero.

We owe it to our children and grandchildren to transition our schools to net-zero. The United Nations' Intergovernmental Panel on Climate Change warns that we are on a catastrophic global warming trajectory of 2.7 degrees Celsius by the century's end. Even if we stopped emitting greenhouse gases today, the gases we have already emitted will linger in the atmosphere for decades and continue to cause global warming. If we are to limit global warming to 1.5 C — the goal set in the Paris Climate Accord — we need a 50% reduction in greenhouse gas emissions by 2030. ***The 2020s are the only decade we have left to stay within the critical 1.5 C limit.***[3] And, to be clear, meeting this target is only the best *bad* decision we have — it still promises sea level rise, more powerful storms, devastating wildfires, and sharp species decline. If we don't sufficiently reduce emissions this decade, we will set off a domino effect of escalating disasters.

Schools are "beacon" projects. They educate our children and our communities about both the benefits and imperatives of changing to clean renewable energy, reducing our energy use, and improving health for students and teachers.

References:

[1] https://www.nrel.gov/docs/fy02osti/31607.pdf

[2] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7795157/

[3] https://insideclimatenews.org/news/27082019/12-years-climate-change-explained-ipcc-science-solutions

[4] See MCCC Building Energy Transition Plan

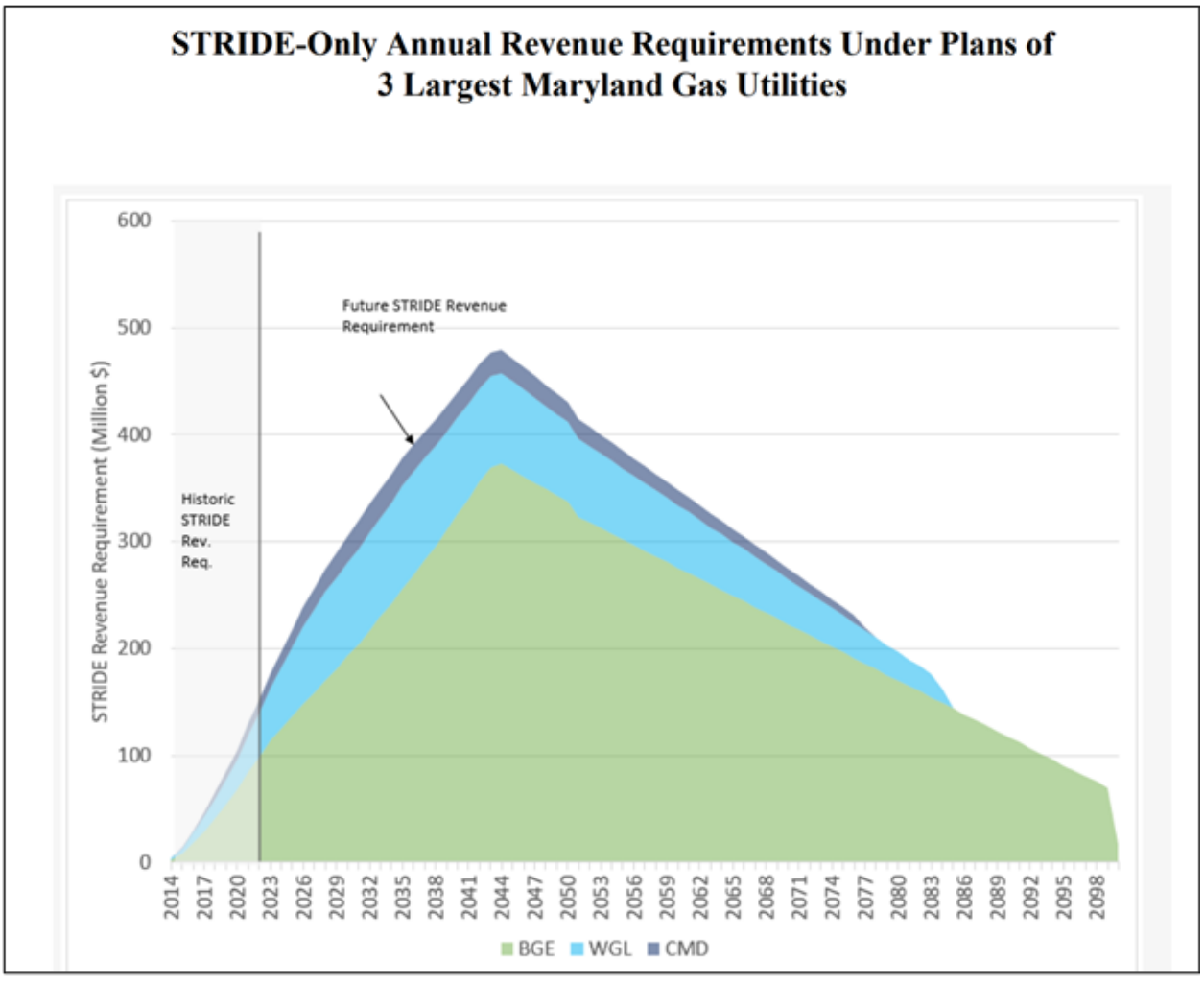
[5] https://iac.mdschoolconstruction.org/?page_id=463

Why getting buildings off gas now is good for cons

Uploaded by: Diana Younts

Position: FWA

Why getting buildings off gas now is good for consumers [Prepared by Office of Peoples Counsel]
Enacted in 2013, the Strategic Infrastructure Development and Enhancement Plan (STRIDE) law permits Maryland's gas distribution utilities to submit five-year infrastructure replacement plans to the Maryland Public Service Commission for expedited cost recovery. **It allows gas utilities to add a monthly surcharge on customer bills to recover the estimated costs of replacement projects** with or before the execution of the projects - an easier and faster method for gas utilities to recover these infrastructure costs from ratepayers.
Annual STRIDE-only gas infrastructure costs have risen each year since 2014. **In 2022, the cost is $150 million, with future ANNUAL costs rising to a peak of over $450 million in 2044.** These costs will be born by ratepayers as a surcharge on their bills. This is in addition to any other base rate increases permitted by the Public Service Commission. Bottom line, why should ratepayers foot the bill for leaking gas infrastructure when a better plan for the climate and people is to transition off of gas before 2044.



CLPP testimony HB806 022822.pdf
Uploaded by: Donald M. Goldberg
Position: FWA

Climate Law & Policy Project

Committee: Finance
Testimony on: HB0806 Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects
Submitted by: Donald M. Goldberg, Executive Director
Position: Favorable with Amendments
Hearing Date: February 28, 2022

Climate Law & Policy Project strongly supports all the provisions of House Bill 806 except its exclusion of public schools as covered buildings under State Finance and Procurement Article, § 3-602.3. We also urge the this Committee and the House to include a requirement that new schools, at a minimum, be net-zero ready with a waiver for infeasibility or high cost. We have attached a proposed amendment of Education Article, § 5-312 to create this requirement.

Public schools are leaders in the field of net-zero energy buildings. Many schools around the country now operate efficiently, entirely without the use of fossil fuels for space and water heating. Three net-zero energy schools have been built in Maryland at little or no additional cost, including solar arrays, and have proven to be extremely popular with students, parents, teachers, and school officials.

Net-zero and net-zero-ready schools offer tremendous advantages to school districts and students. They are cheaper to operate, often are less expensive to build, and features like daylighting are shown to improve student learning.

Here we provide construction costs for Maryland's three new NZE schools and the energy performance of Wilde Lake Middle School. It is actually net negative — it produces more energy than it uses. (Due to COVID-19, one-year performance data for Holabird Academy and Graceland Park/O'Donnell is not yet available.) Wilde Lake has an energy use intensity (EUI) of 13.7 kBTU per square foot per year. For comparison, Montgomery County Public Schools have an average EUI of 54 kBTU per sf/yr.

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2016	$282	$336
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[1] https://iac.mdschoolconstruction.org/?page_id=4633

Climate Law & Policy Project

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- Net-Zero LEED Platinum
- Completion date: August 2017
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- Gross square feet: 106,221
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- Net Energy Use: -393,317 kWh (net-negative)
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- Completion date: September 2020
- Bid year: 2018
- Construction cost, including site and solar panels: $33,752,000
- Gross square feet: 94,070
- Energy performance not yet determined due to COVID-19

Holabird Academy, Baltimore ($364 per square foot with site preparation & solar panels)

- Net-Zero LEED Platinum
- Completion date: September 2020
- Bid year: 2018
- Construction cost, including site and solar panels: $34,330,500 Gross square feet:
- Gross square feet: 94,070
- Energy performance not yet determined due to COVID-19

Proposed Amendment

Article — Education, § 5-312.

(a) In this section, "high performance building" has the meaning stated in § 3–602.1 of the State Finance and Procurement Article.

[(b)**]** **IN THIS SECTION, "NET–ZERO READY" MEANS NET–ZERO ENERGY WITHOUT INSTALLED SOLAR PANELS BUT READY FOR INSTALLATION.**

(b) This section applies to the construction of new schools that have not initiated a Request For Proposal for the selection of an architectural and engineering consultant on or before July 1, 2009.

Climate Law & Policy Project

(c) **(1)** **[**Except**]** **SUBJECT TO PARAGRAPH (2) OF THIS SUBSECTION, AND EXCEPT** as provided in subsection (d) of this section, a new school that receives State public school construction funds shall be constructed to be a high performance building.

