Montgomery County Council

Committee: PHED
Committee Review: Completed
Staff: Livhu Ndou, Legislative Attorney
Purpose: Action
Keywords: #Decarbonization #ElectricBuildings

AGENDA ITEM #15C
November 29, 2022
Action

SUBJECT

Bill 13-22, Buildings – Comprehensive Building Decarbonization

Lead Sponsor: Councilmember Riemer

Co-Sponsor: Councilmember Jawando

EXPECTED ATTENDEES

- Lindsey Shaw, Section Chief, Office of Energy and Climate, DEP
- Garrett Fitzgerald, State Climate and Energy Policy Manager, DEP
- Bryan Bomer, Sustainability, Energy, and Mechanical Manager, Division of Commercial Building Construction, Department of Permitting Services (DPS)

COUNCIL DECISION POINTS & COMMITTEE RECOMMENDATION

The Planning, Housing, and Economic Development (PHED) Committee unanimously recommends approval with amendments.

DESCRIPTION/ISSUE

Bill 13-22 will require the County Executive to issue all-electric building standards for new construction, major renovations, and additions by January 1, 2024.

SUMMARY OF KEY DISCUSSION POINTS

- As submitted, Bill 13-22 would require the CE to develop all-electric building standards with exemptions for certain systems and uses. In addition, income-restricted housing and schools have an extended timeline.
- The PHED recommends several amendments to Bill 13-22 which include limiting the all-electric standards to new construction, adding additional exemptions, and extending the effective date.
- Additional proposed amendments have been received since the most recent PHED worksession, including a phase-in for residential buildings, additional exemptions, and requiring additional reports and audits from the County Executive.

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AGENDA Item #15C
November 29, 2022
Action

M E M O R A N D U M

November 23, 2022

TO: County Council

FROM: Livhu Ndou, Legislative Attorney

SUBJECT: Bill 13-22, Buildings – Comprehensive Building Decarbonization

PURPOSE: Action – Roll call vote expected

PHED Committee recommendation (3-0): approval with amendments

EXPECTED ATTENDEES:

- Lindsey Shaw, Section Chief, Office of Energy and Climate, DEP
- Garrett Fitzgerald, State Climate and Energy Policy Manager, DEP
- Bryan Bomer, Sustainability, Energy, and Mechanical Manager, Division of Commercial Building Construction, Department of Permitting Services (DPS)

INTRODUCTION

Bill 13-22, Buildings – Comprehensive Building Decarbonization, lead sponsor Councilmember Riemer, co-sponsor Councilmember Jawando, was introduced on June 14, 2022. This bill, as introduced, would require the County Executive to issue all-electric building standards by January 1, 2024, for new construction, major renovations, and additions.

The Council held a worksession on Bill 13-22 on November 15, 2022.[1] The purpose of this memo is to provide information on the amendments recommended by the PHED Committee, amendments proposed since the last PHED worksession, and address any remaining issues.

PHED COMMITTEE AMENDMENTS

The PHED Committee held two worksessions on Bill 13-22 – on October 17 and November 3, 2022. The PHED Committee recommended approval of Bill 13-22 with several amendments.

[1] The staff report for the November 15, 2022, Council worksession can be found here: https://www.montgomerycountymd.gov/council/Resources/Files/agenda/col/2022/20221115/20221115_2.pdf

Remove "major renovations" and "additions"

The County's recent BEPS legislation focuses on efficiency, and the state BEPS legislation requires most existing buildings 35,000 square feet or more to reach net-zero direct GHG emissions by 2040. National building code trends are also moving in the direction of electrification of existing buildings. To allow additional time to address how decarbonization will apply to major renovations, the PHED Committee recommends the removal of major renovations and additions from Bill 13-22.

> (b) Standards. The County Executive must issue Method (2) regulations to establish all-electric building standards for all new construction~~, major renovations, and additions~~ as part of the building code.*

*The definitions for "addition", "major renovation" and "major structural components" will also be removed.

Additional Exemptions

1) Buildings used to treat sewage or food waste

The PHED Committee reviewed exemptions in other jurisdictions, which included buildings that treat sewage or food waste. The PHED Committee recommended including this exemption in Bill 13-22 but noted that if the building is County-owned, the County Executive is encouraged to make the building all-electric.

> (c) *Exemptions.* All-electric building standards do not apply to:
> ***
> (3) buildings used to treat sewage or food waste;

2) Restaurants

As introduced, Bill 13-22 exempted Commercial Kitchens. Under Section 3.5.14.D. of the Zoning Ordinance, Commercial Kitchen is defined as "a part of a building that is accessory to Religious Assembly (Section 3.4.10) or Public Use (Except Utilities) (Section 3.4.9) and satisfies the requirements of Chapter 15 for the preparation of food that could be sold to the public." To ensure all restaurants are exempted, Councilmember Riemer proposed including restaurants as defined in the zoning ordinance. Restaurants are defined in Section 3.5.3.B. of the Zoning Ordinance as "any structure and land for the preparation and sale of food or drink for consumption. Restaurant includes catering, take-out services, and banquet facilities, but does not include a Drive-Thru (see Section 3.5.14.E, Drive-Thru)." After a suggestion from DPS, the PHED Committee recommends exempting only the cooking portion of restaurants and commercial kitchens, not the dining area, bathrooms, or other spaces. [2]

[2] Chapter 15 of the County Code, "Eating and Drinking Establishments", defines an eating and drinking establishment as "any food service facility." Chapter 15 then defines food service facility as "any enterprise that prepares or sells food or drink for human consumption on or off the premises."

(c) *Exemptions.* All-electric building standards do not apply to:

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(4) commercial kitchen equipment in an eating and drinking establishment that satisfies the requirements of Chapter 15;

3) Buildings used for farming

The Agricultural Advisory Committee, the Agricultural Preservation Advisory Board, and the Montgomery Agricultural Producers asked for an exemption for agricultural buildings used for farming uses as defined by the Zoning Ordinance. The letters argue that Bill 13-22 would have a negative impact on farmers because it would add additional costs. Specifically, that it would impede the ability to install new grain bin and drying systems and build new greenhouses and aquaponic operations with industry standard heating units.

Section 3.2.6. of the Zoning Ordinance defines "Farming" as

> the practice of agriculture on a property, and any associated buildings. Agriculture means the business, science, and art of cultivating and managing the soil; composting, growing, harvesting, and selling crops, and the products of forestry, horticulture, and hydroponics; breeding, raising, managing, or selling livestock, including horses, poultry, fish, game, and fur-bearing animals; dairying, beekeeping, and similar activities; and equestrian events and activities. Agriculture includes processing on the farm of an agricultural product to prepare the product for market and may cause a change in the natural form or state of the product.

The definition also includes some related accessory uses, such as accessory agricultural processing and storage of products, the sale of products of agriculture and agricultural processing, and delivery and installation of horticultural products.

The amendment would read:

(c) *Exemptions.* All-electric building standards do not apply to new construction, major renovations, or additions in:

***

(5) buildings used for the following uses, as defined in Chapter 59:

***

(E) Farming.

4) Farm Alcohol Production

The PHED Committee discussed whether this bill should apply to breweries due to the energy needed to boil large quantities of liquid. Bill 13-22, as introduced, already lists "Manufacturing and Production uses" as an exemption. This would capture those breweries or distilleries that are included under Light Manufacturing and Production, which is already exempt. However, there is another use in the Zoning Ordinance that includes breweries – "Farm Alcohol Production", defined

as "the transformation of agricultural products into alcoholic beverages. Farm Alcohol Production includes wineries, cideries, breweries, or distilleries on farms. Farm Alcohol Production may include other activities unrelated to the production and sale of alcohol or farming under certain circumstances." The PHED Committee therefore recommended including Farm Alcohol Production as an exemption.

> (c) *Exemptions.* All-electric building standards do not apply to new construction, major renovations, or additions in:
>
> ***
>
> (5) buildings used for the following uses, as defined in Chapter 59:
>
> ***
>
> (E) Farming and Farm Alcohol Production.

Additional time for regulations

The PHED Committee also recommends changing the effective date from January 1, 2024, to January 1, 2025; and extending the effective date for affordable housing and schools by 1 year as well. However, Council President Albornoz proposes amending the effective date to match that of Washington, D.C.'s, to ensure consistency in the region. That amendment is discussed further below.

COUNCIL PRESIDENT ALBORNOZ PROPOSED AMENDMENTS

Effective dates

1) *Match Washington, D.C.'s effective date:*

Recognizing the impact of differing legislation on developers and utility providers, this amendment will allow for consistency in rollout throughout the region.[3]

> Sec. 2. Effective Date. The County Executive must issue all-electric building standards for new construction as part of the County's next building code adoption cycle after this Act takes effect but not later than December 31, 2026.

2) *Change the effective date for affordable housing and schools*

This amendment follows the above amendments to change the effective date to December 31, 2026. It will ensure that affordable housing and schools are given additional time, consistent with the lead sponsor's original intent.

[3] Washington, D.C.'s legislation can be found here: https://lims.dccouncil.gov/downloads/LIMS/47959/Signed_Act/B24-0420-Signed_Act.pdf.

Sec. 3. All-Electric Transition. Section 8-14C(b) of this Act must not apply to: (1) housing development projects where 50 percent or more of the dwelling units are moderately priced dwelling units as defined by Chapter 25A, or a similar instrument with a federal, state, or local government for the creation or preservation of income-restricted or market-rate affordable housing, if the building permit application was submitted before January 1, 2028; or (2) public or private schools for which a building permit application was submitted before January 1, 2028.

3) Phase in residential buildings based on number of units:

The intent of this amendment is to give the electric companies time to adjust to the increased electric load growth by gradually investing in the system.

(b) All-electric building code standards for new construction shall take effect for:
(1) Residential buildings with three or fewer dwelling units on or after December 31, 2026;
(2) Residential buildings with greater than three but fewer than ten dwelling units on or after December 31, 2027; and
(3) Residential buildings with ten or greater dwelling units on or after December 31, 2029.

Report on results of PSC Study

Senate Bill 528 ("The Climate Solutions Now Act") became law on April 9, 2022. That bill required the Maryland Public Service Commission (PSC) to complete a study on the "capacity of each [utility's] gas and electric distribution systems to successfully serve customers under a managed transition to a highly electrified building sector." A report of the Commission's findings is due by September 30, 2023. Testimony from relevant County agencies, the utility companies, and environmental groups has been mixed as to whether this bill should be held until completion of the study. To address these concerns, the below amendment requires the County Executive to submit a report to Council after release of the study. This report would be due before the regulations, which will allow both the County Executive and the Council to consider the results of the study before the regulations are drafted and approved. The County Executive is encouraged to confer with the electric companies before submitting the report.

The County Executive must submit a report to the County Council regarding the system capacity needs and investments required for an all-electric building code standard no later than September 30, 2024, and not before December 1, 2023. This report must include a review of any studies issued by the Public Service Commission and should include information provided by the electric companies that service Montgomery County.

Alternative energy sources

Testimony in opposition criticizes the bill for not allowing alternative energy sources that may achieve decarbonization but are not all-electric. Therefore, the below amendment creates a waiver process to accommodate projects that are carbon-neutral or net-zero. This amendment, combined with the extended effective dates, will allow for the application of future technologies that are consistent with the County's goals.

> ***
> (3) The regulations must include a waiver process. A waiver must only be granted if the resulting building is carbon-neutral or net-zero.

Change from Method (2) to Method (1) regulations

This amendment provides the Council with additional oversight over the regulations. Method (2) regulations require the Council to approve or disapprove the proposed regulation within 60 days of receiving it. If the Council fails to act within 60 days, and no extensions are taken, the regulations automatically take effect the day after the deadline. By amending to Method (1) regulations, the regulation will not be adopted until the Council approves it.

> The County Executive must issue Method (1) regulations to establish all-electric building standards for all new construction as part of the building code.

Additional exemptions: gas fireplaces and outdoor grills

Correspondence was received regarding gas fireplaces and outdoor grills. Stakeholders argue that gas-powered fireplaces are more efficient and burn cleaner than wood-burning fireplaces. They also argue that gas-powered grills emit fewer air pollutants than charcoal.

Charcoal is not the only alternative to gas-powered grills, as propane is still an available option. But this amendment could prevent a situation where consumers who would have used gas switch to charcoal. DPS has raised concerns that allowing this gas hookup for grills or fireplaces could create a loophole where, after permitting, a homeowner switches to natural gas for heating and cooling systems. However, the home would already have a heat pump installed consistent with the regulations.

> ***
> (5) gas-powered fireplaces;
> (6) gas-fired outdoor grills;

Annual audit

During the November 15, 2022, Council worksession, Councilmember Navarro and Council President Albornoz asked for recommendations that would allow the Council to evaluate the

progress of decarbonization. As noted above, one proposed amendment would require a report from the County Executive, due after the PSC study. The Washington, D.C. legislation includes language requiring their Department of Buildings to provide an independent audit of buildings effected by the legislation and provide that audit to the Mayor and Council. The below amendment would require DPS to produce a similar report, with specific requests for information on the number of applications received and the number of waivers granted. The below language also requires information on the current rates effecting consumers, in response to a request from Councilmember Rice, discussed further below. This amendment would ensure that the Council regularly reviews the effects of the all-electric building code and will provide enough information to determine whether amendments to the bill are necessary. This audit would begin after the effective date of the regulations.

> The Department of Permitting Services must arrange for an annual audit that assesses a representative sample of new construction that complies with this section. The audit must include the number of applications submitted for new construction, the number of waivers granted, current electric rates for consumers, and an analysis of any alternative energy sources used. A complete copy of the audit findings must be submitted to the County Council on June 1 each year, beginning June 1, 2028.

