American Council for an Energy-Efficient Economy

RE: Bill 13-22 – Comprehensive Building Decarbonization

July 29, 2022
Letter of Support

Dear Council President Albornoz and members of Council, my name is Edward Yim, and I lead ACEEE's state and utility policy team. ACEEE, which stands for the American Council for an Energy Efficient Economy, is a nonpartisan, non-profit organization founded in 1980, which provides research, education, and advocacy on energy efficiency matters to local, state, and federal governments, as well as to utilities and utility regulators.

ACEEE supports Bill 13-22, which would require the county to issue all-electric building standards for new construction as well as major renovations and additions by January 1, 2024. At ACEEE, we support "beneficial electrification," which means electrifying energy uses that result in lower energy use, lower consumer costs, and lower GHG emissions. Bill 13-22 will advance beneficial electrification, and it will help achieve the climate goals of the Montgomery County and the State of Maryland, as codified in the Climate Solutions Now Act of 2022.

It is well-known that building decarbonization is essential to avoid the worst impacts of climate change[1], and it is especially critical for new construction given their longevity. Also, electrification generally reduces new construction costs by avoiding the need to install and pay for gas service. In short, we must build them correctly the first time; we will not get "another bite at the apple".

ACEEE recently published a study of several thousand homes across the United States, examining a variety of decarbonization options for space and water heating.[2] Our results show that for homes with one to four units in milder climates such as Maryland, cold-climate electric heat pumps generally represent the most cost-efficient option for heating and cooling.[3] For water heating in one- to four-family homes, electric heat pump water heaters have the lowest life-cycle costs in all parts of the United States. Our overall conclusion regarding the transition to decarbonized homes is that electrification will be needed in most places, while alternative, decarbonized fuels will be needed in very cold places, i.e. north of Detroit.

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[1] See the 2018 Special Report by the Intergovernmental Panel on Climate Change, https://www.ipcc.ch/sr15/chapter/spm/ "Pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems (*high confidence*)."

[2] Nadel, S., and L. Fadali. 2022. Analysis of Electric and Gas Decarbonization Options for Homes and Apartments. Washington, DC: ACEEE. www.aceee.org/research-report/b2205.

[3] For larger buildings, the finding is preliminary given the limited data.

Likewise, the Maryland Commission on Climate Change issued a Building Energy Transition Plan in November 2021, developed with a broad and diverse group of stakeholders to identify recommendations for decarbonizing the building sector. Of these recommendations, the top recommendation is to adopt an all-electric construction code so that new buildings could meet their space and water heating demand without the use of fossil fuels. The Commission's consultant, E3, studied the impacts of the recommendation and found that it would reduce construction and energy costs for most building types.[4]

We also note that from 2017 to 2020 the District of Columbia Public Service Commission authorized Washington Gas's pilot program called "Multi-Family Piping Program", which was "designed to incentivize the developers and builders of multi-family projects in the District of Columbia to use natural gas as an energy source."[5] The reason that the monetary incentive became necessary for Washington Gas is because the installation cost for electricity for builders and developers is often cheaper than it is for natural gas in the District of Columbia.

Lastly, we seek to clarify a few points made by commenters on the bill. First, while the potential grid impacts of electrification must be further studied, it should be noted that grid impacts are often highly localized, and many parts of the grid in Montgomery County may already have sufficient existing capacity to absorb electrification of new buildings. We note that the bill is aimed at new buildings, not all buildings. Further, grid impacts can be successfully managed by using a combination of energy efficiency and demand response, particularly in an area such as Montgomery County with mild winters. Studying the grid challenges that Texas faced in winter 2021, we released a whitepaper, which found that a set of 7 residential energy efficiency and demand response programs, deployed heavily over a 5-year period, could offset about 7,650 MW of summer peak load and 11,400 MW of winter peak load, roughly equaling the capability of the proposed new gas generators.[6] In short, there are cost-effective solutions to manage grid impacts and reduce peak demand, which will increase the use of energy efficiency and demand response, while improving air quality and public health. Concerns of grid impacts should not cause the delay of cost-effectively decarbonizing new buildings, via electrification, in Maryland.

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[4] https://mde.maryland.gov/programs/air/ClimateChange/MCCC/Commission/Building%20Energy%20Transition%20Plan%20-%20MCCC%20approved.pdf
https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/Documents/MWG_Buildings%20Ad%20Hoc%20Group/E3%20Maryland%20Building%20Decarbonization%20Study%20-%20Final%20Report.pdf

[5] https://edocket.dcpsc.org/apis/api/Filing/download?attachId=88933&guidFileName=cf7a0ebc-d182-401e-9271-810cb9c7e073.pdf (DC PSC Order on 12/5/2019, denying the extension of the Multifamily Piping Program Pilot)

[6] "Energy Efficiency and Demand Response: Tools to Address Texas's Reliability Challenges", October 2021, https://www.aceee.org/sites/default/files/pdfs/energy_efficiency_and_demand_response_for_texas_10-13-21_final_0.pdf

Second, a commenter cites a U.S. Department of Energy data, somewhat out of context,[7] claiming that the direct use of natural gas is 3.4 times more affordable than electricity. We find the citation to be misleading because the assumption in the cited US DOE data is for electric resistance heating, which is a highly inefficient and outdated method of space heating. In comparison, an air source heat pump's energy efficiency can be 2.5 to 4 times greater than resistance heating, thereby drastically reducing the heating and cooling bills for consumers and eliminating any operational cost advantages of natural gas equipment.

Third, we note that the Climate Solutions Now Act will further accelerate the decarbonization of electricity for Marylanders, which will provide greater GHG savings for all-electric buildings than buildings that rely on fossil-fuel combustion.

For these reasons, we support Bill 13-22, and urge its passage.

[7] https://www.federalregister.gov/documents/2022/03/07/2022-04765/energy-conservation-program-for-consumer-products-representative-average-unit-costs-of-energy