(2) (I) EXCEPT AS PROVIDED IN SUBPARAGRAPH (II) OF THIS PARAGRAPH, THE NET–ZERO ENERGY REQUIREMENTS THAT APPLY FOR A BUILDING TO MEET THE DEFINITION OF A "HIGH PERFORMANCE BUILDING" UNDER § 3–602.1 OF THE STATE FINANCE AND PROCUREMENT ARTICLE DO NOT APPLY TO PUBLIC SCHOOL BUILDINGS.

(II) SUBJECT TO THE AVAILABILITY OF FUNDING FROM THE NET–ZERO SCHOOL GRANT FUND ESTABLISHED UNDER § 9–2010 OF THE STATE GOVERNMENT ARTICLE, AT LEAST ONE OF THE SCHOOLS CONSTRUCTED IN EACH LOCAL SCHOOL SYSTEM FROM JULY 1, 2023, THROUGH JUNE 30, 2033, INCLUSIVE, SHALL BE CONSTRUCTED TO MEET NET–ZERO ENERGY REQUIREMENTS.

(III) A NEW SCHOOL THAT RECEIVES STATE PUBLIC SCHOOL CONSTRUCTION FUNDS THAT IS NOT CONSTRUCTED TO MEET NET–ZERO ENERGY REQUIREMENTS SHALL BE CONSTRUCTED TO MEET NET–ZERO READY REQUIREMENTS.

(d) (1) The Interagency Commission shall establish a process to allow a school system to obtain a waiver from complying with subsection (c) of this section.

(2) The waiver process shall:

(i) Include a review by the Interagency Commission to determine if the construction of a high performance building is not practicable; and

(ii) Require the approval of a waiver by the Interagency Commission.

(3) THE INTERAGENCY COMMISSION SHALL WAIVE THE REQUIREMENTS OF SUBSECTION (C)(2)(II) OF THIS SUBSECTION IF THE INTERAGENCY COMMISSION DETERMINES THAT:

(I) THE CONSTRUCTION OF A NET–ZERO ENERGY SCHOOL BUILDING IS NOT PRACTICABLE BECAUSE OF SPATIAL LIMITATIONS AT THE BUILDING SITE; OR

(II) WHEN TAKING INTO CONSIDERATION THE AVAILABILITY OF STATE COST SHARE FUNDS AND GRANTS FROM THE NET–ZERO SCHOOL GRANT FUND ESTABLISHED UNDER § 9–2010 OF THE STATE GOVERNMENT ARTICLE, THE COST TO THE LOCAL JURISDICTION OF CONSTRUCTING A NET–ZERO ENERGY SCHOOL BUILDING WOULD EXCEED THE COST OF CONSTRUCTING A TRADITIONAL, HIGH PERFORMANCE SCHOOL BUILDING.

(4) THE INTERAGENCY COMMISSION SHALL WAIVE THE REQUIREMENTS OF SUBSECTION (C)(2)(III) OF THIS SUBSECTION IF THE

INTERAGENCY COMMISSION DETERMINES THAT:

(I) THE CONSTRUCTION OF A NET–ZERO READY SCHOOL BUILDING IS NOT PRACTICABLE BECAUSE OF SPATIAL LIMITATIONS AT THE BUILDING SITE; OR

(II) WHEN TAKING INTO CONSIDERATION THE AVAILABILITY OF STATE COST SHARE FUNDS, THE COST TO THE LOCAL JURISDICTION OF CONSTRUCTING A NET–ZERO READY SCHOOL BUILDING WOULD EXCEED THE COST OF CONSTRUCTING A TRADITIONAL, HIGH PERFORMANCE SCHOOL BUILDING.

(e) For fiscal years 2010 through 2014 only, the State shall pay 50% of the local share of the extra costs, identified and approved by the Interagency Commission, that are incurred in constructing a new school to meet the high performance building requirements of this section.

(f) **(1)** The Interagency Commission shall adopt regulations to implement the requirements of this section.

(2) IN IMPLEMENTING NET–ZERO ENERGY REQUIREMENTS FOR SCHOOL BUILDINGS, THE INTERAGENCY COMMISSION SHALL CONSULT WITH THE CLIMATE TRANSITION AND CLEAN ENERGY HUB ESTABLISHED UNDER § 9–2011 OF THE STATE GOVERNMENT ARTICLE.

letter re MD HB 806.pdf
Uploaded by: Emily Porcari
Position: FWA

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Michael CA Schwedler, PE
2021-2022 ASHRAE President

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February 22, 2022

The Honorable Maggie L. McIntosh, Chair
The Honorable Mark Chang, Vice Chair
Maryland House of Delegates
Appropriations Committee
6 Bladen Street, Room 121
Annapolis, Maryland 21401

RE: House Bill 806

Dear Chair McIntosh, Vice Chair Chang, and Committee Members:

ASHRAE, founded in 1894, is a global society advancing human well-being through sustainable technology for the built environment. The Society and its more than 51,000 members, including over 1,100 in Maryland, focus on building systems, energy efficiency, indoor air quality, refrigeration and sustainability. Through research, standards writing, publishing, certification and continuing education, ASHRAE shapes tomorrow's built environment today.

We are writing to you regarding House Bill 806, "*Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects*". We appreciate the bill's focus on high-performance building standards. However, we also suggest that the most recent 2021 edition of the **International Green Construction Code (IgCC)** be listed as a method of meeting the requirements for high-performance school and public safety buildings in Section 3-602.1 (a) (iii) of the bill, which clarifies the definition of a high-performance building.

The 2021 International Green Construction Code is powered by ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1-2020, Standard for the Design of High-Performance Green Buildings Except Low Rise Residential Buildings. The 2021 IgCC provides a comprehensive solution for high performance buildings based on a consensus-based standard that includes prescriptive and performance-related provisions for energy use, natural resources use, site sustainability, water use efficiency, and indoor environmental quality. The IgCC is intended to help streamline code development and adoption, and improve building industry standardization. It is a unified code that emphasizes adoption, ease of use and enforcement for building projects.

Again, we appreciate the bill's focus on high-performance buildings, and hope that your committee will consider further improving the bill by naming the latest edition of the International Green Construction Code as a method for meeting the requirements of Section 3-602.1 (a) (iii). If you have any questions or need additional information, please do not hesitate to contact me or have your staff email GovAffairs@ashrae.org. Thank you for your consideration of this important matter and for working to ensure the health and well-being of building occupants.

Sincerely,

Michael CA (Mick) Schwedler, P.E., Fellow ASHRAE, LEED AP
2021-22 ASHRAE President

cc: The Honorable Dana Stein
The Honorable Kumar Barve

ICC Testimony for HB 806 with proposed langauge ch

Uploaded by: Jacob Karson

Position: FWA

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HB 806 – Support with Amendments

Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects
Appropriations Committee

Dear Chair McIntosh, Bill Sponsors Stein and Barve, and Members of the Committee,

The International Code Council supports the passage of HB 806, provided that minor amendments that will strengthen this bill by benefiting a broader group are made. Our proposed language changes are attached.

The Code Council is a member-focused nonprofit association with over 64,000 members (1,200 of whom call Maryland home) that develops model building codes, the I-Codes, used in the design, build and compliance process to construct safe, sustainable, affordable and resilient structures. Maryland chooses the International Codes (I-Codes) as its regulatory foundation for the built environment adopting and adapting the International Residential Code, the International Building Code, the International Plumbing Code, the International Mechanical Code, the International Fuel Gas Code, the International Green Construction Code, the International Property Maintenance Code, the International Existing Building Code, and the International Energy Conservation Code, all of which are updated every three years using a nationally recognized consensus-based process.

The attached section, 3-602.1(a)(iii), clarifies the definition of a high-performance building to include achievement of a certification under the latest edition of LEED or compliance with a nationally recognized and accepted green building code. Given the existing recognition of green building codes as a compliance path in legislation and the state's current adoption of the International Green Construction Code we would strongly encourage naming the latest edition of the International Green Construction Code explicitly as one method to meet Section 3-602.1(a)(iii).

The International Green Construction Code jointly developed by ICC, ASHRAE and the U.S. Green Building Council and is aligned with many of the goals and strategies contained in LEED. We hope you will consider the attached language as an opportunity to create consistency with the codes already used in the state and provide a similar level of recognition provided to LEED.

Additionally, the International Energy Conservation Code also developed by ICC and adopted by the state includes appendices for the achievement of zero energy buildings. We recommend designating those appendices as compliance pathways for achievement of the requirements in Section 3-602.1(a)(II)(2).

Thank you for your service,

Jacob Karson

Jacob Karson
Government Relations Coordinator
International Code Council
jkarson@iccsafe.org

Section 3–602.3; and 4–901 through 4–905 to be under the new subtitle "Subtitle 9. Buy Clean Maryland Act"
Annotated Code of Maryland
(2021 Replacement Volume)

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF MARYLAND, That the Laws of Maryland read as follows:

Article – State Finance and Procurement

3–602.1.

(a) (1) In this section the following words have the meanings indicated.