ADDITIONAL ISSUES

1) *What are the cost implications of building decarbonization?*

Councilmember Rice requested additional information and possible amendments on the costs to consumers. Information on the costs of electrification is split. Much of the written and oral testimony notes the differences between gas and electricity bills, stating that electric bills are significantly higher. But the Office of People's Counsel for the State of Maryland recently released a report warning that gas utility consumers will likely see substantial and continued increases in their gas bills in the coming years.[4] And in a letter to the PHED Committee, the Maryland Department of the Environment (MDE) found that for single-family homes, all-electric homes cost less to construct than new mixed-fuel homes; for multifamily buildings, all-electric buildings cost about the same to construct as mixed-fuel buildings; and for commercial buildings, all-electric buildings can have higher or lower construction costs than mixed-fuel buildings depending on building type and use.

Several financial incentives exist to encourage building decarbonization:

- **Maryland Clean Energy Advantage (CEA) Loan Program** – This financing program helps residential property owners in Maryland complete energy efficiency improvements. The program is administered, in partnership, by the Maryland Clean Energy Center and the Montgomery County Green Bank and sponsored by most local utility partners who have been authorized by the Maryland Public Service Commission to fund the program.

[4] The full report can be found here: https://opc.maryland.gov/Portals/0/Files/Publications/Reports/Report%20on%20GasUtilitySpending%2010-5-22%20Final.pdf?ver=YmuLxscCifs4_S5Oryfwqg%3d%3d

- **Montgomery County Green Bank –** The MCGB has residential financial programs to help Montgomery County homeowners finance projects that improve energy efficiency or to install renewable energy systems.[5] It also provides financing for commercial property owners, developers, and businesses. On February 11, 2022, the Council passed Bill 44-21, lead sponsors Councilmembers Hucker and Friedson, which required the Green Bank to use 20% of the funds allocated by the County in equity emphasis areas and 15% of the funds for reducing the cost of energy projects undertaken by property owners. The bill also prohibited the use of the County funds to install new or retrofitted mechanical energy appliances that use fossil fuels.[6]
- **Inflation Reduction Act –** This recently passed federal legislation included substantial funding to reduce carbon emissions.[7] Included in the Act are:
    - rebates covering 50-100% of the cost of installing new electric appliances, including super-efficient heat pumps, water heaters, clothes dryers, stoves, and ovens;
    - rebates for households to make repairs and improvements in single-family and multi-family homes to increase energy efficiency;
    - tax credits covering 30% of the costs to install solar panels and battery storage systems, make home improvements that reduce energy leakage, or upgrade heating and cooling equipment;
    - tax credits covering 30% of the costs of community solar projects with additional bonus credits of 20% for projects at affordable housing properties and 10% for projects in low-income communities; and
    - grants to help state and local governments adopt the latest building energy codes.

The County Executive has also indicated that a Request for Proposal (RFP) for incentive programs included in the FY23 Operating Budget will be released shortly.

The amendment requiring an annual audit requires the Department of Permitting Services to include current electric rates for consumers. It could also be beneficial for relevant agencies, such as DEP or DPS, to post information about state and federal incentive programs on their websites.

2) What changes need to be made to provide adequate infrastructure?

Electric companies have raised concerns with infrastructure siting. Specifically, that new substation, transmission lines, and distribution feeders will be required across the service territory. Some required infrastructure can take years to construct, and the approval processes can add additional time burdens. Therefore, changes to the zoning, permitting, environmental, and other approvals necessary to cite the electric infrastructure may be necessary to serve the electricity load driven by an all-electric building code standard. The Council should therefore consider future bills or zoning text amendments (ZTAs) that help expedite those necessary approvals.

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[5] More information on the residential financial programs can be found here: https://mcgreenbank.org/residential-programs/. More information on the commercial financing programs can be found here: https://mcgreenbank.org/commercial-programs/.

[6] Bill 44-21 can be found here: https://apps.montgomerycountymd.gov/ccllims/DownloadFilePage?FileName=2735_1_20036_Bill_44-21_Signed_20220211.pdf.

[7] The benefits of the Inflation Reduction Act for the State of Maryland can be found here: https://www.whitehouse.gov/wp-content/uploads/2022/08/Maryland.pdf.

3) What if additional exemptions are necessary?

The PHED Committee asked whether, if in the process of developing the regulations the County Executive finds that additional uses will not be able to conform to all-electric building standards, they could be added in the regulations. Due to the approval process for regulations, the Council can approve or disapprove the regulations, but not amend them. Hypothetically, if the Council approved regulations that included an additional exemption, that use or system would be exempt. However, to avoid challenges on this issue, the Council could include an amendment that gives the County Executive discretion to add additional exemptions if a certain standard is met.

(1)	The regulations may include additional exemptions not listed in section 8-14D(c) if all-electric buildings standards cannot be applied to a particular system or use due to practical difficulty or undue hardship.

This packet contains:

Bill 13-22, as amended by PHED Committee	© 1
Joint Memo from Councilmember Riemer and the County Executive	© 5
Legislative Request Report	© 7
Fiscal Impact Statement	© 8
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Bill No. 13-22
Concerning: Buildings – Comprehensive Building Decarbonization
Revised: 11/4/2022 Draft No. 2
Introduced: June 14, 2022
Expires: December 23, 2024
Enacted: _____
Executive: _____
Effective: _____
Sunset Date: _____
Ch. _____, Laws of Mont. Co. _____

COUNTY COUNCIL
FOR MONTGOMERY COUNTY, MARYLAND

Lead Sponsor: Councilmember Riemer
Co-Sponsor: Councilmember Jawando

AN ACT to:

(1) require the County Executive to issue a building code by a certain date with "all-electric building" standards for new construction **[[**and major renovation**]]**; and
(2) generally amend the building code.

By amending
Montgomery County Code
Chapter 8, Buildings
Article II, Administration
Section 8-14C, Decarbonization for New Construction

Boldface	*Heading or defined term.*
Underlining	*Added to existing law by original bill.*
[Single boldface brackets**]**	*Deleted from existing law by original bill.*
Double underlining	*Added by amendment.*
[[Double boldface brackets**]]**	*Deleted from existing law or the bill by amendment.*
* * *	*Existing law unaffected by bill.*

The County Council for Montgomery County, Maryland approves the following Act:

Sec. 1. Section [[8-14C]] 8-14D is amended as follows:

[[8-14C]] 8-14D. [RESERVED] Comprehensive Building Decarbonization.

(a) *Definitions*. In this section, the following words have the meanings indicated:

[[*Addition* means construction of any new walled or roofed expansion to the perimeter of a building in which the addition is connected.**]]**

All-electric building means a public or private building that contains no combustion equipment, or plumbing for combustion equipment, installed within the building or building site.

Combustion equipment means any equipment or appliance used for space heating, service water heating, cooking, clothes drying and/or lighting that uses fuel gas or fuel oil.

[[*Major renovation* means any renovation where the work area exceeds 50% or more of major structural components, including exterior walls, interior walls, floor area, roof structure, or foundation, or has an increase of 50% or more of floor area.**]]**

[[*Major structural components* means the structural components of the building, addition, or major renovation, namely the foundations, footings, supports, joists, bearing walls, subfloor, roof, structural columns, and beams.**]]**

New construction means the construction of any new stand-alone building, with no remnants of any prior structure or physical connection to existing structures or outbuildings on the property.

(b) *Standards.* The County Executive must issue Method (2) regulations to establish all-electric building standards for all new construction**[[**, major renovations, and additions**]]** as part of the building code.

(1) These regulations may include code modification language.

(2) The regulations may include additional exemptions not listed in section 8-14D(c) if all-electric buildings standards cannot be applied to the system or use due to practical difficulty or undue hardship.

(c) *Exemptions.* All-electric building standards do not apply to new construction**[[**, major renovations, or additions**]]** in:

(1) the emergency backup systems of buildings that require an emergency system and hence backup power;

(2) buildings primarily used by a utility regulated by the Maryland Public Service Commission for the generation of electric power or steam;

(3) buildings used to treat sewage or food waste;

(4) cooking appliances in an eating and drinking establishment that satisfies the requirements of Chapter 15;

[[(3)**]]**(5) applications for building permits submitted to the Department prior to the effective date of the regulation;

[[(4)**]]**(6) district combined heat and powers facilities; and

[[(5)**]]**(7) buildings used for the following uses, as defined in Chapter 59:

(A) Manufacturing and Production uses;

(B) Crematory;

(C) Life Sciences; **[[**and**]]**

(D) **[[**Commercial Kitchens**]]**Hospital; and**[.]**

(E) Farming and Farm Alcohol Production.

Sec. 2. Effective Date. The County Executive must issue all-electric building standards for new construction**[[**, major renovation, and additions**]]** as part of the

54 County's next building code adoption cycle after this Act takes effect but not later than
55 January 1, **[[**2024**]]**2025.
56 **Sec. 3. All-Electric Transition.** Section 8-14C(b) of this Act must not apply to:
57 (1) housing development projects where 50 percent or more of the dwelling units are
58 moderately priced dwelling units as defined by Chapter 25A, or a similar instrument
59 with a federal, state, or local government for the creation or preservation of income-
60 restricted or market-rate affordable housing, if the building permit application was
61 submitted before January 1, **[[**2026**]]**2027; or (2) public or private schools for which a
62 building permit application was submitted before January 1, **[[**2026**]]**2027.

ROCKVILLE, MARYLAND 20850

M E M O R A N D U M

June 9, 2022

TO: Gabe Albornoz, President
Montgomery County Council

FROM: Marc Elrich, County Executive

Hans Riemer, Chair
Planning, Housing, and Economic Development Committee

SUBJECT: Introduction of Bill 13-22, Comprehensive Building Decarbonization

We have partnered on legislation to accelerate the decarbonization of the County's building sector. Bill 13-22, Buildings – Comprehensive Building Decarbonization, scheduled for introduction at the County Council on June 14. The legislation requires the County Executive to issue all-electric building standards for new construction, major renovations, and additions by January 1, 2024.

This legislation aims to accelerate an evolution already underway across the country and right here in Montgomery County of the building sector moving towards 100% electric-powered systems. Instead of systems that rely on the combustion of fossil fuels (e.g., natural gas furnaces and boilers), fully electric buildings take advantage of market-available technologies (e.g., heat pumps, electric water heating, electric cooking) that are cleaner, more energy-efficient, and cost-effective.

Consistent with the latest recommendation of the Maryland Commission on Climate Change to electrify new construction by 2024, the legislation also mirrors ordinances enacted in jurisdictions like New York City, San Jose, San Francisco, and Seattle.

The latest report from the U.N. Intergovernmental Panel on Climate Change (IPCC) delivered a stark warning that urgent mitigation measures are needed now to avert calamity to our climate, our economies, and our very way of life. At the current rate of emissions, the planet will irrevocably exceed the 1.5 degrees Celsius of warming by 2030, which is the maximum level adopted by world leaders in the Paris Climate Agreement. Recent instances of local flooding demonstrate that Montgomery County is far from immune to the damaging effects of climate change.

Fortunately for the planet, the IPCC report charts a path forward to a sustainable future with tried-and-true, currently available technologies. That path requires a coordinated effort at all levels of government and industry to transition away from using fossil fuels–primarily our transportation and building sectors–and dramatically scale up renewable energy production (e.g., wind, solar, geothermal) to clean the electricity grid. At the federal level, the Biden Administration invoked the Defense Production Act in June 2022 to scale up the domestic production of clean energy technologies, including heat pumps, while the Senate is working on manufacturing tax credits to further reduce costs.

Locally, we need to match these initiatives with the deployment of the clean energy technology. The building sector accounts for 50% of the County's emissions. Bill 13-22 complements the County's recent work a) to improve existing building energy performance through Building Energy Performance Standards (BEPS) b) to invest nearly $20 million annually in the County's Green Bank for energy efficiency upgrades across the County, c) to enhance the County's green buildings property tax credit for sustainable design, and d) to improve the County's commercial property-assessed clean energy (CPACE) program.

In addition to the climate benefits, there is mounting evidence that decarbonized buildings are a) cheaper over the life of the building; b) safer from explosion since they do not rely on a highly flammable fossil fuels for energy, and; c) healthier for indoor air quality since they do not produce carbon monoxide and nitrogen oxide as byproducts, pollutants that have been shown to contribute asthma in children, respiratory illness, cardiovascular disease, and premature death - a problem disproportionately affecting communities of color.

The legislation acknowledges that there are isolated examples where 100% electric is not yet feasible, or an extended timeline is warranted. Exemptions are provided for utility generation, as well as systems related to emergency backup systems of buildings that require emergency power, life science uses, manufacturing, crematoriums, district combined heat and power facilities, and commercial kitchens. There are also extended compliance timelines for affordable housing and school construction.

It is important to note that this bill does not itself create the all-electric standards but codifies a process for when they must be issued and sets framework around inclusions and exemptions. The legislation requires the all-electric standards to be developed during the next building code adoption cycle and to be issued by January 1, 2024.

All-electric building standards are a crucial step for the County to achieve its zero-greenhouse gas emissions goal through ensuring future construction is electrified.

cc: Adriana Hochberg, Acting Director, Department of Environmental Protection
Mitra Pedoeem, Director, Department of Permitting Services

LEGISLATIVE REQUEST REPORT

Bill 13-22
Buildings – Comprehensive Building Decarbonization

DESCRIPTION:	Bill 13-22 would require the County Executive to adopt all-electric building standards by January 1, 2024, for new construction, major renovations, and additions.
PROBLEM:	Climate change.
GOALS AND OBJECTIVES:	The goal is to ensure all-electric building standards will become part of the County's building code, in order to ensure construction will be for a zero-greenhouse gas emissions future.
COORDINATION:	Department of the Environment (DEP) and Department of Permitting Services (DPS)
FISCAL IMPACT:	To Be Completed
ECONOMIC IMPACT:	To Be Completed
RACIAL EQUITY AND SOCIAL JUSTICE IMPACT:	To Be Completed
EVALUATION:	To Be Completed
EXPERIENCE ELSEWHERE:	New York, San Francisco, Denver
SOURCE OF INFORMATION:	Livhu Ndou, Legislative Attorney
APPLICATION WITHIN MUNICIPALITIES:	N/A
PENALTIES:	N/A

Fiscal Impact Statement
Bill 13-22 Buildings – Comprehensive Building Decarbonization

1. **Legislative Summary.**

   Bill XX-22 requires the County Executive to adopt all-electric construction standards for new construction, major renovations, and additions by January 1, 2024. It further establishes a framework for inclusions and exemptions in those standards.

2. **An estimate of changes in County revenues and expenditures regardless of whether the revenues or expenditures are assumed in the recommended or approved budget. Includes source of information, assumptions, and methodologies used.**

   Bill XX-22 is not expected to have an impact on County revenues or expenditures because it only requires the adoption of all-electric buildings standards as part of the regular code adoption process and does not set the standards itself. It is possible that once the standards are adopted, the cost of County construction projects could increase to meet the all-electric standard, although that could also result in operational savings.

3. **Revenue and expenditure estimates covering at least the next 6 fiscal years.**

   See response to Question 2.

4. **An actuarial analysis through the entire amortization period for each bill that would affect retiree pension or group insurance costs.**

   This Bill is not expected to impact retiree pension or group insurance costs.

5. **An estimate of expenditures related to County's information technology (IT) systems, including Enterprise Resource Planning (ERP) systems.**

   This Bill is not expected to impact the County's IT or ERP systems.

6. **Later actions that may affect future revenue and expenditures if the bill authorizes future spending.**

   This Bill does not authorize future spending.

7. **An estimate of the staff time needed to implement the bill.**

   If approved, this Bill will be implemented during the building code adoption process under typical staff time.

8. **An explanation of how the addition of new staff responsibilities would affect other duties.**

   This Bill is not expected to create new staff responsibilities and enforcement would be performed by the Department of Permitting Services (DPS) covered by DPS' existing fee structure.

9. **An estimate of costs when an additional appropriation is needed.**

   Not applicable.

10. **A description of any variable that could affect revenue and cost estimates.**

    Not applicable.

11. **Ranges of revenue or expenditures that are uncertain or difficult to project.**

    Though this Bill does not have an impact on revenues or expenditures, the all-electric standards that would result could increase the cost of County construction projects by requiring them to be built as all electric structures. The County construction projects will need to be all electric to meet the County's climate goals. However, all electric construction typically has lower operating costs once the facility is in use.

12. **If a bill is likely to have no fiscal impact, why that is the case?**

    Not applicable.

13. **Other fiscal impacts or comments.**

    Not applicable.

14. **The following contributed to and concurred with this analysis:**

    Bryan Bomer, Department of Permitting Services
    Jason Mathias, Department of Environmental Protection
    Rick Merck, Department of Permitting Services
    Vicky Wan, Department of Environmental Protection
    Richard H. Harris, Office of Management and Budget

Jennifer Bryant, Director
Office of Management and Budget

6/15/22
Date

Economic Impact Statement

Office of Legislative Oversight

Bill 13-22 Buildings – Comprehensive Building Decarbonization

SUMMARY

The Office of Legislative Oversight (OLO) anticipates that enacting Bill 13-22 likely would have a net negative impact on economic conditions in the County in terms of the Council's priority indicators. By expediting the establishment of an all-electric building code for new construction and major renovations in the commercial and residential building sectors, the Bill would have short- and long-term impacts on *many* County-based private organizations and residents across *numerous* economic indicators. In general, the commercial building sector likely would be negatively impacted due to higher up-front costs and various risks (e.g., uncertain relative energy prices and lower than anticipated energy savings), which would increase the likelihood of certain market actors receiving a net negative return on their investment in building electrification. In contrast, the residential building sector likely would experience lower up-front costs, thereby increasing the likelihood of net positive returns to certain market actors. Ultimately, however, OLO believes the Bill's overall impact on economic conditions in the County would be negative. The primary reasons being that the change in building code has the potential to reduce, both, private sector capital investment and the County's competitiveness in the commercial building sector.

BACKGROUND

In response to the climate emergency, the County has committed to an 80% reduction in greenhouse gas (GHG) emissions by 2027 and 100% elimination by 2035.[1] Commercial and residential buildings are a primary source of GHG emissions in the County. In fact, commercial and residential energy consumption accounted for 50% of emissions in 2018.[2]

Consistent with the County's climate goals, Bill 13-22 aims to accelerate the electrification of buildings in the County's commercial and residential sectors to reduce their GHG emissions.[3] The Bill would attempt to do so by changing the County's building code. Specifically, it would require the County Executive to issue Method 2 regulations[4] establishing all-electric building standards for new construction, major renovations, and additions no later than January 1, 2024.[5] All-electric building standards would prohibit combustion equipment reliant on fossil fuels and plumbing for combustion

[1] Montgomery County Council, Resolution 18-974; and Montgomerycountymd.gov, Montgomery County Climate Action Plan.
[2] Montgomerycountymd.gov, Montgomery County Community Wide Greenhouse Gas Emissions Inventory.
[3] Elrich and Riemer to Albornoz, Memorandum.
[4] Montgomery County Code, Sec. 2A-15.
[5] Bill 13-22.

equipment within a building and building site and require non-combustion technologies, such as air-to-air, water source, and geothermal heat pumps.[6]

Bill 13-22 would cover a significant portion of residential and commercial buildings in the County. Exempted from the all-electric building standards would be emergency systems, buildings used for electric or steam power generation by a utility regulated by the Maryland Public Service Commission, and buildings used for manufacturing, crematories, life sciences, and commercial kitchens. Income-restricted housing projects and public or private schools would not be subject to the standards until January 1, 2026.

INFORMATION SOURCES, METHODOLOGIES, AND ASSUMPTIONS

Per Section 2-81B of the Montgomery County Code, this Economic Impact Statement offers OLO's assessment of Bill 13-22's impacts on County-based private organizations and residents in terms of the Council's priority economic indicators.[7] This statement also discusses whether the Bill would likely result in a net positive or negative impact on overall economic conditions in the County.

Specifying the Impact

By establishing all-electric building standards for new construction and major renovations, Bill 13-22 primarily would impact economic conditions through two effects:

(1) Electrification of new or existing buildings that otherwise would have been constructed or retrofitted as a mixed-fuel buildings in the absence of the change in building code.
(2) Construction or retrofitting of buildings that only would (or would not) occur in the absence of the change in building code.

It is important to note these effects likely would not occur indefinitely, as enacting Bill 13-22 likely would "accelerate," or expedite, the establishment of all-electric building standards in the County.[8]

Bryan Bomer, the Sustainability, Energy, and Mechanical Manager with DPS, anticipates the International Code Council and the state will adopt all-electric building codes by the decade's end. State law requires each jurisdiction in Maryland to comply with the International Code Council's building energy framework, the International Energy Conservation Code (IECC).[9] The latest IECC provides "optional requirements aimed at achieving net zero energy buildings presently and by 2030."[10] Future frameworks could require net zero energy buildings. Moreover, Maryland lawmakers have put forth

[6] Energy.gov, Heat Pump Systems.
[7] Montgomery County Code, Sec. 2-81B.
[8] Elrich and Riemer to Albornoz, Memorandum.
[9] Maryland.gov, "International Energy Conservation Code."
[10] Iccsafe.org, "A New Day in Advancing Energy Efficiency."

legislation that would require new residential and commercial construction to use all-electric power, as recommended by the Maryland Commission on Climate.[11] In anticipation of changes to the IECC and State building codes, Bomer and his team have outlined a process through which the County could transition to all-electric building standards by 2029 across upcoming building code cycles.

Based on these indications, OLO makes the following assumption in this analysis:

> By 2029, County building code otherwise would include all-electric building standards for new construction and major renovations in the absence of enacting Bill 13-22.

Analytical Challenges

Assessing the economic impacts of all-electric building codes is challenging due to data limitations at the County-level and the complexity of the issue. A critical data limitation concerns the unknown status of building electrification in the County. However, there are two analyses currently underway that may provide insight:

- **DPS Analysis** – Staff from the Department of Permitting Services (DPS) are collecting data to provide estimates on how many new commercial and residential buildings within the last five years use natural gas, electricity, or both. By estimating the amount of all-electric commercial and residential buildings that have been recently built, the DPS analysis may give insight into *the extent to which current market and regulatory conditions support or hinder electrification in the commercial and residential building sectors in the absence of an all-electric building code*.
- **NBI Analysis** – The County has a contract with New Buildings Institute (NBI), an energy consulting firm. NBI is reviewing the County's "current range of adopted and proposed codes and policies to identify potential areas of conflict in terms of metrics used, timing, adoption, and other factors."[12] The analysis is expected to estimate variation in code compliant buildings across building types (commercial, office, multifamily housing, etc.), current energy use by fuel type for more recently built projects, and site Energy Use Intensity (EUI)[13] likely to result from buildings built to code. By estimating current energy use from recently built buildings and anticipated EUI from code-compliant buildings, the NBI analysis may indicate *the potential magnitude of energy savings achieved through building electrification in the County*.

Data limitations are compounded by the complexity of building electrification. As discussed in subsequent sections, requiring all-electric building standards likely would have conflicting and uncertain short- and long-term economic impacts on many actors across numerous economic indicators prioritized by the Council.

[11] HB0831; Building Energy Transition Plan.
[12] Contract No. 1143327.
[13] EUI is a measure of energy efficiency of a building design and operations.

Methodology

These analytical challenges rule out a quantitative analysis of the economic impacts of Bill 13-22. Instead, OLO draws on peer reviewed and non-reviewed studies on the economics of building electrification to assess certain short- and long-term economic impacts on key stakeholder groups.

Note: "Short-term" is defined as the period from the procurement/acquisition of all-electric equipment to its installation in buildings. "Long-term" is defined as the operational "life" of the equipment.

Key Market Actors: This analysis focuses on two stakeholder groups:

- "investors," i.e., real estate developers and building owners who develop new all-electric buildings or retrofit existing buildings to be all-electric; and
- "occupants," i.e., buyers and tenants (business and residential) of new or retrofitted all-electric buildings.

These stakeholder groups are the focus of this analysis because they are the primary drivers and the supply and demand of all-electric buildings.[14]

This analysis also briefly discusses the economic impacts to certain "supporting organizations," i.e., businesses and non-profits involved in the financing, design, construction, retrofitting, and servicing of buildings, particularly those in the financial, architectural, construction, energy efficiency, and engineering sectors.

Information Sources: Many studies on the economics of building electrification present "life-cycle" cost models. A life cycle cost model estimates the costs and benefits of all-electric buildings over the "life" of specific equipment (e.g., heat pumps) or the building itself, relative to mixed-fuel buildings. These models provide valuable insight into the long-term economic impacts of building electrification. However, they have two common limitations:

1) they tend to rely on assumptions that do not entirely capture the real-world challenges of electrifying buildings, and

2) they exclude the *distribution* of the costs and benefits of building electrification across market actors.

Here, OLO relies on the following cost model studies:

- E3. "Maryland Building Decarbonization Study." Final Report. October 20, 2021.
- Newbuildings.org, "Cost Study of the Building Decarbonization." April 2022. New Building Institute.

To balance the limitations of these studies, OLO also reviews sources that offer insight into the economics of building electrification from the perspectives of primary market actors. These studies sources include

- Deason and Borgeson, "Electrification of Buildings: Potential, Challenges, and Outlook." *Current Sustainable/Renewable Energy Reports* 6 (2019).

[14] Li Zhang and Liu, "Turning green into gold."

- Li Zhang and Liu, "Turning green into gold: A review on the economics of green buildings." *Journal of Cleaner Production*. 172 (2018).
- Deason, et al, "Electrification of buildings and industry in the United States." March 2018. Lawrence Berkeley National Laboratory.
- Outcault, et al, "Building lower-carbon affordable housing: case studies from California." *Building Research & Information* 50:6 (2022).

OLO analyzes findings from these sources to infer the short- and long-term economic impacts of expediting the establishment of an all-electric building code on the previously identified stakeholder groups.

Scope Limitation: Given data limitations, issue complexity, as well as time constraints, this analysis does not account for the potential impacts of Bill 13-22 on utility customers and companies, affordable housing, social cost of carbon, or other important aspects of the economics of building electrification.

VARIABLES

The primary variables that would affect the economic impacts of enacting Bill 13-22 are the following:

- Long-term gas and electricity rates;
- Building vintage (new construction or retrofit);
- Building sector (commercial or residential);
- Building size;
- Annualized capital expenses;
- Annualized consume expenses; and
- Building sale or rental rate.