(2) "High performance building" means a building that:

(i) **1. A. [**meets or exceeds the current**] ACHIEVES AT LEAST A SILVER RATING ACCORDING TO THE MOST RECENT** version of the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) Green Building Rating System **[**Silver rating**]**; **OR**

B. IS A SCHOOL OR PUBLIC SAFETY BUILDING THAT ACHIEVES AT LEAST A CERTIFIED RATING ACCORDING TO THE MOST RECENT VERSION OF THE U.S. GREEN BUILDING COUNCIL'S LEED GREEN BUILDING RATING SYSTEM AND, BASED ON THE BUILDING'S LOCATION, ACHIEVES 5 POINTS OR FEWER IN THE COMBINED CREDITS FOR ACCESS TO QUALITY TRANSIT AND SURROUNDING DENSITY AND DIVERSE USES;

[(ii)**] 2.** Achieves at least a comparable numeric rating according to a nationally recognized, accepted, and appropriate numeric sustainable development rating system, guideline, or standard approved by the Secretaries of Budget and Management and General Services; or

[(iii)**] 3.** Complies with the most recent edition of the International Green Construction Code or other nationally recognized ~~and accepted~~ green building code, guideline, or standard reviewed and recommended by the Maryland Green Building Council and approved by the Secretaries of Budget and Management and General Services**; AND**

(II) 1. MEETS OR EXCEEDS THE CURRENT REQUIREMENTS FOR CERTIFICATION UNDER THE U.S. GREEN BUILDING COUNCIL'S LEED (LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN) ZERO ENERGY PROGRAM; OR

2. ACHIEVES A NET–ZERO ENERGY BALANCE IN ACCORDANCE WITH STANDARDS OR GUIDELINES RECOMMENDED BY THE

HB0806 - Climate Solutions Now Act - Testimony - C
Uploaded by: Joseph Jakuta
Position: FWA

Committee: Appropriations
Testimony on: HB 806 - "High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects"
Organization: Climate Parents of Prince George's
Person Submitting: Joseph Jakuta, Lead Volunteer
Position: Favorable, with Amendments
Hearing Date: March 1, 2022

Dear Ms. Chairwoman and Committee Members:

Thank you for considering our testimony in support of HB 806 - "High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects." Climate Parents is a campaign to reduce climate change causing pollution in our schools and our group is active in Prince George's County. In particular, we are currently working directly with Prince George's County Public Schools (PGCPS) technical staff and other advocates to develop a Climate Action Plan for PGCPS

The 2018 Intergovernmental Panel on Climate Change (IPCC) Special Report found that limiting global warming to 1.5°C above pre-industrial levels by 2100 would require human-caused emissions of carbon dioxide (CO_2) to fall by about 45 percent from 2010 levels by 2030 and reach 'net zero' by 2050 as a planet. Science gives us the end date for burning fossil fuels and as blessed as we are in Mayland we must lead, we must get there sooner.

We are generally supportive of the efforts to require but are greatly concerned over the lack of inclusion of schools and other government buildings in the requirements of § 3–602.3.

In a 2019 Report from the US Green Building Council that looked at net-zero buildings in a northeastern state, a variety of different buildings were examined, but most germane to HB 806, schools.[1] The study looked at a life cycle cost analysis of various building types, including schools. This study assumed an upfront cost of $365/GSF based on an existing net-zero school, which is slightly higher than $320/GSF, which is what the net-zero Wilde Lake was constructed for. Despite the upfront costs, the energy use at the net-zero school decreased by 45% compared to a conventional school, and they projected that net-zero schools would break-even after 13-16 years with a 3-9% decrease in the total cost of ownership over 30 years. This is proof that wise upfront costs pay dividends to the taxpayer and should be encouraged through legislation.

But is this transferable to Maryland? PGCPS has shown that nearly fossil fuel free schools are not just possible, but are often the best decision financially. PGCPS is relying on a new financing model for six new schools. Of these six schools five will be heated and cooled using geothermal systems rather than fossil fuel, and geothermal was chosen because it was the option that made the most economic sense in light of the 30 year total cost of ownership calculations required by the IAC. It is not just alternatively financed schools where this is possible, PGCPS constructed six elementary schools, one middle school, and one high school with geothermal heating using conventional financing.[2]

Also important is to consider the lifetime of equipment in new schools. Just looking at fossil-fuel fired boilers in PGCPS, of the approximately 450 boilers in use they are on average about 20 years old, about 15 percent are

[1] US Green Building Council. "Zero Emissions Buildings in Massachusetts: Saving Money from the Start" https://builtenvironmentplus.org/wp-content/uploads/2019/09/ZeroEnergyBldgMA2019.pdf

[2] PGCPS Climate Change Action Plan (CCAP) Focus Work Group. https://www.pgcps.org/climate/

older than 25 years, and one is from 1962. It is not unreasonable to expect that boilers installed in 2025 will still be in use in 2050. That means if we are installing fossil-fuel fired boilers going forward we are either deciding not to meet zero emission climate goals or we are planning on investing in infrastructure that will not be used for its full useful life and require costly retrofits in 20 years thus wasting taxpayers money.

Concerning additional amendments, we support the Climate Partners' Priority Amendments for HB 806 that are attached.

We must get to net-zero. We are at an inflection point when it comes to our children's future. We can see from thoughtful, in-depth numbers that in the long-term electric buildings will save taxpayers money and we know the alternative fossil-fuel powered buildings produce harmful pollution that will harm our children's lungs[3] and learning[4] as well as their future planet. We implore you to enact this legislation, with amendments to include governmental buildings, that will require holistic changes in the way we consume energy in Maryland and to make our schools resilient for years to come, for our children's sake.

We encourage a **FAVORABLE** report, with **AMENDMENT**, for this important legislation.

[3] Lee YL, Wang WH, Lu CW, Lin YH, Hwang BF. Effects of ambient air pollution on pulmonary function among schoolchildren. Int J Hyg Environ Health. 2011 Sep;214(5):369-75. doi: 10.1016/j.ijheh.2011.05.004. Epub 2011 Jun 15. PMID: 21680243.

[4] Allen, J L et al. "Cognitive Effects of Air Pollution Exposures and Potential Mechanistic Underpinnings." *Current environmental health reports* vol. 4,2 (2017): 180-191. doi:10.1007/s40572-017-0134-3

Attachment - Climate Partners' Priority Amendments

Goal: Our value is that government buildings, including schools, should be models for the rest of society and lead the way towards more sustainable, carbon-friendly practices. While HB 806 makes some steps in this direction, they are not enough. The provisions relating to public buildings should be strengthened to A) raise the standard and B) apply that standard to more buildings.

1. **Adjust the Definition of High-Performance Buildings and when they are required**

The "high performance buildings" define a more environmentally friendly building standard and the conditions where a public building is required to meet that standard. The standard should be strengthened and apply to more publicly funded buildings.

- Public buildings, as defined in HB0806, are those public buildings that are constructed with at least 50% of state or local government funds. We believe this will be confusing and will arbitrarily exempt some schools. We should always set an example with our schools, and we should not have schools be at a lower standard than other buildings
    - Redefine when the high-performance building standards are required to apply to buildings constructed with at least 25% of state or local government funds.
    - Define high-performance as requiring a of LEED Silver certification (not just equivalency)

2. **Add language from SB0528 that requires high-performance buildings to acquire energy from renewable resources (wind, solar, geothermal, ocean, small hydro)**
    - We believe that solving the problem of carbonization in buildings will require changes to the energy consumption that buildings get from the grid. If a building meets the standard of a high-performance building, it should not only be constructed and certified to a LEED Silver standard, but it should also ensure that it is not pulling dirty energy from the grid.
        - Include schools in the requirement to be LEED Silver
        - Include requirement for high-performance buildings to acquire energy from renewable sources

3. **Apply All-Electric Construction Code to All Buildings**

    HB0831 set an all-electric construction code, which is referenced in HB0806, however, schools were exempted from the all-electric requirement.

    - Schools should not be exempted from the all-electric construction requirement
        - Our public buildings, including our schools, should be models for the rest of society, and should be stronger, or at a minimum comparable, to other building standards.
        - It is our understanding that HB 806 addresses construction standards for new public buildings, potentially based on levels for state funding. We support stronger goals for state buildings, but the new construction codes laid out in HB 806 should apply to all buildings, regardless of level of state funding.
        - If we don't apply the all-electric standard to all buildings, every time we build a building that is not all-electric, it is one more building we will have to retrofit. Retrofitting is far more expensive than building the all-electric in the first place.
        - With a state surplus and plans to spend significant money on schools through the Built to Learn funding, this is the ideal time to pay-it-forward. Building schools with fossil fuel infrastructure will require far more funds in the future to operate and eventually retrofit.

4. **Building Emission Performance Standards -** While the bill currently includes requirements for direct emissions (*defined as "onsite fuel combustion, e.g., gas used onsite for water and/or space heating, cooking, and refrigerant leaks"*), the bill should be amended to include performance measures for improved energy efficiency (e.g., site electricity use), such as: maintaining and retro-commissioning building energy systems; implementing HVAC scheduling and other smart control systems; and making building shell and other energy efficiency

improvements, as recommended by the MD Commission on Climate Change's Building Energy Transition Plan (see p. 23). Improved building energy efficiency will reduce overall electricity demand (helping grid transition) and can result in smaller sized heating and cooling systems.