IMPACTS

WORKFORCE ▪ TAXATION POLICY ▪ PROPERTY VALUES ▪ INCOMES ▪ OPERATING COSTS ▪ PRIVATE SECTOR CAPITAL INVESTMENT ▪ ECONOMIC DEVELOPMENT ▪ COMPETITIVENESS

Building Electrification: Potential and Obstacles

Technical and Economic Potential

In the United States, electricity's share of total energy use in residential and commercial buildings has gradually increased since 1960.[15] The residential and commercial electricity shares of site energy use went from 9% and 17% in 1960 to 43%

[15] Deason, et al, "Electrification of buildings and industry in the United States."

and 50% in 2021, respectively.[16] The U.S. Energy Information Administration forecasts that it will continue to increase, but at an even more gradual rate in the future based on current laws and regulations.[17]

From a technological perspective, increasing building electrification in the United States is possible. Indeed, existing technologies available on the market today can replace virtually all fuel-powered end uses in commercial and residential buildings, according to a study conducted by the U.S. Department of Energy's Lawrence Berkeley National Laboratory.[18] As stated in the study,

> the technical potential for electrification in residential and commercial buildings is nearly 100% of all energy use in buildings. Space heating, water heating, and cooking account for the vast majority of direct fuel usage in residential and commercial buildings. Electric technologies exist, and are in use today, that can deliver similar services to direct fuel technologies for all of these end uses. Some other direct-fueled end uses – such as backup generators – may not have existing electrical substitutes, but these end uses represent a very small fraction of energy use in buildings.[19]

In addition to the technical potential, there are economic factors that support building electrification. Studies on the long-term economics of building electrification – which are largely model-based analyses – conclude that electric appliances can be cost-effective over their operational life. In their review of the literature on building electrification, Deason and Borgeson conclude "electric heat pump technologies are already economically competitive with other space and water heating technologies in some cases – specifically, the South and other mild climates (e.g., California)." They find that building electrification is "most likely cost-competitive:

- where incumbent technologies are more expensive (e.g., fuel oil-fired systems in the Northeast);
- where winter temperatures are mild, though technological progress on cold-climate heat pumps is making this less important;
- where electricity prices are low;
- when replacing both heating and cooling units (e.g., replacing both a furnace and air conditioning unit with a heat pump);
- in residential rather than commercial buildings; and
- in new buildings rather than renovations of existing buildings – and especially where local natural gas infrastructure could be entirely avoided (e.g., an all-electric new housing development)."[20]

[16] Eia.gov, Table 2.1a Energy Consumption: Residential, Commercial, and Industrial Sectors.
[17] Eia.gov, Annual Energy Outlook 2022.
[18] Deason, et al. "Electrification of buildings and industry in the United States." See also Nadel, "Electrification in the Transportation, Buildings, and Industrial Sectors."
[19] Ibid.
[20] Deason, et al. "Electrification of buildings and industry in the United States." See also Deason and Borgeson, "Electrification of Buildings."

In addition, E3, an energy consulting firm, conducted the Maryland Building Decarbonization Study on behalf of the Maryland Commission on Climate.[21] In its final report, E3 estimated total annual consumer costs (gas, electricity, and equipment costs) for electrifying new and existing buildings in several scenarios that would achieve net-zero emissions by 2045.[22] As shown in **Table 1**, the study predicts the following all-electric new construction would have lower total annual consumer costs than mixed-fuel new construction for single-family, multi-family, and small and large commercial buildings. All-electric retrofits would have lower total annual consumer costs than mixed-fuel retrofits for single-family, multifamily, and small commercial buildings. However, all-electric retrofits would have higher total annual consumer costs than mixed-fuel retrofits for large commercial buildings.

Table 1. Comparison of Annualized Consumer Costs Between All-Electric and Mixed-Fuel Building Construction/Retrofits[23]

Building Type	Building Vintage	
	All-Electric New Construction	All-Electric Retrofit
Single-Family	▪ Lower annualized consumer costs than mixed-fuel new construction	▪ Lower annualized consumer costs than mixed-fuel retrofits
Multi-Family	▪ Lower annualized consumer costs lower than mixed-fuel new construction	▪ Lower annualized consumer costs than mixed-fuel retrofits
Small Commercial	▪ Lower annualized consumer costs higher than mixed-fuel new construction	▪ Lower annualized consumer costs than mixed-fuel retrofits
Large Commercial	▪ Lower annualized consumer costs higher than mixed-fuel new construction	▪ Higher annualized consumer costs than mixed-fuel retrofits

These findings are consistent with the conclusion of a 2018 literature review of the economics of green buildings published in the peer-reviewed journal, *Journal of Cleaner Production*, which finds the adoption of green design and technology in buildings (which includes electrification) can be financially feasible, or even profitable, from the building life cycle perspective.[24]

Moreover, another source of potential for the economics of building electrification is the availability of funding to offset some of the costs. Funding comes in the forms of competitive financing and government grants.

Economic Obstacles

If electrifying residential and commercial buildings is technically possible and can be economically viable from a life perspective, why have experts predicted building electrification to grow at a gradual rate in the future without policy interventions?[25] To understand why, it is important to identify structural and market actor-level barriers to building electrification.

[21] Maryland Commission on Climate Change, Building Energy Transition Plan. See also Appendix A.
[22] "Maryland Building Decarbonization Study."
[23] "Maryland Building Decarbonization Study," 36-37, 127-134.
[24] Li Zhang and Liu, "Turning green into gold."
[25] Eia.gov, Annual Energy Outlook 2022; Deason, et al, "Electrification of buildings and industry in the United States."

At the structural level, the current system of global capitalism produces "externalities" in the form of GHG emissions that cause climate change. Externalities refer to the indirect effects that the production or consumption of a good incurs on third parties. When the price of a good does not account for externalities, the market produces an imbalance between private returns or costs and the returns or costs to society. In the case of GHG emissions, the costs and risks from climate change are born by the world at large.[26] However, there are few pricing mechanisms to compel actors who profit from GHG-emitting activities to internalize these costs and risks. As a result, the market produces an insufficient supply of "green" goods—including all-electric commercial and residential buildings.[27]

At the market-actor level, there are barriers to the growth of building electrification not captured in life cycle analyses. In contrast to the building life cycle perspective, a market actor perspective assesses the distribution of short- and long-term economic costs and benefits of building electrification to affected market actors.[28] Real estate developers, owners, buyers, and tenants are critical actors because they largely determine the supply and demand of building electrification.[29]

From a cost-benefit view, developers can be expected to develop new all-electric buildings when the returns on investment exceed the economic costs. Similarly, building owners can be expected to retrofit existing buildings to become all-electric when the returns exceed the costs.[30] Buyers and tenants, on the other hand, can be expected to buy or rent all-electric buildings when the price premium is offset by the discounted value of lower operating costs and other economic benefits.[31] As we will see, there are numerous factors that can make the costs outweigh the benefits for these market actors.

Investor Risks: Developers and building owners risk receiving an inadequate return on investing in building electrification. Some of the conditions that create this risk are as follows:

First, developers and building owners can face meaningful upfront costs when building electrification. In the short-term, capital and construction costs of electrifying buildings can be higher than the mixed-fuel alternative. In its study of building electrification in Maryland, E3 compared capital costs between all-electric and mixed-fuel new construction and retrofits. Capital costs include building shell upgrades[32] and dryer, cooking, water heater and HVAC equipment.[33] While capital costs can be financed, OLO believes it offers a better indicator of potential short-term costs of electrifying buildings than total annual consumer costs because it excludes savings from lower utility and operation/maintenance expenses.

[26] The insurance company, Swiss Re, estimates the world could lose around 10 percent of total economic value from climate change by mid-century. Guo et al, "The Economics of Climate Change."
[27] Helbling, "Externalities: Prices Do Not Capture All Costs."
[28] Li Zhang and Liu, "Turning green into gold."
[29] Ibid.
[30] Ibid.
[31] Ibid.
[32] "A building shell upgrade consists of wall insulation, roof insulation, glazing, air-tightness, and heat recovery." "Maryland Building Decarbonization Study," 102.
[33] It is unclear to OLO if capital costs include labor and equipment installation costs.

As shown in **Table 2**, E3 predicts all-electric new construction to have higher annualized capital costs than mixed-fuel new construction for small and large commercial buildings. However, annualized capital costs are predicted to be lower for single- and multi-family buildings. Across all building types, all-electric retrofits are predicted to have higher capital costs than mixed-fuel retrofits.

Table 2. Comparison of Annualized Capital Costs Between All-Electric and Mixed-Fuel Building Construction/Retrofits[34]

Building Type	Building Vintage	
	All-Electric New Construction	All-Electric Retrofit
Single-Family	▪ Lower annualized capital costs than mixed-fuel new construction	▪ Higher annualized capital costs than mixed-fuel retrofits
Multi-Family	▪ Lower annualized capital costs lower than mixed-fuel new construction	▪ Higher annualized capital costs than mixed-fuel retrofits
Small Commercial	▪ Higher annualized capital costs higher than mixed-fuel new construction	▪ Higher annualized capital costs than mixed-fuel retrofits
Large Commercial	▪ Higher annualized capital costs higher than mixed-fuel new construction	▪ Higher annualized capital costs than mixed-fuel retrofits

NBI also concluded the short-term costs of constructing all-electric buildings likely would be higher for commercial buildings and lower for residential. NBI assessed the "first incremental cost," or the difference in construction (material and labor) costs between all-electric building prototypes and the baseline code, for constructing all-electric single-family homes and medium-sized office buildings.[35] The study concludes the following:

- The all-electric single-family prototype has an incremental first savings of $2.15 to $2.33 per square foot to construct than the baseline code home due to avoided costs of installing fossil fuel infrastructure.
- An all-electric medium office prototype has an incremental first cost of $0.33-0.50 per square foot, not including the cost of installing EV charging infrastructure.

It is important to emphasize that model-based analyses – such as the E3 and NBI studies – make cost predictions based on assumptions that do not entirely capture the real-world challenges of electrifying buildings.

For example, developers and building owners may experience additional, often unanticipated, costs from adopting emerging technologies. In a 2022 study published in the peer-reviewed journal, *Building Research & Information*, Outcault et al investigate developers' experiences building all-electric and zero net energy affordable housing communities in California.[36] One of the main challenges experienced among the three projects investigated in the study was risk stemming from lack of knowledge and technical experience among developers, general contractors, and subcontractors. Improper

[34] "Maryland Building Decarbonization Study," 36-37, 127-134.
[35] "Cost Study of the Building Decarbonization Code."
[36] "Building Lower-Carbon Affordable Housing."

installation of heat pump systems and other technologies created performance problems. Resolving these problems resulted in unanticipated costs.

Another condition that creates risk for developers and building owners is their reliance on selling or leasing buildings and/or lower operating expenses from energy savings to achieve a profitable return on investing in building electrification.

For developers and owners to profit from the investment, it is critical that potential buyers and tenants see the value of building electrification at the time of building sale or lease. Buyers and tenants, however, may make improper valuations due to their lack of specialized knowledge on building electrification, awareness of their energy consumption, and other information-asymmetries.[37] There also may be a lack of consumer acceptance for electric buildings, particularly residential, among certain buyers and tenants.[38]

In addition to building sale and lease, decreased operating expenses from energy savings provide another opportunity to achieve returns on building electrification investments. The uncertainty of energy prices however creates risk. Indeed, relative drops in the price of gas has been identified as an important factor in decisions to forego building electrification.[39] Energy pricing mechanisms can also factor in. For instance, energy cost savings can beproportionately lower than energy savings due to fixed demand charges.[40]

Moreover, long-term energy savings may not be as high as predicted in model-based studies, such as the above-cited E3 and NBI studies, due to the "building energy performance gap." This refers to the disparity between predicted and actual energy performance of green buildings. It is well-documented that actual energy consumption can be significantly greater than expected. The causes of the building energy performance gap may result from various changes in occupants' behavior, construction quality, and inaccurate modeling assumptions.[41] Irrespective of its causes, the gap creates additional risk for developers and building owners considering electrifying buildings.

Occupant Risk: If there is a price premium for all-electric buildings, potential buyers and tenants can also face economic obstacles.

For potential buyers, the decrease in operating expenses from energy savings may not be sufficient to offset the price premium due to factors previously discussed—utility price uncertainty, energy pricing mechanisms, higher than predicted energy consumption, discounted value of building electrification from the perspectives of potential tenants, etc.

For commercial and residential tenants facing a rent premium, the economic benefits of building electrification are primarily transmitted through their lease agreements in the form of lower operating expenses from energy savings. The savings, however, may not be sufficient to offset rent premium. Moreover, not all lease agreements pass on savings to

[37] Li Zhang and Liu, "Turning green into gold."
[38] Ibid; Deason, et al. "Electrification of buildings and industry in the United States."
[39] Deason, et al. "Electrification of buildings and industry in the United States."
[40] Li Zhang and Liu, "Turning green into gold."
[41] Ibid; Zou et al, "Review of 10 Years Research on Building Energy Performance Gap."

tenants. This creates a principle-agent problem where the interests of tenants and building owners do not align, which the International Energy Association considers "one of the most pervasive barriers to energy efficiency."[42]

Impacts on Private Organizations

OLO anticipates that enacting Bill 13-22 would have mixed impacts on certain private organizations in the County in terms of several economic indicators prioritized by the Council.

Investor Impacts

Based on the E3 and NBI cost models, the short-term economic impacts of an all-electric building code on real estate developers and building owners who develop or retrofit all-electric buildings would vary by building vintage (new construction or retrofit), sector (commercial or residential), and size. The long-term economic impacts would depend on factors and uncertainties identified in the previous section and perhaps others.

New construction in the commercial sector: In the short-term, developers and/or building owners involved in developing new all-electric commercial buildings likely would have higher capital costs (equipment and building shell upgrade costs) than the mixed-fuel alternative (Table 2). Some of these actors also may experience unanticipated short-term costs due to challenges with adopting emerging all-electric technology, depending on developers or contractors' technical experience with building electrification.

Over time, these actors likely would experience lower operating costs in the form savings from gas, electricity, and equipment costs than the mixed-fuel alternative (Table 1). However, the magnitude of savings would depend on factors like relative energy prices and occupant energy consumption.