- Include all emissions (not just direct emissions) in the Building Emissions Performance Standards
- Set the baseline for achieving reductions from 2025 to 2023 levels
- Add a requirement to 'Measure and report direct building emissions and site electricity use to the Department (MDE) annually beginning in 2025'
- Set a baseline and Building Emission Standard by building type to make it easier to manage from a building owner standpoint

5. Reduce the reasons to waive the requirement to acquire eligible materials

- Having only one source to acquire an eligible material should not be a reason to get a waiver

6. Additions to Ensure that HB 806 is Equivalent to SB 528

- Add a pilot for a net zero schools program that will utilize a Net Zero Pilot grant fund
- Add a requirement for the MCEC Climate Catalytic Capital Fund (C3).
- For Building Emission standards, include a requirement for the same reduction for 'site energy use intensity' as requested in SB 528

HB0806 - Building Standards (Public).docx (1).pdf
Uploaded by: Josh Tulkin
Position: FWA

P.O. Box 278
Riverdale, MD 20738

Committee: Appropriations

Testimony on: HB 806 – Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

Position: Support with Amendments

Hearing Date: March 1, 2022

The Maryland Chapter of the Sierra Club urges a favorable report with amendments for HB 806. This bill charts a path for reducing greenhouse gas pollution from publicly-owned or -funded buildings in Maryland by requiring the use of emissions standards for existing buildings, all-electric construction for new buildings, and specified eligible materials for new construction. While we support the bill, we strongly recommend including the amendments appended at the end of the testimony.

Reducing greenhouse gas pollution is critical to limiting the damage from the climate crisis. The Maryland Commission on Climate Change has recommended a 50% reduction in greenhouse gas emissions by 2030 and net-zero emissions by 2045. According to the 2017 Maryland Greenhouse Gas Inventory, residential, commercial and industrial consumption of fracked gas in Maryland generates 13% of all greenhouse gas emissions. When you factor in emissions resulting from electricity consumed by our buildings, then buildings account for approximately 40% of greenhouse gasses emitted in the state.

In 2021 the Maryland Commission on Climate Change adopted specific recommendations on how to reduce pollution from the buildings sector. Among their 2021 recommendations were: adopting an all-electric building code; encouraging fuel switching to electric water and space heating; replacement of fossil fuel heating with heat pump or other electrical heating; targeting 50% of heating ventilation, air conditioning, and hot water heater sales to be heat pumps by 2025 and 95% by 2030. HB 806 enacts several of these recommendations in relation to public buildings.

All Electric Standards for New Construction

The first step to reducing pollution from our buildings is to ensure that we minimize pollution from any new buildings being constructed. HB 806 raises the standards for some public buildings, but we believe it must go further.

Our public buildings should be a model for the rest of society, leading the way in implementing environmental standards that not only reduce greenhouse gasses, but create healthier sustainable environments for government employees, students, and the public. With the current state budget surplus, potential influx of federal money, and planned expenditures for new schools, this is a critical time to put higher standards in place.

The Maryland Commission on Climate Change recommends: “The General Assembly should require the Maryland Building Code Administration to adopt a code that ensures that new buildings meet all water and space heating demand without the use of fossil fuels.” This means that instead of using a gas boiler for heat, a building would use a heat pump instead. Heat pumps are commonly used in large buildings, and are cost-competitive, and usually cheaper over the lifetime, compared to gas boilers.

For new construction of public buildings, we recommend the following for all public buildings that are 25% or more state-owned or state-funded:

- Meet the “all-electric” construction code.
- Achieve LEED silver certification by the US Green Building Council.
- Achieve “above-code” improvements in energy efficiency (details below).

HB 806 uses two mechanisms to address new construction. First, HB 806 requires that all public buildings funded at 50% of state funding, excluding schools, must follow the “all-electric code” which is established in HB 831, also introduced by Delegate Stein. The exemption for schools should be removed and the standard should be required for all buildings funded at 25% of state funding. All government buildings should, at a minimum, follow the same minimum standards required for new residential and commercial buildings.

Additionally, the legislation makes some changes to the “high-performance building” standards, which were designed to create higher standards for government buildings. HB 806 prescribes that LEED Silver certification be required to achieve the high performance code. Unfortunately, the high performance program is currently only required for buildings funded at 100% of state funding. Again, we recommend that the program apply to all buildings funded at 25% of state funding. Studies show that these standards can be achieved with no increase in cost, but when this is not feasible, a waiver can be requested.

Building Energy Performance Standard

HB 806 directs the Maryland Department of the Environment to create regulations for a “Building Energy Performance Standard” (BEPS) which would achieve a 50% reduction of greenhouse gasses by 2030 and net-zero by 2035. A BEPS is a set of policies which establish emission reduction goals for specific types of buildings, and those targets increase over time, leading building owners to improve the energy efficiency and conservation in their buildings, and ultimately switch from fossil fuel heating to all-electric alternatives.

Maryland Department of the Environment is tasked with developing the regulations for this program and will have some flexibility to design a program that works best for Maryland.

Contrary to some misinformation being circulated, a BEPS would **not** require the same reductions for every single building, regardless of its past efficiency investments.

In other jurisdictions (Washington, DC, St. Louis, New York and Boston) the process starts out with a baseline, where emissions are measured for each type of building. An emissions standard is then set for each type of building either in energy units or greenhouse gasses. Hospitals, for example, have much higher baseline emissions per square foot than multi-family housing. In the case of Washington, DC, a pathway is then laid out, typically in 4 or 5 year compliance periods, for buildings to reach the target emissions for each type of building, starting with each individual building's initial emissions rate. Other programs, including New York's, set out greenhouse gas emission targets per square foot by building type, showing improvements for each compliance period.

There are several viable approaches for Maryland. But we want to flag three important provisions that must be part of BEPS. First, BEPS should consider both on-site emissions (emissions coming from burning a fossil fuel, such as gas or propane, for space heating, hot water heating, or cooking) and emissions resulting from electricity. Second, emissions targets should be based on benchmarking similar buildings. Third, the data for buildings should be shared with the public in a usable format for third-party analysis and engagement.

We support the provisions of HB 806 that offer alternative compliance approaches by paying a penalty equal to the social cost of carbon emitted, though we must ensure that the cost of the payment is sufficiently high to drive the change needed.

In conclusion, we believe that reducing pollution from our public buildings is a critical step towards addressing our greenhouse gas goals. This legislation makes an important step, and with our proposed amendments strengthen the bill and align it with the recommendations of the Commission on Climate Change. We encourage a favorable report.

Brandon Smith
Clean Energy Team
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Josh Tulkin
Chapter Director
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Amendments coordinated by the Maryland Climate Partners

Goal: Our value is that government buildings, including schools, should be models for the rest of society and lead the way towards more sustainable, carbon-friendly practices. While HB 806 makes some steps in this direction, they are not sufficient. The provisions relating to public buildings should be strengthened to a) raise the standard, and b) apply that standard to more buildings.

That could be achieved by changes to the all-electric code, the high performance building code, or some combination thereof. We have offered amendments for each path.

1. **Adjust the definition of high-performance buildings and when they are required.** The “high performance buildings” define a more environmentally friendly building standard and the conditions in which a public building is required to meet that standard. The standard should be strengthened and apply to more publicly funded buildings. Public buildings, as defined in HB 806, are those public buildings that are constructed with at least 50% of state funds. We believe this will be confusing and will arbitrarily exempt some schools. We should always set an example with our schools, and we should not have schools be at a lower standard than other buildings

Recommendation:

- *Redefine when the high-performance building standards are required to apply to buildings constructed with at least 25% of state or local government funds.*
- *Define high-performance as requiring a of LEED Silver certification (not just equivalency)*

2. **Add language from SB 528 that requires high-performance buildings to acquire energy from renewable sources (wind, solar, geothermal, ocean, small hydro)**

We believe that solving the problem of carbonization in buildings will require changes to the energy consumption that buildings get from the grid. If a building meets the standard of a high-performance building, it should not only be constructed and certified to a LEED Silver standard, but it should also ensure that it is not pulling dirty energy from the grid.

Recommendation:

- *Include schools in the requirement to be LEED Silver*
- *Include requirement for high-performance buildings to acquire energy from renewable sources*

3. **Apply All-Electric Construction Code to All Public Buildings**

HB 831 sets an all-electric construction code, which is referenced in HB 806, however, schools were exempted from the all-electric requirement and the requirement only applies to buildings funded 50% by the state.

Recommendation:

- *The all-electric requirement should be required for all buildings funded 25% or more by the state, and should include schools.*

4. Building Emission Performance Standards

While the bill currently includes requirements for direct emissions (*defined as "onsite fuel combustion, e.g., gas used onsite for water and/or space heating, cooking, and refrigerant leaks"*), the bill should be amended to include performance measures for improved energy efficiency, such as: maintaining and retro-commissioning building energy systems; implementing HVAC scheduling and other smart control systems; and making building shell and other energy efficiency improvements, as recommended by the Maryland Commission on Climate Change's Building Energy Transition Plan (see p. 23). Improved building energy efficiency will reduce overall electricity demand (helping grid transition) and can result in smaller sized heating and cooling systems.

Recommendation:

- *Include all emissions (not just direct emissions) in the Building Emissions Performance Standards*
- *Add a requirement to "Measure and report direct building emissions and site electricity use to the Department (MDE) annually beginning in 2025"*

HB 806_ Maryland LCV - Support with Amendments.pdf
Uploaded by: Kim Coble
Position: FWA

MARYLAND LEAGUE OF CONSERVATION VOTERS

February 25, 2022

SUPPORT with AMENDMENTS: HB806
Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

Mr. Chairman and Members of the Committee:

Maryland LCV supports HB 806, and we thank Vice Chairman Stein for his leadership on the issues presented here. We are grateful for the suite of legislation before the House to make substantive reductions to our state greenhouse gas emissions.