For developers and building owners who take on the risks associated with new all-electric commercial development, numerous factors would determine whether the investment yields a net positive or negative return relative to the mixed-fuel alternative. In addition to the magnitude of upfront capital costs and lower operating costs, the sale and/or lease premium would be an important determinant of the return. Given the uncertainties, OLO suspects there would be variation in outcomes, with some projects yielding a higher return and others a lower return than the mixed-fuel alternative.

New construction in the residential sectors: In contrast to the commercial sector, short-term capital costs for new all-electric construction of single- and multi-family buildings likely would be lower than the mixed-fuel alternatives (Table 2). Similar to the commercial sector, over time owners likely would experience lower operating costs in the form of savings from gas, electricity, and equipment costs than the mixed-fuel alternative (Table 1).

In general, because the short- and long-term costs are both projected to be lower, new all-electric construction in the single- and multi-family residential sectors likely would yield positive net returns relative to the mixed-fuel alternatives for developers and building owners. However, the magnitude (and perhaps direction in some cases) of the relative net

[42] Li Zhang and Liu, "Turning green into gold." For more on this problem, see IEA, *Mind the Gap*.

returns would be subject to numerous factors and uncertainties which include those identified above—relative energy prices, occupant energy consumption, sale and/or lease premiums, etc.

Retrofits in the commercial and residential sectors: Across all sectors, the short-term capital costs for all-electric retrofits likely would be higher than the mixed-fuel alternatives for building owners (Table 2). For the residential sectors, all-electric retrofits likely would have lower relative operating costs in the long-term. For the commercial sector, the relative operating costs may vary by building size, with lower costs for small commercial buildings and higher costs for large commercial buildings than the mixed-fuel alternatives (Table 1).

Because of the likely contrary short-term capital and long-term operating costs, OLO suspects there would be variation in net returns on investment for owners who pursue all-electric retrofits of residential and small commercial buildings relative to the mixed-fuel alternatives. However, because the capital and operating costs are both negative for all-electric retrofits of large commercial buildings, building owners likely would attain a relative net negative return. Again, relative net returns would be contingent on numerous factors and uncertainties.

Occupant Impacts

Building Buyers: Unlike developers and owners who develop or retrofit all-electric buildings, future buyers of these buildings would not incur the upfront capital costs. However, depending on market conditions, buyers may pay a premium to purchase an all-electric building relative to the sales price had the building been constructed or retrofitted as mixed-fuel. Whether the long-term benefits outweigh the potential premium likely would depend on building vintage, sector, and size as well as the factors and uncertainties previously discussed, such as relative energy prices, occupant energy consumption, future lease and resale premiums, etc. Ultimately, it is likely there would be variation in relative long-term returns on investment, with some buyers attaining a higher return and others a lower return than would have otherwise been the case.

Commercial Tenants: Similar to buyers, commercial tenants of an all-electric building may pay a rent premium relative to what they would have paid had the building been constructed or retrofitted as mixed-fuel. A critical determinant of the long-term economics would be whether the lease agreement passes savings from lower energy costs onto tenants. If so, tenants may attain a net positive outcome due to lower operating costs, depending on occupant energy consumption and other factors. However, if not, the long-term impacts would likely be net negative.

Supporting Organization Impacts

In addition to investors and occupants, Bill 13-22 may have mixed impacts on certain County-based private organizations involved in the financing, design, construction, retrofitting, and servicing of buildings. On the one hand, the change in law likely would increase demand for businesses in these sectors with technical knowledge and experience in building electrification (i.e., local energy efficiency consultants). Increased demand for their services would increase business income for these organizations. On the other hand, there may be businesses lacking in relevant technical knowledge and experience (i.e., small construction companies) that lose out on contracts.

While OLO anticipates that Bill 13-22 would impact other private organizations in terms of the Council's priority indicators, it is beyond the scope of this statement to assess these potential impacts.

Impacts on Residents

OLO anticipates that enacting Bill 13-22 would have mixed impacts on certain residents in the County in terms of several economic indicators prioritized by the Council.

Homebuyers: According to the E3 and NBI cost models, new single- and multi-family construction would have lower up-front costs and operating costs than the mixed-fuel alternative. If buyers do not pay a premium to purchase all-electric homes, the primary risk to their return on investment is eliminated. They would likely experience savings from lower energy expenses. The magnitude of the savings, however, would depend on factors like relative energy prices and occupant energy consumption. Holding all else equal, lower energy costs would result in a net increase in household income.

In the case of retrofitted all-electric single- and multi-family buildings, the E3 cost model predicts higher up-front costs and lower operating costs than the mixed-fuel alternative. For owners who pay the up-front costs and buyers who pay a purchasing premium, they would need to receive enough savings in lower energy costs for the return to be positive.

Residential Tenants: Because all-electric retrofits have higher up-front costs than the mixed-fuel alternative, tenants in retrofitted single- and multi-family buildings may pay a rent premium. If so, tenants may attain net positive outcome in cases where the lease agreement passes savings from lower energy costs onto tenants. In cases where savings are not passed on, tenants may experience higher costs.

While OLO anticipates that Bill 13-22 would impact other residents in terms of the Council's priority indicators, it is beyond the scope of this statement to assess these potential impacts.

Net Impact

OLO anticipates Bill 13-22 would result in a net negative impact on economic conditions in the County. As previously stated, the impacts of the change in law would occur through two channels:

(1) Electrification of new or existing buildings that otherwise would have been constructed or retrofitted as a mixed-fuel buildings in the absence of the change in law.
(2) Construction or retrofitting of buildings that would or would not occur in the absence of the change in law.

So far, this statement has the potential impacts of Bill 13-22 on private organizations and residents in terms of the first channel. From this perspective, OLO believes the Bill likely would be economically beneficial for some County stakeholders and costly for others. In general, the commercial building sector likely would be negatively impacted due to higher up-front costs and various risks (e.g., uncertain relative energy prices and lower than anticipated energy savings), which would increase the likelihood of certain market actors receiving a net negative return on their investment in building electrification. In contrast, the residential building sector likely would experience lower up-front costs, thereby increasing

the likelihood of net positive returns to certain market actors. Given data limitations and the complexity of building electrification, it is impossible to quantify whether the benefits to some entities would outweigh the costs to others.

Ultimately, OLO anticipates enacting Bill 13-22 would have an overall negative impact on economic conditions in the County when accounting for the second economic channel. Certain buildings that otherwise would be constructed or retrofitted in the absence of the change in law may not occur—or may be scaled back—in cases with higher up-front costs relative to the mixed-fuel alternative. Based on the E3 and NBI cost models' estimates of capital costs, new construction in the commercial sector and retrofits in both sectors may be most vulnerable to the decline in private sector capital investment. Even though cost models predict lower operating expenses in these sectors (except for large commercial retrofits), the risks investors face may be enough to deter investment, thereby decreasing private sector development.

Moreover, investors may prefer to develop in nearby jurisdictions without all-electric building codes. If Bill 13-22 is enacted, the County would join the District of Columbia in having a building code that bans (with exceptions) on-site fuel combustion in new construction and major renovations.[43] The other jurisdictions adjacent to the District (Prince George's and Fairfax Counties and the Cities of Arlington and Alexandria) have not adopted all-electric or net zero building codes. Local governments in Virginia are legally required the Virginia Uniform Statewide Building Code (USBC) and cannot unilaterally change their building codes.

Given the up-front costs and various risks investors can face, certain investors likely would prefer other nearby jurisdictions due to their regulatory flexibility. It is impossible to quantify how many projects would not occur at all or at the same scale because of the building electrification requirement. But for every project that does not occur or is significantly scaled back, certain County-based businesses and residents would experience meaningful opportunity costs in the form of forgone contracts, employment, income, etc.

Finally, in addition to the Bill's potential to decrease private sector capital investment and the County's competitiveness, the change in law likely would likely result in a net outflow from the County. For one, the net outflow would increase from the importing of all-electric equipment that is more costly than the mixed-fuel alternative. Second, certain building owners who are based outside the County likely would retain the economic benefits of building electrification and pass down a portion of the costs to County-based businesses and residents (i.e., higher rents).

DISCUSSION ITEMS

As discussed in this analysis, establishing all-electric building standards would have conflicting and uncertain short- and long-term economic impacts on many County-based private organizations and residents across numerous economic indicators prioritized by the Council. Moreover, the complexity of the issue is exacerbated by significant data limitations at the County-level. For these reasons, Councilmembers may want to consider whether a more thorough investigation of the economic impacts of Bill 13-22 is needed. For instance, a more thorough investigation could consider whether

[43] Washington D.C. Council Bill 24-0420 has been enacted and transmitted to the U.S. Congress.

available financing and grants for building electrification are sufficient to offset the short-term costs and potential impacts on private sector capital development and competitiveness and/or whether the Bill would negatively impact other stakeholder groups, such as certain utility customers and residents in need of affordable housing.

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CAVEATS

Two caveats to the economic analysis performed here should be noted. First, predicting the economic impacts of legislation is a challenging analytical endeavor due to data limitations, the multitude of causes of economic outcomes, economic shocks, uncertainty, and other factors. Second, the analysis performed here is intended to *inform* the legislative process, not determine whether the Council should enact legislation. Thus, any conclusion made in this statement does not represent OLO's endorsement of, or objection to, the Bill under consideration.

CONTRIBUTIONS

Stephen Roblin (OLO) prepared this report.

Racial Equity and Social Justice (RESJ) Impact Statement

Office of Legislative Oversight

BILL 13-22: BUILDINGS – COMPREHENSIVE BUILDING DECARBONIZATION

SUMMARY

The Office of Legislative Oversight (OLO) anticipates that Bill 13-22 will have a favorable impact on racial equity and social justice (RESJ) in the County, as Black, Indigenous, and Other People of Color (BIPOC) residents could disproportionately benefit from the countywide reductions in greenhouse gas emissions driven by building decarbonization. The magnitude of the RESJ impact is indeterminant, since this will depend on how RESJ is centered in new building development and building decarbonization.

PURPOSE OF RESJ IMPACT STATEMENT

The purpose of racial equity and social justice (RESJ) impact statements is to evaluate the anticipated impact of legislation on racial equity and social justice in the County. Racial equity and social justice refer to a **process** that focuses on centering the needs, leadership, and power of communities of color and low-income communities with a **goal** of eliminating racial and social inequities.[1] Achieving racial equity and social justice usually requires seeing, thinking, and working differently to address the racial and social harms that have caused racial and social inequities.[2]

PURPOSE OF BILL 13-22

Building decarbonization refers to the process of reducing or eliminating the carbon dioxide (a greenhouse gas) emissions that contribute to climate change from a building's energy sources.[3] Building decarbonization includes four main components: energy efficiency, electrification, renewable energy, and managed electricity loads. The electrification component involves replacing equipment in buildings that use fossil fuels (e.g. natural gas, oil) with electric technology.[4]

The purpose of Bill 13-22 is to require the County Executive to issue all-electric building standards by January 1, 2024 for new construction, major renovations, and additions.[5] The Bill codifies a process for the development of all-electric standards, which would eventually require all new buildings to be powered solely with electrical systems, instead of with systems that rely on burning fossil fuels, such as natural gas furnaces and boilers.[6] The Bill is intended to help the County achieve its zero-greenhouse gas emissions goal, building on the 2021 Climate Action Plan.

The Bill provides exemptions for areas where 100-percent electric is not yet feasible, including for utility generation, emergency back-up systems, and buildings that have certain uses. The Bill also provides an extended compliance timeline for affordable housing and school construction.[7]

Bill 13-22 was introduced to the Council on June 14, 2022.

In September 2021, OLO published a RESJ impact statement (RESJIS) for Expedited Bill 31-21, Property Tax Credit – Energy Conservation Devices and Energy Efficient Buildings – Amendments – a Bill that was also directed towards reducing greenhouse emissions.[8] OLO builds upon the analysis for Expedited Bill 31-21 for this RESJIS.

The Climate Gap and Racial Equity

Greenhouse gas emissions from the burning of fossil fuels is the primary cause of current climate change.[9] Climate change has far-reaching harmful consequences on public health, community assets, and the economy that will impact all residents.[10] BIPOC, especially those who are low-income, are disproportionately harmed by climate change due to a lack of resources and ability to adjust to the consequences of global warming.[11]

The term "climate gap" refers to the unequal impact that climate change has on BIPOC and low-income communities. As noted by researchers at the University of Southern California, the climate gap means that BIPOC communities and the poor will suffer more during extreme heat waves with increased illness and deaths, will breathe even dirtier air due to global warming, will pay more for basic necessities, and may have fewer job opportunities with increased climate change.[12] Drivers of the climate gap include inequities in income, education, employment, and access to health services.

Drivers of the climate gap help to explain the role of government in fostering the climate gap. Data on inequities in energy burden, housing, and environmental risk help to explain the increased vulnerably of BIPOC to climate change.

Drivers of the Climate Gap. The disproportionate impact of climate change on BIPOC results from government policies and practices that concentrated housing for BIPOC and low-income residents in close proximity to polluting facilities and infrastructure like major highways. More specifically, the climate gap results from a history of land and wage theft that enriched a subset of White households at the expense of BIPOC and low-income residents. Slavery, the Indian Removal and Homestead Acts, and occupational segregation have undermined the economic development of people of color.[13]

Further, housing segregation through redlining, racial covenants, and exclusionary zoning has contributed to the climate gap as have the policies and practices of the Federal Housing Administration, the Social Security Act, GI Bill, and the Department of Transportation that have reinforced housing segregation and undermined wealth building and housing equity for BIPOC residents.[14] Housing segregation has also fostered the concentration of BIPOC residents into densely populated neighborhoods with fewer trees and larger amounts of impervious surfaces that make them exceptionally vulnerable to effects of excessive heat and flood events exacerbated by climate change.[15]

In short, government efforts to cultivate and protect White wealth by segregating BIPOC residents and excluding them from comparable wealth-building opportunities has resulted in the situating of BIPOC communities in or adjacent to environmentally hazardous areas. As such, government has played a significant role in developing the climate gap.