The proposed legislation would change standards associated with greenhouse gas emissions from government buildings to make sure state and local governments in Maryland are setting ambitious standards as we seek a healthier, cleaner environment and economy. Decarbonizing buildings is a very important climate solution, and large public buildings are a great place to start.

We support the all-electric building code specified in the bill. Starting in 2023, it would require new public buildings (state buildings and local government buildings that were constructed with more than 50% of state funds) to have water and space heating provided without the use of fossil fuels. We also agree with the need to develop Building Emissions Standards to understand and measure the emissions that each building is producing, and there should be requirements for the state to report the emissions, as well as requirements to decrease the emissions in a decisive manner. This legislation creates a pathway for compliance with the new Standards, and a step-down in emissions. Compliance with the Building Emissions Standards is required for all government buildings greater than 25,000 sq. ft. by 2025. Additionally, buildings covered by this legislation should achieve reductions in direct emissions (those produced in heating and cooling the building) of 50% by 2030 and net zero by 2035. Reporting by the Maryland Department of General Services would start in 2023.

Finally, we support the inclusion of requirements to set the maximum acceptable global warming potential for materials used in building construction, and then require state procurements to only specify materials that meet or are *lower than* the maximum acceptable global warming potential.

We also agree with the importance of creating an Interagency Climate Action Plan. As specified in the bill, this plan will be developed by January 1, 2025 and will describe how to achieve net zero direct emissions (from gas infrastructure used for heating

and cooling) and indirect emissions (energy, which includes fossil fuel energy, from the grid) for all state operations.

We support the amendments being submitted by Climate Partners, and would like to bring special attention to the following amendments to improve the bill and align components we supported in the Climate Solutions Now Act (SB 528) in the Senate:

- We recommend adding energy efficiency measures to the Building Emissions Standards. The Maryland General Assembly notes that "energy efficiency is among the least expensive ways to meet the growing electricity demands of the State" and the American Council for an Energy Efficiency Economy reports that "Energy Efficiency Can Cut Energy Use and Greenhouse Gas Emissions in Half by 2050."

Additions to Ensure that HB806 is Equivalent to SB528

- Add a pilot for a net zero schools' program that will utilize a Net Zero Pilot grant fund
- Add a requirement for the MCEC Climate Catalytic Capital Fund (C3) including an amendment that brings this program in line with the provisions of Justice 40 and require 40% of the Climate Catalytic Capital Fund investments be directed to overburdened communities, as well as allowing other statewide green banks be eligible for receiving these funds, especially as they support funding projects that serve low and moderate income communities. We are strongly supportive of the
- For Building Emissions standards, include a requirement for the same reduction for 'site energy use intensity' as requested in SB528

We respectfully offer and strongly advocate for the inclusion of these clarifying and strengthening amendments and Maryland LCV strongly urges a favorable report on this important bill.

HB806 Public Bldgs Approps TPMEC-favwithamend.pdf
Uploaded by: Laurie McGilvray
Position: FWA

TAKOMA PARK MOBILIZATION

Environment Committee

Committee: Appropriations
Testimony: HB806 – Building Standards and Emissions Reductions– High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects
Organization: Takoma Park Mobilization Environment Committee
Submitting: Laurie McGilvray, Co-Chair
Position: Favorable With Amendments
Hearing Date: March 1, 2022

Dear Chair and Committee Members:

We are pleased to submit testimony **favorable with amendments** for HB806 – Building Standards and Emissions Reductions– High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects. The Takoma Park Mobilization Environment Committee is a grassroots organization focused on State and County level climate action. We strongly urge you to vote favorably on HB806 and to include the suggested amendments described later in the testimony.

HB806 includes a number of requirements for state and local buildings, as follows:

- change the definition of "high performance building" to include schools and public safety buildings and require them to meet high performance building standards;
- require State and local government buildings >25,000 sq. ft. to be in compliance with an all–electric construction code and building emissions standard for space and water heating and require them to achieve a 50% reduction in greenhouse gas direct emissions by 2030 and be net–zero by 2040 (*i.e., consuming only as much energy as is produced*);
- require the Department of General Services (Department) to establish a procurement preference for construction materials that meet "global warming potential" standards for concrete, steel, glass, and structural wood, for state buildings and local government buildings for which at least 50% of the construction costs are provided by the state (excluding maintenance of a capital project; a road or highway project; or public school capital project); and require state agencies to procure materials that meet or are lower than the maximum acceptable global warming potential;
- require the Department to report annually starting January 1, 2023 on the status of greenhouse gas emissions for all state operations, including the University System of Maryland, and to develop by January 1, 2025 an Interagency Climate Action Plan for achieving net-zero direct and indirect emissions from all state operations, including the University System of Maryland.

Public Buildings Must Lead the Way

Buildings emit 40% of Maryland's greenhouse gases (13% of which are direct emissions from the combustion of gas, oil, and propane) and account for 90% of Maryland's electricity use. Construction materials also contribute to greenhouse gas emissions. In fact, cement production alone generates approximately 7% of annual global emissions and as much as 39% of all concrete in North America

is purchased by public agencies. If Maryland expects private buildings to reduce emissions, it must hold public buildings to a higher standard - to set an example and show the feasibility and cost effectiveness of building efficient, climate-friendly buildings.

Recommended Amendments to Strengthen HB806

The following recommended amendments are intended to raise the standard, apply it to more buildings, and tighten up the excellent Buy Clean Maryland provisions.

1. **Modify the Definition of High-Performance Buildings and Where it Applies**
   The current definition exempts schools and they should be included. Experience in Maryland has shown that the gold standard of net-zero schools can be constructed at a cost equal to or lower than conventional schools. New schools should not have a lower standard than other public buildings. We recommend that the bill redefine the high-performance building standards to apply to buildings constructed with at least 25% of state or local government funds and define high-performance buildings as requiring a LEED Silver certification (not just equivalency).

2. **High Performance Buildings Should Acquire Energy from Renewable Sources**
   If a public building meets the high-performance building standard, it should not only be constructed and certified to a LEED Silver standard, but also ensure it is using renewable energy. We recommend adding a requirement for high performance buildings to acquire energy from renewable sources (i.e., solar, wind, hydro, geothermal).

3. **All-Electric New Construction Code for Schools**
   HB831 included an all-electric construction code that is referenced in HB806; however, schools were exempted from this requirement. New schools should not be exempted from the all-electric requirement. This is particularly important looking to the future and the dramatic two-to-five fold increase predicted in the cost of gas. Precious Built to Learn dollars should be used to construct schools that will cost less, not more, to operate in the future.

4. **Building Emission Performance Standards**
   HB806 currently includes requirements for direct emissions (*onsite fuel combustion, e.g., gas used onsite for water and/or space heating, cooking, and refrigerant leaks*); however, it does not include efficiency standards for onsite electricity use. While reducing fossil fuel combustion in public buildings is very important, improving the energy efficiency is also critical. The bill should be amended:
   - to include performance measures for improved energy efficiency, such as: maintaining and retro-commissioning building energy systems; implementing HVAC scheduling and other smart control systems; and making building shell and other energy efficiency improvements, as recommended by the MD Commission on Climate Change's Building Energy Transition Plan; and
   - to allow local governments to have more stringent or different standards, while still reporting on the statewide metrics.

Improved building energy efficiency will reduce overall grid electricity demand and can result in smaller sized heating and cooling systems. State and local government owners of these public buildings should also have to measure and annually report their direct emissions and site electricity use to the Department of Environmental Management starting in 2025. Having a performance standard is only as good as the requirement to measure and report on it.

5. **Tighten Buy Clean Maryland Provisions**
   The Buy Clean Maryland provisions are well crafted and include a comprehensive list of building materials, similar to a law recently passed in Colorado. Currently, HB806 includes four instances where the Department may grant a waiver if using the eligible material would: 1) be technically infeasible; 2) result in a significant increase in project cost; 3) result in a significant delay in project completion; or 4) result in only one source or manufacturer being able to provide the necessary materials. Given the changing landscape of decarbonizing construction materials, there may be only one manufacturer for certain materials. This fact alone should not disqualify the material if it does not also trigger one of the other waiver provisions. The Colorado law has no such waiver provision. We recommend deleting the fourth waiver item on sole source of the material.

With the proposed amendments, HB806 will help the City of Takoma Park and Montgomery County reach their climate goals. Montgomery County has goals to reduce greenhouse gas emissions by 80% by 2027 and 100% by 2035, and the City of Takoma Park passed a resolution with strategies to achieve net zero emissions city-wide by 2035 and to be fossil fuel-free by 2045. Reducing climate pollution from public buildings must be part of the climate solution.

We strongly urge a **FAVORABLE WITH AMENDMENTS** vote on HB806.

Testimony - HB0806 - Building Standards .pdf
Uploaded by: Lee McNair
Position: FWA

February 25, 2022

Testimony: HB 0806 - Building Standards and Emission Reductions

Organization: Cedar Lane Environmental Justice Ministry (CLEJM)

Submitter: Lee McNair, Co-leader

Position: FAVORABLE with Amendments

HB0806 includes many highly useful requirements to help us meet our climate change goals in Maryland.

However, we concur with the testimony submitted by TPMEC in that the following amendments will enhance and strengthen this bill as needed at this point in our climate emergency.

Recommended Amendments to Strengthen HB806

The following recommended amendments are intended to raise the standard, apply it to more buildings, and tighten up the excellent Buy Clean Maryland provisions.

- **Modify the Definition of High-Performance Buildings and Where it Applies**
  The current definition exempts schools and they should be included. Experience in Maryland has shown that the gold standard of net-zero schools can be constructed at a cost equal to or lower than conventional schools. New schools should not have a lower standard than other public buildings. We recommend that the bill redefine the high-performance building standards to apply to buildings constructed with at least 25% of state or local government funds and define high-performance buildings as requiring a LEED Silver certification (not just equivalency).

- **High Performance Buildings Should Acquire Energy from Renewable Sources**

If a public building meets the high-performance building standard, it should not only be constructed and certified to a LEED Silver standard, but also ensure it is using renewable energy. We recommend adding a requirement for high performance buildings to acquire energy from renewable sources (i.e., solar, wind, hydro, geothermal).

- **All-Electric New Construction Code for Schools**

HB831 included an all-electric construction code that is referenced in HB806; however, schools were exempted from this requirement. New schools should not be exempted from the all-electric requirement. This is particularly important looking to the future and the dramatic two-to-five fold increase predicted in the cost of gas. Precious Built to Learn dollars should be used to construct schools that will cost less, not more, to operate in the future.

- **Building Emission Performance Standards**

HB806 currently includes requirements for direct emissions (*onsite fuel combustion, e.g., gas used onsite for water and/or space heating, cooking, and refrigerant leaks*); however, it does not include efficiency standards for onsite electricity use. While reducing fossil fuel combustion in public buildings is very important, improving the energy efficiency is also critical. The bill should be amended:

- to include performance measures for improved energy efficiency, such as: maintaining and retro-commissioning building energy systems; implementing HVAC scheduling and other smart control systems; and making building shell and other energy efficiency improvements, as recommended by the MD Commission on Climate Change's Building Energy Transition Plan; and
- to allow local governments to have more stringent or different standards, while still reporting on the statewide metrics.

Improved building energy efficiency will reduce overall grid electricity demand and can result in smaller sized heating and cooling systems. State and local government owners of these public buildings should also have to measure and annually report their direct emissions and site electricity use to the Department of Environmental Management starting in 2025. Having a performance standard is only as good as the requirement to measure and report on it.

- **Tighten Buy Clean Maryland Provisions**

The Buy Clean Maryland provisions are well crafted and include a comprehensive list of building materials, similar to a law recently passed in Colorado. Currently, HB806 includes four instances where the Department may grant a waiver if using the eligible material would: 1) be technically infeasible; 2) result in a significant increase in project cost; 3) result in a significant delay in project completion; or 4) result in only one source or manufacturer being able to provide the necessary materials. Given the changing landscape of decarbonizing construction materials, there may be only one manufacturer for certain materials. This fact alone should not disqualify the material if it does not also trigger one of the other waiver provisions. The Colorado law has no such waiver provision. We recommend deleting the fourth waiver item on sole source of the material.

CLEJM supports this bill and asks for a FAVORABLE

report in committee. We thank you for reading our testimony.

2022 Climate HB 806 GHG Emissions_Testimony_LF.pdf
Uploaded by: Lisa Ferretto
Position: FWA

LISA M. FERRETTO, AIA, LEED AP BD+C, WELL AP, Eco-Districts AP, GGP

February 25, 2022

Appropriations Committee
Chair - Delegate Maggie McIntosh

Re: HB 806, Building Standards and Emission Reductions – High Performance, State and Local Government Buildings

Position: Favorable with amendments as suggested by the Climate Partners Group

Dear Chair McIntosh and members of the Committee,

Thank you for the opportunity to provide testimony in support of House Bill 806, Building Standards and Emission Reductions. I am currently a Sustainability Director and Architect and am a member of both the AIA, American Institute of Architects, as well as USGBC, the U.S. Green Building Council. I am also a representative on the AIA Large Firm Sustainable Roundtable collaborating with large architecture firms across the country to lead the way to carbon neutrality. I have served as a member of the MD Green Building Council (MDGBC) for three years and am currently serving as a Commissioner for Baltimore City's Commission on Sustainability.

The American Institute of Architects says that ***"Climate change is a health, safety, and welfare crisis. Ignoring it would undermine [architect's] most critical professional responsibility: to protect our clients, our communities, and our earth."*** House Bill 806 includes requirements for buildings that are essential components of comprehensive climate legislation that we need – and requires that State buildings lead the way. The provisions work towards Maryland's greenhouse gas (GHG) emissions goal of a 60% reduction by 2030 and net zero emissions by 2045. Locally, these targets align with the goals Mayor Scott announced in January for the City of Baltimore, and globally, it works towards the Paris Climate Agreement targets, those set by Architecture 2030, and adopted by the AIA as the 2030 Commitment.

Reducing GHG emissions in buildings is a critical component to reducing overall emissions in the State. Buildings account for about 39% of the greenhouse gas emissions by sector in Maryland's Greenhouse Gas Emission Inventory (MDE, 2017). The essential components of comprehensive climate legislation regarding buildings addressed in House Bill 806 are: 1) Benchmarking, 2) Building Emission Standards for Existing Buildings, 3) All Electric requirements for New Construction and 4) Energy Efficiency. The bill makes references to Energy Efficiency – and I understand there are amendments being considered to clarify energy use reduction targets for new construction and major renovations.

1. **Benchmarking** is the most important first step. It sets the baseline and creates the path, it is about transparency and accountability and overall, it increases awareness of energy efficiency. We cannot get to where we want to go (a zero GHG emissions goal by a certain date) without knowing where we are starting and measuring our progress along the way.
    - Benchmarking is required in states and jurisdictions across the country as can be seen in the map by the Institute for Market Transformation (IMT). IMT also has a fact sheet that lists other benefits of benchmarking and how it transforms the market.
    - State buildings already report data to the State Energy Database.

2. **Building Performance Standards (BPS)** for existing buildings cannot happen without Benchmarking. After a baseline is set, and a mechanism is in place for reporting, BPS provides a target EUI, (energy use intensity) for each building type to ensure that our existing building stock is on a path to reduce energy consumption and greenhouse gas emissions by the State's overall target goal and year. The State will not be able to meet its overall climate goals without addressing energy performance of the existing building stock.
    - The American Council for an Energy Efficient Economy says BPS are "a key policy for achieving climate goals" (ACEEE, 2020).
    - The Federal Government has also recently launched a Building Performance Standards Coalition – a partnership of State and Local governments that currently includes Annapolis, Montgomery County, and Prince Georges County in Maryland (Whitehouse.gov).

3. The **All-Electric** provision in HB 806 sets requirements for new buildings to meet water and space heating demands without the use of fossil fuels. "Direct fuel use in … buildings accounted for 18% of Maryland's … greenhouse gas emissions" (MDE, 2017), and any path to carbon neutrality and reaching any overall goal of zero greenhouse gas emissions will need to include this move away from fossil fuels.
    - Moving to an all-electric code is in line with the AIA's 2030 Commitment which states "All new buildings, developments, and major renovations shall be carbon-neutral by 2030… Carbon-neutral [means] using no fossil fuel GHG emitting energy to operate…Eliminating these emissions is the key to addressing climate change and meeting Paris Climate Agreement targets."" (Architecture 2030).

4. **Energy Efficiency** is a critical link with all these strategies. As mentioned, there is reference to energy efficiency through the bill and I understand amendments are being considered for inclusion. In addition to the elimination of fossil fuel use in our buildings, we need to address total energy use of buildings, by requiring that buildings being constructed now - are energy efficient. Buildings account for **39%** of Maryland's total energy consumption (EIA, 2019) - the same percentage reported as GHG emissions by sector in Maryland's Greenhouse Gas Emission Inventory (MDE, 2017). The EPA also states that Carbon Dioxide makes up about 80% of the total US GHG emissions, (EPA, 2019). And when we zoom into an urban area like Baltimore, building's account for about 70% of the total carbon dioxide emissions in the City.

    New buildings, once built, will be our future *existing* building stock that will need to comply with the Building Performance Standards. Modeled energy use savings in the design of new buildings will be greenhouse gas emission savings in the future. Energy efficiency measures also help to reduce operating costs - and we know the cost of construction and inflation is a huge topic in the industry today. **Overall, energy reduction is the lowest hanging fruit. The cleanest, greenest, least emitting, most affordable, energy – is the one we don't use. Reducing energy has a multitude of benefits. It:**
    - Reduces greenhouse gases - Providing cleaner healthier air for all
    - Reduces demand on electric grid - Allowing the switch from fossil fuel to electricity without increasing demand on the grid
    - Reduces operating costs – saving money over the life of the building
    - Can help to address energy equity and energy burdens
    - Puts building owners on an easier path to meet the future Building Performance Standard
    - Makes adding renewable energy like PV easier in the future as the overall demand is less

    Energy Efficiency was mentioned 99 times in Maryland's 2030 Greenhouse Gas Reduction Act which calls for reducing GHG emissions from residential and commercial buildings through energy efficiency (GGRA, 2021). Energy Efficiency was mentioned 24 times in the MD Climate Change Commission's Buildings Transition Plan which states that "Annual electricity consumption in Maryland is projected to remain

constant as increasing demand from buildings … is offset by energy efficiency" (2021). **The Maryland General Assembly notes that "energy efficiency is among the least expensive ways to meet the growing electricity demands of the State"** (Maryland.gov). **And the American Council for an Energy Efficiency Economy reports that "Energy Efficiency Can Cut Energy Use and Greenhouse Gas Emissions in Half by 2050"** (ACEEE, 2019).