Data on Energy Burden. In Montgomery County, about 17 percent of households are energy-burdened (expending more than 6 percent of their income on energy bills) and 9 percent are living in energy poverty (expending more than 10 percent of their income on energy bills).[16] Inequities in poverty rates by race and ethnicity suggest that Black and Latinx households face greater energy burdens than White and Asian households. Locally, 10 percent of Black and Latinx households lived below the poverty level compared to 6 percent of Asian households and 4 percent of White households.[17]

Data on Housing. A study of 2005 American Housing Survey data found that 6.3 percent of Latinx and 7.5 percent of Black households resided in substandard housing, compared to 2.8 percent of White households.[18] The older-age of affordable housing in the County and local data on rent-burden suggests that Black and Latinx households in Montgomery County experience higher risks for substandard housing. In 2019, 66.4 percent of Latinx renters and 59.8 percent of Black renters were cost burdened, expending more than 30 percent of their income on rent, compared to 43.4 percent of White renters and 33 percent of Asian renters.[19] Further, 75 percent of White and 73 percent of Asian households resided in owner-occupied units in 2019 compared to 50 percent of Latinx households and 41 percent of Black households.[20]

Data on Environmental Risk. Nationally, BIPOC and low-income residents often reside in communities located near polluting and environmentally hazardous industries and uses.[21] This can include proximity to power stations, industrial plants, and infrastructure like major highways. This leads to far greater rates of serious health problems in communities of color, from cancer to lung conditions to heart attacks, as well as a higher prevalence and severity of asthma, lower birth weights, and greater incidence of high blood pressure.[22]

The County's Climate Action Plan shows that communities with high concentrations of BIPOC and low-income residents (greater than 25 percent for each) are located in areas of the County with higher levels of traffic and air pollution.[23] Of note, between 2017 and 2019, Black residents had the highest rates of emergency room visits for chronic lower respiratory diseases (including asthma) at 1,594 visits per 100,000.[24] The rate of emergency room visits for chronic respiratory diseases was 923 visits per 100,000 for Latinx residents and 526 visits per 100,000 for White residents.[25]

ANTICIPATED RESJ IMPACTS

The Climate Action Plan found that most of the County's greenhouse gas emissions come from residential and commercial building energy use (50 percent of emissions).[26] The decrease in greenhouse emissions anticipated by the required electrification of new buildings could generate favorable public health outcomes. Further, more efficient energy use in all-electric buildings could result in lower utility payments for customers.

Since BIPOC and low-income communities are more vulnerable to the negative consequences of climate change, they may benefit disproportionately from countywide reductions in greenhouse emissions. Thus, OLO anticipates that Bill 13-22 could have a favorable impact on RESJ in the County.

Generally, new development tends to favor higher-income residents, White residents, and White-owned businesses, and has the potential to displace low-income and BIPOC residents. Further, as more buildings move to electrical systems, low-income residents who are not able to transition could be left with increased energy costs from using non-electric systems.[27] Thus, the magnitude of the favorable impact is indeterminant, as it will depend on the extent to which RESJ is centered in new building development and decarbonization efforts in general.

RECOMMENDED AMENDMENTS

The RESJ Act requires OLO to consider whether recommended amendments to bills aimed at narrowing racial and social inequities are warranted in developing RESJ impact statements.[28] OLO finds that Bill 13-22 could narrow racial and social inequities in the climate gap by requiring the electrification of new buildings in the County. If the Council chooses to implement more significant reductions in the climate gap through incorporating recommended amendments or introducing companion legislation to further promote RESJ, the County's Climate Action Plan offers two relevant recommendations for enhancing equity that could be considered:

- Evaluate the need for financial incentives or financing to help overcome the increased initial costs associated with building under an all-electric code when applied to certain building types and building ownership.
- Offer technical assistance for all-electric code compliance for certain building types or owners.

Additionally, as discussed in 'Anticipated RESJ Impacts,' how RESJ is centered in decarbonization efforts for existing and new buildings will determine the extent to which the Bill will favorably address racial and social inequities. The Greenlining Institute developed a five-step framework for equitable building electrification that could be helpful to consider.[29] Further, there are several examples of community-led efforts that are focused on centering RESJ in building decarbonization:

- **Portland:** The Build/Shift Collective, a grassroots group that is primarily composed of low-income BIPOC residents, has been working with the City of Portland to develop the Health, Equitable Energy, Anti-Displacement, Resilience, and Temperature control (HEART) standards. [30] The standards would require landlords of the city's largest existing commercial and multifamily residential buildings to properly insulate all units and install air conditioning.
- **California:** The Building Energy, Equity, and Power (BEEP) Coalition, a coalition of environmental justice communities, studied what equitable building decarbonization would look like in California.[31] Their recently released report includes findings around barriers to participation in clean energy programs, the need for holistic building upgrades, and the need to provide funding for no-cost improvements to low-income households.

CAVEATS

Two caveats to this racial equity and social justice impact statement should be noted. First, predicting the impact of legislation on racial equity and social justice is a challenging, analytical endeavor due to data limitations, uncertainty, and other factors. Second, this RESJ impact statement is intended to inform the legislative process rather than determine whether the Council should enact legislation. Thus, any conclusion made in this statement does not represent OLO's endorsement of, or objection to, the bill under consideration.

CONTRIBUTIONS

OLO staffers Elaine Bonner-Tompkins, Senior Legislative Analyst and Janmarie Peña, Performance Management and Data Analyst drafted this RESJ impact statement.

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October 7, 2022

The Honorable Hans Riemer
Montgomery County Council
100 Maryland Ave.
Rockville, MD 20850

Dear Chair Riemer and Members of the Planning, Housing, and Economic Development Committee:

This is in response to your letter from September 23, 2022, in which you asked several questions about building decarbonization work conducted by the Maryland Department of the Environment (MDE) and the independent Maryland Commission on Climate Change (MCCC). Your questions are in bold and our response follows each question.

1. Can you please provide a brief summary of how the Maryland Building Decarbonization Study, the Building Energy Transition Plan, and the 2030 Greenhouse Gas Reduction Act Plan view the role of building electrification in Maryland?

The 2030 Greenhouse Gas Emissions Reduction Act (GGRA) Plan was released in 2021, and aims to reduce statewide greenhouse gas (GHG) emissions by approximately 50% by 2030. The 2030 GGRA Plan assumed that there would be modest levels of building electrification (heat pump sales increase to 50% by 2030, and 80% by 2040), and that building code improvements would lead to better building shells for new construction by 2030.

The MCCC formed a Buildings Subgroup in 2020 to begin examining technologies and policies for decarbonizing buildings. The Subgroup was made up of dozens of academic, nonprofit, state government, private sector representatives, Montgomery County representatives, and any other volunteer representatives that indicated interest in participating. In 2021, with funding from the U.S. Climate Alliance and The Nature Conservancy, the Subgroup worked with Energy + Environmental Economics (E3) on a Maryland Building Decarbonization Study to support the development of a Building Energy Transition Plan.

E3 evaluated several scenarios for building decarbonization and considered technical and economic implications. E3 concluded that the lowest-cost scenario included all-electric new buildings, replacing combustion heating equipment with heat pumps in almost all existing homes over the next several decades, and transitioning to heat pumps in existing commercial buildings, but with fuel backup systems when electrification is not cost effective.

In late 2021, the MCCC approved the Building Energy Transition Plan, based on E3's study, including these core recommendations:

1. Adopt an All-Electric Construction Code

2. Develop a Clean Heat Retrofit Program
    a. Retrofit 100% of low-income households by 2030
    b. Encourage fuel-switching through EmPOWER beginning in 2024
    c. Encourage beneficial electrification through EmPOWER beginning in 2024
    d. Target 50% of residential heating system, cooling system, and water heater sales to be heat pumps by 2025, 95% by 2030
    e. Align energy plans, approvals, and funding with the objectives of this Plan
3. Create a Building Emissions Standard for large buildings
4. Develop Utility Transition Plans

2. Given the policy scenarios analyzed in the various building decarbonization plans and studies to date, can you project the impact that all-electric buildings may have on the state of Maryland's greenhouse gas emissions?

The 2030 GGRA Plan anticipates that modest levels of building efficiency and electrification would decrease direct emissions from residential and commercial buildings by around 35% from 2020 levels by 2045.

However, acknowledging that additional emissions reductions are needed to achieve Maryland's GHG reduction goals, the 2030 GGRA Plan called on the MCCC to develop the Building Energy Transition Plan to further develop the state's strategy for decarbonizing buildings. The Plan anticipates that direct emissions from buildings would decrease around 95% from 2020 levels by 2045 by implementing the measures recommended in the Plan.

3. We understand that the Maryland Building Decarbonization Study analyzed the cost impacts of building electrification. Could you summarize those cost findings for the PHED Committee?

The Maryland Building Decarbonization Study found that all-electric new buildings typically have the lowest construction and operating costs. All-electric new buildings of all types, including residential and commercial, were found to have the lowest total annual costs (including equipment, maintenance, and energy costs) in every net-zero emissions scenario modeled. For single-family homes, all-electric homes cost less to construct than new mixed-fuel homes. For multifamily buildings, all-electric buildings cost about the same to construct as mixed-fuel buildings. For commercial buildings, all-electric buildings can have higher or lower construction costs than mixed-fuel buildings depending on building type and use.

4. Why did the Maryland Building Decarbonization Study include all-electric newly constructed buildings in every one of their modeling scenarios?

E3 assumed all-electric new buildings in the scenarios because, as E3 told the Subgroup, almost all studies they had reviewed and their own analyses indicated that new all-electric buildings have lower

construction and operating costs than new mixed-fuel buildings. This finding is especially true when accounting for operating costs in any decarbonized scenario. The Subgroup also generally agreed that new buildings should be constructed to all-electric standards, given that there is already availability of efficient technologies to pursue all-electric buildings, especially for residential buildings, and because all-electric buildings are already common in Maryland.

Sincerely,

Mark Stewart
Climate Change Program Manager

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STATE OF MARYLAND

PUBLIC SERVICE COMMISSION

July 19, 2022

Notice Establishing an Electrification Study Workgroup

Senate Bill 528 ("The Climate Solutions Now Act"), which became law on April 9, 2022, requires the Commission to conduct a study, with input from the Maryland Building Codes Administration ("BCA"), of "the capacity of each [utility's] gas and electric distribution systems to successfully serve customers under a managed transition to a highly electrified building sector." The Climate Solutions Now Act ("the Act") requires a report of the Commission's findings by September 30, 2023.

A workgroup of interested parties is needed to meet the statutory requirements for the Commission to deliver a final report by September 30, 2022. Accordingly, the Commission hereby directs John Borkoski, Chief Engineer, to lead an Electrification Study Workgroup to assist the Commission in its study and final report. The initial focus of the workgroup will be to develop a detailed study plan and deliverable schedules. The workgroup will also provide input into Electrification Study assumptions and data templates necessary to ensure consistency in how the studies are performed and how the results will be presented by each public service company, among other things.

The following utilities shall participate in the Workgroup: Baltimore Gas and Electric Company; Columbia Gas of Maryland; Delmarva Power & Light Company; The Potomac Edison Company; Potomac Electric Power Company; Southern Maryland Electric Cooperative, Inc.; and Washington Gas Light Company. Additionally, participation from Choptank Electric Cooperative, Inc. is requested.

To facilitate initial meetings by mid-August, interested persons may ask to join the workgroup by contacting John Borkoski at john.borkoski@maryland.gov by August 1, 2022.

By Direction of the Commission,

/s/ Andrew S. Johnston

Andrew S. Johnston
Executive Secretary

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MECHANICAL CONTRACTORS ASSOCIATION OF METROPOLITAN WASHINGTON (MCAMW) TESTIMONY

CB 13-22, COMPREHENSIVE BUILDING DECARBONIZATION

POSITION: OPPOSE / UNFAVORABLE

Dear Members of the Council:

On behalf of the Mechanical Contractors Association of Metropolitan Washington (MCAMW) I write in strong opposition to CB13-22.

Established in 1889, the MCAMW represents 180 construction contractors, some 10,000 workers, and 1,000 working apprentices throughout the District of Columbia. and its Maryland and Virginia suburbs. In addition to our substantial contractor base, we are committed to providing new programs in education, safety, and training for plumbing, heating, ventilation, air conditioning, and refrigeration.

Our economic footprint throughout the region is substantial, generating some $2 BILLION in annual revenue, and some $500 MILLION in state, federal and local taxes each and every year.

We embrace the values of social, economic and corporate responsibility, and we share many of the concerns addressed in the ongoing climate change dialogue. However, we believe that CB13-22 is misguided because it fails to address the need for a diverse and robust energy portfolio, necessary to maintain stability in the grid and rates for those in the commercial and residential sectors.

In addition, while the need for cleaner energy sources and reduced emissions is without question, this legislation fails to address the primary energy generation sources that drive electrification within the PJM market: coal and natural gas. In fact, of the 96,463 MW of overall electricity generation within the PJM market, some 22,305 MW is from coal, and 35,210 MW is from natural gas, collectively representing more than half of all PJM energy generation sources.