As a sustainability architect and advocate – I am excited about HB 806 and the positive impact this bill will have as part of the State's overall comprehensive Climate legislation. It ensures that Maryland is doing its part to meet the climate targets needed; holds the State accountable; and it protects our State's finances, the natural environment, and most importantly, the people.

I look forward to the favorable passing of this bill.

Sincerely;

Lisa M. Ferretto, AIA, LEED AP BD+C, WELL AP, Eco-Districts AP, GGP

ACEEE_MDGA_HB806_Testimony_2-25-2022_FNL2.pdf
Uploaded by: Nora Esram
Position: FWA

American Council for an Energy-Efficient Economy
529 14th Street, N. W., Suite 600 Washington, D.C. 20045 202.507.4000 202.429.2248 www.aceee.org

WRITTEN TESTIMONY

Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects (HB 806)

To the Appropriations Committee, Maryland General Assembly

BY NORA WANG ESRAM, PH.D.
SENIOR DIRECTOR FOR RESEARCH, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY
FEBRUARY 25, 2022
HEARING ON MARCH 1, 2022

Favorable with Amendments

Dear Chairwoman Maggie McIntosh, Vice Chair Mark S. Chang and distinguished Members of the House Appropriations Committee,

Thank you for the opportunity to present our written testimony on the embodied carbon provisions in House Bill 806: High Performance, State and Local Government Buildings, State Operations and Eligible Projects, currently under consideration in the Maryland General Assembly

ACEEE is a nonprofit research organization located in Washington, D.C., that works at the intersection of research, policy and markets, and is the leading U.S. center of expertise on energy efficiency. We provide independent analyses, collaborate with businesses, governments, academia and philanthropy, as well as public interest, health and environmental justice groups to scale the solutions needed to combat climate change. Currently, we are engaged in several initiatives with federal, state and local policymakers, manufacturers of cement, steel, wood, and insulation and buildings sector professionals to reduce embodied carbon in building materials and are committed to halving US Energy use and emission by 2050 while bolstering economic growth and equity.

Our testimony focuses on the following elements of HB806:

American Council for an Energy-Efficient Economy
529 14th Street, N. W., Suite 600 Washington, D.C. 20045 202.507.4000 202.429.2248 www.aceee.org

1. Buy Clean Maryland Act – General Comments

We support and encourage setting and using global warming potential (GWP) limits as outlined in Section 2, Provision 4-903 in addition to requiring environmental product declarations (EPDs) Type III as outlined in 4-904. Such an approach is consistent with recommended components for a robust buy clean policy as described by the Carbon Leadership Forum.[1]

2. Remove Waiver for Projects with Only One Source

We do not support provision 4-904 (E)(4) (p.6, line 16) that would allow a waiver if requiring eligible materials would result in only one source or manufacturer being able to provide the necessary materials. We are concerned that this provision may discourage procurement and project teams from additional efforts to solicit eligible materials from multiple sources or manufacturers. If such efforts result in technical difficulty, significant cost increase, or project delay, one of the other three conditions would apply. Therefore, a fourth condition that uses "sole source" to obtain a waiver is unnecessary and unhelpful.

3. Add Provisions to Provide Implementation Support

To support compliance with the Buy Clean provisions we recommend including provisions that outline support for manufacturers and/or companies who comply with the policy. According to Carbon Leadership Forum guidelines for developing robust Buy Clean procurement policies, financial incentives, bid incentives, and support structures are important for successful implementation of these policies.[2] The financial and education support will not only facilitate the implementation of the buy clean policy for public buildings in Maryland, but will also help local companies gain new skills and grow their competitive edge to win and deliver similar low-carbon projects to others (private-sector and federal sector) in the region.

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[1] https://carbonleadershipforum.org/steps-to-develop-a-buy-clean-policy/
[2] https://carbonleadershipforum.org/steps-to-develop-a-buy-clean-policy/

4. Build Market Demand and Supply in the Region

We support passage of HB806 as it will help build market demand and supply in the region, especially given similar efforts in nearby Northeastern states including New York, New Jersey, and Connecticut. The recent Executive Order 14057 for a Federal Buy Clean Program signed by President Biden in December 2021[3] is also likely to have significant impacts on the construction sector (including manufacturers, venders, architects and engineers, developers and contractors) in the D.C.-Maryland-Virginia region. A 2020 assessment by Climate Works noted that Buy Clean requirements will not add significantly to the cost of public works because material costs are not a major driver of project costs.[4] Furthermore, experience from energy efficiency codes and standards has proven that increased demand for high-efficiency products and services results in changes in stocking behavior which subsequently lowers prices. This can in large part be explained by a shift from special order to in-stock for these products. We anticipate a similar trajectory in the low-carbon construction materials market. For these reasons, we urge you to adopt our proposed amendments and vote favorably with amendments for HB806.

[3] https://www.whitehouse.gov/briefing-room/statements-releases/2021/12/08/fact-sheet-president-biden-signs-executive-order-catalyzing-americas-clean-energy-economy-through-federal-sustainability/
[4] https://www.climateworks.org/blog/whats-at-stake-with-buy-clean/

HB806_HoCoClimateAction.org_FWA.pdf
Uploaded by: Ruth White
Position: FWA

HoCoClimateAction.org
Howard County, Maryland

Testimony on HB806
Building Standards and Emissions Reductions - High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

Hearing Date: February 25, 2022
Bill Sponsor: Delegate Dana Stein
Committee: House Appropriations
Submitting: Ruth White for Howard County Climate Action
Position: Favorable with amendments

HoCo Climate Action -- a 350.org local chapter and a grassroots organization representing more than 1,450 subscribers, and a member of the Climate Justice Wing of the Maryland Legislative Coalition -- strongly supports HB806 with amendments.

The IPCC challenges the world to reduce greenhouse emissions rapidly to avoid even more catastrophic effects of the climate crisis Maryland's emissions reduction goals are not keeping up with the latest science, so we hope they will be made more ambitious this session. The largest sources of greenhouse gas emissions are transportation and buildings. This bill is focused on emissions from government buildings. Government can set an example and lead the way.

Howard County Climate Action has been studying the need for building electrification since October 2020. We enthusiastically support the requirement that new construction of state buildings be all-electric. All-electric construction now will eliminate the need for costly retrofits later. Geothermal and solar panels can also be considered for new construction. Our government buildings can be producers instead of users of energy.

Retrofits need to be done as soon as possible to reach a goal of netzero by 2035. Under this legislation compliance with the Building Emissions Standards would be required for all government buildings greater than 25,000 sq. ft. by 2025. Additionally, buildings covered by this legislation would need to achieve reductions in direct emissions (those produced in heating and cooling the building) of 50% by 2030 and netzero by 2035.

We also agree with the need to develop Building Emissions Standards to measure the emissions that each building is producing. In addition, we urge that the state be required to report the emissions and to reduce them in a decisive manner.

Finally, we support requirements that the state set a maximum acceptable global warming potential for construction materials and specify that procurements include only materials that meet or are *lower than* the maximum acceptable global warming potential.

We encourage a FAVORABLE report for this important legislation with the strengthening amendments listed below.

HoCo Climate Action
HoCoClimateAction@gmail.com
Submitted by Ruth White, Steering and Advocacy Committee, Columbia MD
www.HoCoClimateAction.org

Amendments coordinated by the Maryland Climate Partners

Goal: Our value is that government buildings, including schools, should be models for the rest of society and lead the way towards more sustainable, carbon-friendly practices. While HB806 makes some steps in this direction, they are not enough. The provisions relating to public buildings should be strengthened to A) raise the standard and B) apply that standard to more buildings.

1. **Adjust the Definition of High-Performance Buildings and when they are required**

The "high performance buildings" define a more environmentally friendly building standard and the conditions where a public building is required to meet that standard. The standard should be strengthened and apply to more publicly funded buildings.

- Public buildings, as defined in HB0806, are those public buildings that are constructed with at least 50% of state or local government funds. We believe this will be confusing and will arbitrarily exempt some schools. We should always set an example with our schools, and we should not have schools be at a lower standard than other buildings
    - Redefine when the high-performance building standards are required to apply to buildings constructed with at least 25% of state or local government funds.
    - Define high-performance as requiring a of LEED Silver certification (not just equivalency)

2. **Add language from SB0528 that requires high-performance buildings to acquire energy from renewable resources (wind, solar, geothermal, ocean, small hydro)**
    - We believe that solving the problem of carbonization in buildings will require changes to the energy consumption that buildings get from the grid. If a building meets the standard of a high-performance building, it should not only be constructed and certified to a LEED Silver standard, but it should also ensure that it is not pulling dirty energy from the grid.
        - Include schools in the requirement to be LEED Silver
        - Include requirement for high-performance buildings to acquire energy from renewable sources

3. **Apply All-Electric Construction Code to All Buildings**

    HB0831 set an all-electric construction code, which is referenced in HB0806, however, schools were exempted from the all-electric requirement.

        - Schools should not be exempted from the all-electric construction requirement
            - Our public buildings, including our schools, should be models for the rest of society, and should be stronger, or at a minimum comparable, to other building standards.
            - It is our understanding that HB806 addresses construction standards for new public buildings, potentially based on levels for state funding. We support stronger goals for state buildings, but the new construction codes laid out in HB 806 should apply to all buildings, regardless of level of state funding.
            - If we don't apply the all-electric standard to all buildings, every time we build a building that is not all-electric, it is one more building we will have to retrofit. Retrofitting is far more expensive than building the all-electric in the first place.

        - With a state surplus and plans to spend significant money on schools through the Built to Learn funding, this is the ideal time to pay-it-forward. Building schools with fossil fuel infrastructure will require far more funds in the future to operate and eventually retrofit.

4. **Building Emission Performance Standards -** While the bill currently includes requirements for direct emissions (*defined as "onsite fuel combustion, e.g., gas used onsite for water and/or space heating, cooking, and refrigerant leaks"*), the bill should be amended to include performance measures for improved energy efficiency (e.g., site electricity use), such as: maintaining and retro-commissioning building energy systems; implementing HVAC scheduling and other smart control systems; and making building shell and other energy efficiency improvements, as recommended by the MD Commission on Climate Change's Building Energy Transition Plan (see p. 23). Improved building energy efficiency will reduce overall electricity demand (helping grid transition) and can result in smaller sized heating and cooling systems.
    - Include all emissions (not just direct emissions) in the Building Emissions Performance Standards
    - Set the baseline for achieving reductions from 2025 to 2023 levels
    - Add a requirement to 'Measure and report direct building emissions and site electricity use to the Department (MDE) annually beginning in 2025'
    - Set a baseline and Building Emission Standard by building type to make it easier to manage from a building owner standpoint

5. **Reduce the reasons to waive the requirement to acquire eligible materials**
    - Having only one source to acquire an eligible material should not be a reason to get a waiver

Additions to Ensure that HB806 is Equivalent to SB528

- Add a pilot for a net zero schools program that will utilize a Net Zero Pilot grant fund
- Add a requirement for the MCEC Climate Catalytic Capital Fund (C3).
- For Building Emission standards, include a requirement for the same reduction for 'site energy use intensity' as requested in SB528

LS22, HB806, CCAN Venable testimony.pdf
Uploaded by: Victoria Venable
Position: FWA

HB806 - Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects
Date: March 1, 2022
Committee: House Appropriation Committee
Position: Favorable
Victoria Venable, Maryland Director - Chesapeake Climate Action Network Action Fund

On behalf of the Chesapeake Climate Action Network Action Fund, I urge a favorable report from the committee on HB806 - Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects. While CCAN Action Fund strongly supports this bill, we concur with several amendments introduced with the Climate Partners testimony to strengthen it.

The CCAN Action Fund is the advocacy arm of Chesapeake Climate Action Network, a grassroots organization dedicated exclusively to fighting for bold and just solutions to climate change in the Chesapeake region of Maryland, Virginia, and Washington, DC. We have worked hard with members of this body to increase clean energy deployment, pass greenhouse gas reduction goals, and combat climate change at the state level. We must pass legislation this year to address the way our building sector contributes to climate change and put our built infrastructure on a greener pathway.

Because buildings emit 40% of Maryland's greenhouse gases (13% of which are direct emissions) and account for 90% of Maryland's electricity use, improving building energy performance and transitioning buildings off of fossil fuels is critical to reaching Maryland's climate commitments. In November of 2021, the Maryland Commission on Climate Change released its annual report and Building Energy Transition Plan, recommending the adoption of Building Emission Standards and an "all-electric new construction code."

HB806 introduces versions of both of these recommendations to apply to government buildings (both state and local). While we believe that new construction should adhere to a true all-electric standard, we appreciate the introduction of an electric standard for water and space heating. Based on current trends, Maryland is on track to have 12% more residential gas customers in 10 years than today. Much of this infrastructure will be obsolete in a matter of decades as we transition to clean energy. In order to reduce emissions from our building sector, we must not invest in new fossil fuel infrastructure. Electrifying our new buildings will help us shift this trend while ensuring that ratepayers are not paying the costs of ill-thought-out energy investments of investor-owned utilities.

Just as we have advocated for the state to lead the way in vehicle electrification, we believe that publicly funded buildings should lead the way in building emissions reduction and electrification. HB806 puts us on that path.

Thank you for your consideration of HB806 - Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects. For all the reasons stated above, we urge a favorable report and the inclusion of our amendments.

CONTACT: Victoria Venable, Maryland Director
Victoria@chesapeakeclimate.org (301) 960-8824

Jason Ascher - Oppose - HB 806 - Building Standar
Uploaded by: Jason Ascher
Position: UNF

MID-ATLANTIC PIPE TRADES ASSOCIATION

PLUMBERS - STEAMFITTERS - SPRINKLER FITTERS

7050 Oakland Mills Road
Suite 180
Columbia, MD 21046

Phone: 410-290-3890
www.midatlanticpipetrades.o

Maryland House of Delegate – Appropriations Committee

TO: Delegate Maggie McIntosh, Chair; Delegate Mark Chang, Vice-Chair; and members of the House Ways and Means Committee
FROM: Jason Ascher, Political Director – Mid-Atlantic Pipe Trades Association

Oppose HB 806 - Building Standards and Emissions Reductions - High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

On behalf of the Mid-Atlantic Pipe Trades Association, our member Local, and our almost 10,000 United Association of Plumbers and Steamfitters members across the state, I ask you to **OPPOSE HB 806**.

Calculating the Global warming potential of construction material is a pointless act. The only way to make steel, which most residential and commercial building construction uses, is by burning coal, a fossil fuel. Furthermore, the wholesale elimination of fossil fuels from the building code will affect the public's ability to get affordable and reliable electricity. This is because the infrastructure for renewable energy sources such as wind and solar does not exist yet to eliminate fossil fuels.

One of the countries leading the way on wind power development is Denmark. They are considered a world leader in wind power and have only reached 50% after over 40-years of building windmills. If we build at the same rate, we will get 50% of our energy from renewables by 2070. Eliminating fossil fuels will not make that construction process go faster. It only means Maryland will be importing energy from neighboring states burning fossil fuels. We need to be looking at real solutions such as increasing nuclear power and using carbon capture on existing fossil fuel facilities.

Please **OPPOSE HB 806**.

Sincerely,

Jason Ascher
Political Director
Mid-Atlantic Pipe Trades Association

HB 806 Building Standards Emissions Reductions Hig

Uploaded by: Jeffry Guido

Position: UNF

May 14, 2021

Electrical Workers
Insulators
Boilermakers
United Association
Plumbers & Gas Fitters
Sprinkler Fitters
Steam Fitters
Roofers
Cement Masons
Teamsters
Laborers
Bricklayers
Ironworkers
Sheet Metal Workers
Elevator Constructors
Painters
Operating Engineers
Carpenters

Maryland House of Delegates Appropriations Committee
Chair: Maggie McIntosh

Vice Chair: Mark S. Chang

House Bill 806 Building Standards and Emissions Reductions – High Performance, State, and Local Government Buildings, State Operations, and Eligible Projects

Position: **OPPOSE**

The Baltimore DC Metro Building Trades Council Opposes House Bill 806. Maryland's renewable energy in the form of hydroelectric, solar, wind and biomass only provides 11% of Maryland's energy use, 75% of which is imported. Nuclear energy and Natural gas provide 79% with 41% and 38% respectively and coal accounts for 9%. Solar and wind have not reached a capacity to replace this reliable on demand energy. The solar and wind industry has not paid the same family sustaining wages that have been provided by the nuclear, fuel gas and coal industries. It is important to have labor standards attached to all green construction and renewable energy projects. As our tax dollars are being spent the application of these standards are imperative to protection of the living standards and empowerment of Maryland's working families. These standards include paying the area prevailing wage standard for each trade, including the wages and fringe benefits per trade, and be subject to all state reporting and compliance requirements. Participation in an apprenticeship program registered with the State of Maryland for each trade employed on the project. Contractors that have been compliant with federal and state wage and hour laws in the previous three years. The establishment and execution of a plan for outreach, recruitment, and retention of Maryland residents to perform work on the project—including residents who are returning citizens, women, minority individuals, and veterans—with an aspirational goal of 25 percent of total work hours performed by Maryland residents, including individuals in one or more of the groups identified. Our members are certified and licensed skilled crafts persons that install these systems safely and economically. As a less carbon (not carbon less) future is inevitable the Baltimore DC Building Trades leads the State in green energy construction training though our apprenticeship and journey person programs.

We ask the committee for an unfavorable vote. Thank you.

Respectfully, Jeffry Guido -Baltimore-DC Metro Building Trades Council

Value on Display... Everyday.

HBFUTURE-Unfavorable-Fink-D32.pdf
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UNFAVORABLE Testimony - HB 0806, HB729
Nelda Fink, 8372 Norwood Dr, Millersville
MD District 32

No. School buildings emissions are not the problem. Manufacturing buildings and lawn mowers are the major problem. This is unnecessary expense to the taxpayer.

OPPOSE These Bills!

Nelda Fink