If the goal of this Council is an overall reduction in carbon within the PJM portfolio, the Council should embrace the expansion of clean carbon-free nuclear, which currently represents roughly one third (32,565 MW) of the overall PJM generation sources.

Lastly, this Council and Executive have already made substantial investments in reforming Building Energy Performance Standards (BEPS), including recent legislation to invest nearly $20 million annually in the County's Green Bank for energy efficiency upgrades, expanding the County's green buildings property tax credit and the County's commercial property-assessed clean energy (CPACE) program.

For these reasons, we oppose CB 13-22, and ask that it be given an unfavorable vote.

Sincerely,

Thomas L. Bello

Executive Vice President

TAKOMA PARK MOBILIZATION

Environment Committee

To:	**Montgomery County Council**
Testimony on:	**Comprehensive Building Decarbonization Bill No. 13-22**
Organization:	**Takoma Park Mobilization Environment Committee**
Person Submitting:	**Diana Younts, co-facilitator**
Position:	**Favorable**
Hearing Date:	**July 26, 2022**

Dear President Albornoz and Council Members,

Thank you for allowing our testimony today in support of 13-22, Comprehensive Building Decarbonization, a bill that provides for an all-electric construction code with some exceptions.

Direct use of gas, heating oil, and propane in buildings—primarily for space heating and water heating—accounted for 13 percent of Maryland's greenhouse gas emissions in 2017. The County's Climate Action Plan sets a goal of 80% reduction in greenhouse gas emissions by 2027 and 100% by 2035. Maryland's Greenhouse Gas Reduction Act (GGRA), as amended by the Climate Solutions Now Act of 2022, mandates that the entire state – in all sectors of the economy – reduce emissions 60% by 2031 and 100% by 2045. To meet these requirements, the GGRA Plan sets a goal of electrifying fossil fuel end-uses in buildings so that Maryland's building sector achieves net-zero emissions by 2045 for residential and commercial buildings.[1] The Climate Solutions Now Act specifically requires commercial and multifamily buildings greater than 35000 sq. ft to have no direct emissions for water and space heating by 2040.

In 2021, the MD Commission on Climate Change's top recommendation for reducing emissions from buildings was to "adopt an all-electric construction code."[4] New construction requirements are a sensible first step in the building electrification transition that prevent us from making the problem worse.

All Electric Construction is Cost Effective

The good news is that all-electric new buildings typically have the lowest construction and operating costs. (See Maryland Commission on Climate Change (MCCC) Building Energy Transition Plan.) The MCCC found that all electric construction is typically cheaper or the same cost as conventional construction:

[1] Md. Comm'n on Climate Change, GGRA Plan, Feb. 19, 2021, at XIX, available at https://mde.maryland.gov/programs/Air/ClimateChange/Documents/2030%20GGRA%20Plan/THE%20203%20GGRA%20PLAN.pdf.

- For single-family homes, all-electric homes *cost less to construct than new mixed-fuel homes*.
- For multifamily buildings, all-electric buildings cost about the same to construct as mixed-fuel buildings.
- For commercial buildings, all-electric buildings can have higher or lower construction costs than mixed-fuel buildings depending on building type and use.
- All-electric new buildings of all types – residential and commercial – have the lowest total annual costs (including equipment, maintenance, and energy costs) in every net-zero emissions scenario modeled.
- With respect to schools, the three net- zero schools that have already been constructed in Maryland were built at the same cost (including the cost of solar panels) as conventionally constructed schools and have drastically lower operating costs.

Indoor Air Quality

As set forth in the Executive's and PHED Committee Chair Hans Reimer cover letter submitting this legislation, electrification has important health and safety benefits as well. As the EPA says, gas emits a whole stew of toxic chemicals, including PM2.5, NO2, CO, and formaldehyde. Research has found that all of those chemicals individually have negative impacts on health and combined they are more dangerous. Further, children in homes with gas stoves have a 42 percent increased risk of experiencing asthma symptoms (current asthma), a 24 percent increased risk of ever being diagnosed with asthma by a doctor (lifetime asthma), and an overall 32 percent increased risk of both current and lifetime asthma.

Because lower-income households are more likely to have more people living in smaller spaces, with less ventilation, they are at greater risk of unsafe NO2 exposure. When gas stoves are installed without being vented to the outdoors, the dangers are further increased in part because of varying quality of hood performance, the fact that many do not vent to the outside, and that people fail to use them.

And it goes without saying, buildings fueled by gas sometimes explode, as demonstrated by two low-income multifamily housing buildings in Silver Spring in 2017 and 2022, tragedies that would have been avoided had they been all electric.

The Maryland Commission on Climate Change Predicts a Dramatic Increase in the Cost of Gas Delivery

An additional reason to enact an all electric construction code is that the price of gas is rapidly escalating. The MCCC 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, making it all the more important from a cost perspective alone that all Marylanders should transition from fossil fuels. (See MCCC Building Energy Transition Plan.) Additionally, we know that the natural gas infrastructure is rapidly aging and failing, releasing methane with its ~30x the global warming potential of CO2 into the air. A recent RMI report showed that most gas infrastructure installed today will be abandoned after 2035 due to rising costs.

Maryland gas utilities themselves project that repair and replacement costs for their leaky systems will rise from $155 mil annually (2022) to $455 mil annually by 2044 under the Strategic Infrastructure Development and Enhancement Plan (STRIDE) Program. These costs are passed on as a surcharge on ratepayers gas utility bills. The Office of People's Counsel likened the arrangement to the gas utilities

having a credit card with no spending limit and ratepayers footing the bill.

Enacted in 2013, the 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 through a monthly surcharge on customer billsAnnual STRIDE-only gas infrastructure costs have risen each year since 2014. As noted above and shown in the graph below, in 2022, the annual cost is $150 million, with future annual costs rising to a peak of over $450 million in 2044. Low income households bear a disproportionate burden of these rate increases because they already have a higher energy burden. Because energy is a regressive cost, low-income households in Maryland dedicate 13% of their annual incomes to energy costs and pay 550% more as a percent of income than non low-income households. The majority of these (55%) are Black, Hispanic, or Asian households.

Chart prepared by Office of People's Counsel

Suggested Amendments

Require Heat Pumps: Because resistance electric heat is cheap to install and expensive to operate (and is an energy hog thus also would be a significant source of greenhouse gas emissions through our still dirty

grid), we suggest that the legislation specify that heat pumps be required. As a model, the County could look to the Seattle Energy Code, Section 403.1.4, and its thoughtful list of exceptions.

Renovations: As drafted, the current proposed legislation severely limits the effectiveness of an all electric construction code because of the limitations on its applicability to remodels. Eliminating those limiting provisions would be a major step towards addressing the greenhouse gas emissions of single family homes and commercial structures. Again, the Seattle Energy Code, Section 403.1.1 has a thoughtful list of exceptions. It is probably also true that for single family homes, an exception should be made for emergency replacements of failed gas heaters.

Consider Following D.C.'s Lead, and Require Net-Zero Construction: Washington D.C. has recently enacted legislation adopting Appendix Z to the International Energy Conservation Code for commercial buildings. Appendix Z requires net zero construction. If Montgomery County is to reach its goal of 100% reduction in greenhouse gas emissions by 2035, buildings will have to be net zero.

Alternatives to the Exemptions and Delays in the Proposed Legislation:

Affordable Housing: Rather than delaying implementation for affordable housing from the code requirements, it is important to include them as quickly as possible so that they do not continue to experience poor indoor air quality and the escalating cost of gas. We recommend amending the bill to include these entities in the bill provisions.

As noted previously, low-income Marylanders pay a disproportionately higher amount for utilities as a percent of income than non-low-income residents. The MCCC GGRA Plan has a goal of retrofitting 100 % of low-income households by 2030. In addition, the Climate Solutions Now Act of 2022 included additional funding for low-income energy efficiency and retrofits. Delaying the electrification requirements for low-income housing is detrimental to residents, works against achieving the state's greenhouse gas reduction goals, and misses an opportunity for state and federal funding.

Schools: We are providing the following information regarding school construction costs to demonstrate why schools should not be delayed:

It is also important to not delay implementation for schools. On June 27th, MCPS adopted a sustainability policy in which it committed to an 80% reduction in greenhouse gas emissions by 2027 and 100% by 2035. All electric construction is a fundamental first step in attaining the goal. Moreover, a number of new schools are in the pipeline and it's a foolish economy for MCPS to fail to design and build a net-zero school (which is already the same or cheaper to build than a traditional school) and then to retrofit that same building later to be net-zero (and in the interim miss out on the vastly reduced operating costs).

Furthermore, the recently enacted HB1290 provides an extra 5% state match for the construction of net-zero schools, and there are recently announced federal monies for net-zero school construction.

The three newly constructed net zero schools In Baltimore City and Howard County demonstrate that they are cheaper than or the same cost as traditional schools to build and cheaper to operate. Net-zero schools are by far the superior option using only cost considerations. Their initial construction costs are lower than or the same as traditional construction, and their operational costs are far less. Included below are the construction costs for the three schools and the energy use of Wilde Lake Middle School. Montgomery County Public 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. The Inter Agency Council on School Construction (IAC) average school construction cost for 2021 was $405 per sq ft with site preparation and $341 per sq ft without site preparation. [2]

Because the schools were built in different years, we are providing the IAC average costs for 2018 and 2016:
July 2018 Building Construction: w/o site preparation, $302 per sq ft; w/ site preparation, $360 per sq ft
July 2016 Building Construction: w/o site preparation, $282 per sq ft; w/ site preparation, $335.58 per sq ft

Wilde Lake Middle School Completed August 2017 ($329 per sq ft, with site preparation & solar panels) - Columbia, Maryland

• New Net-Zero LEED Platinum

• Total construction cost including site preparation and solar panels: $35,000,000
• Cost including site preparation and solar panels: *$329* per sq ft
• 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
• Energy Use Intensity (EUI): 13.7 kBTU/sq ft/yr
Note: Is net negative (it produces more energy than it consumes)

Graceland Park / O'Donnell Heights Elementary/Middle - Substantial Completion Phase 1 Replacement Building August 2020 ($358.16 per sq ft, with site preparation & solar panels)- Baltimore, Maryland

• Construction cost, including site and solar panels: $33,752,000.00
• Cost including site and solar panels: *$358.16* per sq ft

Holabird Academy - Substantial Completion Phase 1 Replacement Building August 2020 ($364.30 per sq ft with site preparation & solar panels) - Baltimore, Maryland

• Construction cost, including site and solar panels: $34,330,500.00
• Cost per sq ft, including site and solar panels: $364.30

[2]https://iac.mdschoolconstruction.org/?page_id=4633

Dispelling Myths and Misinformation:

Gas as Backup System When the Power Goes Out : *Gas systems need ELECTRICITY to work.* If there is a power outage, *gas heaters and appliances do not work* because they have electric starters, controls, pumps, ignitors, and safety valves which will not allow gas to flow if the electric ignitor does not turn on. Some very old direct venting fireplaces and wall heaters would work, but then they also significantly increase indoor air pollutants and when they malfunction they create an enormous carbon monoxide risk. And for buildings that must have or want to have back up systems (such as hospitals and first emergency operations), **battery backup** provides the power (or a diesel generator). A gas boiler does not. Public Safety Codes do not allow Natural Gas for emergency backup

A form letter was circulated to council members that contains misleading information. The letter repeats the canard that gas is needed as a back up when the electricity goes out. As set forth above, it cannot. Further, the letter makes reference to a study conducted in Baltimore[3] that found that all electric construction would increase energy costs and increase building costs. That report – put out in 2021 by the National Association of Home Builders – has a number of deficiencies. First, as to energy costs, it is a snapshot of 2020 costs that fails to account for the rising cost of gas as discussed more fully above. 2022 alone had a 40% increase in gas costs, meaning that all of the report's numbers for all electric projects have a much better payback than the report projected. The report also fails to make an apples to apples comparison of construction costs. So, for instance, the report includes the increased cost of some of the necessary electric infrastructure, but fails to include the savings realized in not installing gas infrastructure. Additionally, by looking at Appendix A to the report, you can see that the construction cost for an all electric house is cheaper than the construction cost of a gas house. The body of the report includes higher construction costs because it references higher efficiency heat pumps than likely would be required by the code. Similarly, in its retrofit pricing, it uses top of the line equipment, not code minimum equipment, perhaps adding $10,000 to the cost for the consumer.

Moreover commercial and multifamily buildings greater than 35,000 square must have no direct emissions by 2040 pursuant to the Climate Solutions NowAct. The cheapest way to meet that requirement is to design and construct a building that already meets that requirement, rather than to design a building that will need to be retrofitted later.

For all of these reasons, we support Bill No. 13-22 and strongly urge the council to include the suggested amendments.

[3] Home Innovation Research Labs Electrification Report - 2021 (nahb.org)

AGRICULTURAL ADVISORY COMMITTEE

July 22, 2022

Gabe Albornoz, President
Montgomery County Council
100 Maryland Avenue
Rockville, MD 20850

Dear Council President Albornoz: Bill 13-22 Buildings-Comprehensive Building Decarbonization

On behalf of the Montgomery County Agricultural Advisory Committee-AAC, we would like to provide our testimony for Bill 13-22: Buildings-Comprehensive Building Decarbonization.

Our understanding is that Bill 13-22 will require the County Executive to issue all-electric building standards for **new** construction, major renovations, and additions by January 1, 2024.

We also understand that Bill 13-22 includes Exemptions for certain uses as defined in Chapter 59 Zoning such as manufacturing, crematories, life sciences, and commercial kitchens.

The AAC recommends that all **agricultural buildings for farming uses as defined in Chapter 59 Zoning** should be added to the list of exemptions because farmers cannot pass on additional costs of doing business to their customers.

The Agricultural Reserve was created to ensure that Montgomery County would have productive farmland for food and fiber production for future generations. Bill 13-22 would negatively impact our farmers. This regulation translates into additional costs of production, resulting in a competitive disadvantage with farmers outside of the County. For Agriculture to continue to be successful, and it is successful, we must be competitive throughout the State and the Nation.

Most farm product prices are not set, or even influenced by individual farmers. Agriculture is a pure competitive form of business where no individual producer can or will influence the price of products they produce. It is important for the County Government to understand that our farmers use Natural Gas and Liquid Petroleum-LP Gas to dry and then store commodity crops like corn, wheat and soybeans and these commodity crops encompass a majority of acres in agricultural production for Montgomery County.

If the County Government is truly interested in our farmers being successful, we must create an environment or process where the business of agriculture **and farming** is viewed differently than other businesses in the County. In the past, Montgomery County has exempted the business of

Agricultural Services www.montgomerycountymd.gov/agservices
18410 Muncaster Road · Derwood, Maryland 20855 · 301-590-2823 · FAX 301-590-2839

agriculture **and farming** from specific legislation, and we must do this again for Bill 13-22 in support of our farmers.

We thank the County Council for this opportunity to present our views to exempt all **agricultural buildings for farming uses as defined in Chapter 59 Zoning** from Bill 13-22 Buildings-Comprehensive Building Decarbonization.

Sincerely,

Doug Lechlider, Chairman

Cc: Marc Elrich, County Executive

Jeremy Criss, OAG Director

AIA Potomac Valley

July 19, 2022

Councilmember Hans Riemer
Council Office Building
100 Maryland Avenue, 6th Floor
Rockville, Maryland 20850

Re: Support for Bill 13-22
Buildings – Comprehensive Building Decarbonization

Dear Councilmember Riemer:

I am writing to voice AIA Potomac Valley's support for Bill 13-22. AIA Potomac Valley represents nearly 700 architects in the Potomac Valley region and advocates for the profession and the quality of the built environment. The majority of our members live and/or work within Montgomery County.

As architects, we work every day to design the future now, which includes addressing the changing climate. All-electric building standards would help bring the County closer to its goals of zero-greenhouse gas emissions by 2035. We agree this is absolutely necessary as the built environment plays a large and distinct role in energy consumption. In addition, there are multiple additional benefits that all-electric buildings provide, such as safety from gas-related explosions, and healthier air quality for the occupants.

We believe that the exemptions provided for areas where it is not yet feasible for 100% electric power are helpful at this time while technologies and battery systems are still being improved. We look forward to a future when there is no need for exemptions.

As this bill does not specify the all-electric standards, members of AIA Potomac Valley would like to be a part of the working groups put in place for developing these during the next building code adoption cycle, similarly to how our members were involved in the Building Energy Performance Standards stakeholder working groups. The ultimate goal of this bill would be more easily achieved with a more comprehensive building code to reduce the energy consumption of buildings as a whole.

AIA Potomac Valley and its membership strongly encourage steps to improve the quality of Maryland's built environment, especially those items which address the changing climate. Therefore, AIA Potomac Valley is happy to support the intent of this bill.

Sincerely,

Jennifer Verbeke

Jennifer Verbeke, AIA
Past-President, AIA Potomac Valley

Montgomery
SCD
The Montgomery Soil Conservation District
18410 Muncaster Road, Derwood, MD 20855

July 20, 2022

The Honorable Gabe Albornoz, President
Montgomery County Council
100 Maryland Avenue
Rockville, MD 20850

Re: Bill 13-22, Buildings- Comprehensive Building Decarbonization

Dear Council President Albornoz,

On behalf of the of the Montgomery Soil Conservation District Board, please find attached comments and recommendations concerning Bill 13-22, Buildings- Comprehensive Building Decarbonization that we respectfully ask to be entered into the public record for the July 26, 2022, public hearing.

After reviewing and weighing the merits of this legislation, our Board requests the Council consider an amendment that clarifies farming uses as defined in Chapter 59: Zoning, are included for the exemption in the proposed legislation within Manufacturing and Production Uses as outlined with section (c)(5)(A) of the proposed legislation below.

(c) *Exemptions. All-electric building standards do not apply to new construction, major renovations, or additions in:*

(5) buildings used for the following uses, as defined in Chapter 59: 38

(A) Manufacturing and Production uses ***<u>including farming uses;</u>***
(B) Crematory;
(C) Life Sciences; and
(D) Commercial Kitchens.

Clearly, farming uses are considered as a type of manufacturing and production. From our review of the legislation, it seems that there is a clear intention to exempt buildings used for Manufacturing and Production uses from the legislation, and as such we believe an amendment to the bill to clarify farming uses as defined by Chapter 59 would seem entirely reasonable. Given the important role our farmers play in providing a secure food supply that is essential for human life and health, an exemption to include farming uses should be considered and supported by the Council.

The Board believes that if the Council supports our amendment, it will help to clarify which buildings and their uses under zoning would need to comply with forthcoming changes to the County's Building Code Standards. We understand that it will be important for the farming community to monitor the forthcoming proposed changes to Chapter 8 once they are drafted to ensure these changes will not negatively impact farming uses in agricultural structures.

Thank you for providing the District the opportunity to share our thoughts on this much needed amendment. Please reach out to our staff representative, John Zawitoski (301-590-2831 or via email at john.zawitoski@montgomerycountymd.gov if you have questions or would like us to participate in Council work sessions concerning Council Bill 13-22.

Sincerely,

Robert Butz, Chairman
Mongomery Soil Conservation District

cc: Marc Elrich, County Executive
Jeremy Criss, Director, Office of Agriculture
John Zawitoski, District Manager

Dear Montgomery County Council, July 20, 2022

I am writing to express my support for the County's Comprehensive Building Decarbonization legislation, Bill 13-22, which would require the County to issue all-electric building standards for new construction, major renovations, and additions by Jan. 1, 2024. I have worked in the private sector field of energy management and HVAC for 20 years, utilizing my engineering expertise in building systems, automation technology, and energy efficiency to help Federal, Commercial Real Estate, Higher Education, and County Government clients design short- and long-term plans and projects to improve operation of their buildings, their bottom line, as well as meet energy mandates and goals.

Legislation such as Bill 13-22 increases the visibility of the concept of electrification and will push the market and community to become more educated on it and the benefits associated. This legislation will also push the market to respond with more, better, cheaper solutions – solutions that will benefit not just Montgomery County but the world. Our local architecture, engineering and construction community will advance their skills, knowledge and marketability in the area of electrification and net zero design. Building systems and equipment providers will develop new technologies and solutions to comply with these new designs, and the more they're used, the more economically viable they will be. As we saw with LEED, at first those buildings were much more expensive to build, now they're commonplace in our area and generally cost neutral.

Going all electric offers important community, stakeholder, and environmental benefits. In addition to reducing emissions, using the right electrification technology can decrease energy use overall and therefore reduce building life cycle costs. Technologies such as ductless VRF (Variable Refrigerant Flow) systems that have high heating capacity at low ambient temperatures (down to 0-5deg F) are more energy efficient but have a higher up-front cost. Traditional heat pumps in our area require supplemental electric heat, and because of our low winter temperatures, this electric heat is used as a primary source during much of the winter. This is not energy efficient and stresses the electric grid. Another benefit of ductless VRF high heat systems is that you can properly size the units for smaller spaces (such as apartments) since they go down to 6-9 mbh cooling capacity versus a traditional residential split system where the minimum is 1.5 tons. This is oversized for many smaller living spaces, but they're frequently used anyway. Rightsizing the HVAC equipment for the space maximizes energy efficiency.

Another electrification technology is air-source or water-source chiller-heaters and storage source heat pumps. A building with this system stores and recovers waste heat to deliver heating and cooling. Instead of rejecting heat outside, waste heat is recovered and circulated to the building. This essentially taps into the energy the building already has – energy from the sun the previous day, as well as energy already purchased for lighting, appliances, and cooling. This technology in a retrofit application would require up front investment, but can reduce carbon emissions by 78% CO_2e and reduce cooling and heating costs up to 40% (reference SSHP Infographic (trane.com)).

Electrified buildings lower the building's (and our county's) carbon footprint, increase asset value, increase comfort and health for building occupants and the surrounding community, and contribute to the building and business's marketability.

Regarding the community and non-financial benefits of electrification and energy efficiency projects in buildings, I have the advantage of seeing many of them firsthand in our community. First, as a Montgomery County resident, my family and I have benefitted. I work at a Montgomery County based company that implements these projects, and my salary pays for my family's needs as well as our taxes to the County. The projects I have been a part of have employed countless area workers with all ranges of skilled and unskilled labor. They require engineers, project managers, CAD and graphics designers, journeyman steamfitters, welders, warehouse employees, forklift drivers, accountants, administrative staff, IT professionals, and many more. These projects employ local area subcontractors ranging from professional engineering firms to equipment rental companies to electrical contractors, who employ area residents as well.

I hope this letter encourages passage of this electrification legislation, resulting in a positive change financially for our County residents and business owners as well as contributing toward Net Zero environmental goals.

Thank you for your consideration.

Sincerely,

Julie L. Wolfington

Julie Wolfington, CEM

Energy and Sustainability Leader

Boland

bge
AN EXELON COMPANY

Position Statement

OPPOSE
Montgomery County Council
07/22/2022

Re: Bill 13-22 – Comprehensive Building Decarbonization

Baltimore Gas and Electric Company (BGE) respectfully submits this statement in opposition to *Bill 13-22 Buildings – Comprehensive Building Decarbonization*. BGE supports and would like to partner with the county and the state in their efforts to meet their decarbonization goals. Montgomery County's goals to address climate change are laudable. **However, this legislation would implement a significant change in energy usage, prior to the issuance of a critical electric grid readiness study mandated by state law and without the understanding of the readiness of the electric grid to accommodate such change.** Pursuant to a recently enacted state law (Climate Solutions Now Act of 2022), the Maryland Public Service Commission (PSC) – the agency tasked with regulating the state's electric utilities and ensuring the reliability of the electric grid for Maryland customers – is scheduled to release a study that analyzes grid-readiness for building electrification by the end of 2023.

BGE is an electric and gas delivery company, whose key responsibilities are to deliver energy, regardless of whether it is electricity or gas, in a manner that is safe, reliable, and affordable. As part of our commitment to decarbonization, we have announced our commitment through our *Path to Clean,* a commitment to cut our own operational emissions by at least 50% by 2030 and achieve net-zero operations-driven emissions by 2050, in line with the ambitions of the nation. To achieve these goals, BGE will implement a series of initiatives designed to modernize our energy delivery systems; reduce energy use in our offices and buildings; increase our use of renewable-powered energy; and electrify our company's vehicle fleet.

Over the past few months, BGE has demonstrated support for other key aspects of the suite of policies aimed at reducing emissions in the transportation sector, which makes up about 45% of Maryland's greenhouse gas emissions, relative to building emissions, which account for 13%. In addition, BGE's Empower Maryland programs have been highly successful in lowering energy usage and GHG emissions for residential and commercial customers, generating over 5 million MWh of energy savings valued at approximately $6 billion in lifecycle customer bill savings, and reducing over 4 million metric tons of GHG emissions. BGE's STRIDE (gas delivery modernization) program has also supported greenhouse gas reductions. Since 2014, pipe replacements have reduced the emission of about 55,000 metric tons of greenhouse gas. When BGE's accelerated gas asset replacement programs are complete, GHG emissions will have been reduced by 210,000 metric tons per year compared to 2013.

BGE is supportive of fully-informed efforts to decarbonize in the building sector as one of the many means to address climate change. However, as first noted above, buildings represent only 13% of sector-wide greenhouse gas emissions, and there are multiple pathways that can be embarked upon to support decarbonization efforts. Any pathway that is selected should be affordable, equitable, manageable, and compatible with electric system reliability, security, and resiliency. Such a meaningful shift in energy policy should be undertaken with all these factors in mind.

Moreover, it should be noted that while a building electrification policy may be implemented at the local level in Montgomery County, its effects are not localized in nature. The needs of the electrical grid are not planned for Montgomery County alone, and such a transition will require time for electric system planning and implementation. Electrification will drive a requirement for significant incremental investments in electric infrastructure to serve the resulting load reliably and with resilience in mind. This is exactly what the PSC was directed to study. Montgomery County should await the outcome of this study, so it has the necessary and best information to inform its climate policies.

For the foregoing reasons, BGE respectfully submits it opposition.

BGE, headquartered in Baltimore, is Maryland's largest gas and electric utility, delivering power to more than 1.2 million electric customers and more than 655,000 natural gas customers in central Maryland. The company's approximately 3,400 employees are committed to the safe and reliable delivery of gas and electricity, as well as enhanced energy management, conservation, environmental stewardship and community assistance. BGE is a subsidiary of Exelon Corporation (NYSE: EXC), the nation's leading competitive energy provider.

AGRICULTURAL PRESERVATION ADVISORY BOARD

June 17, 2022

The Honorable Gabe Albornoz, President
Montgomery County Council
100 Maryland Avenue
Rockville, MD 20850

Re: Bill 13-22, Buildings- Comprehensive Building Decarbonization

Dear Council President Albornoz,

The Montgomery County Agricultural Preservation Advisory Board – APAB met on June 14, 2022, for its regularly scheduled meeting. During the meeting, Bill 13-22 was discussed, and the Board moved and approved providing testimony against the bill while providing amendments.

The agricultural community continues to feel it would be most productive if the Council would reach out to the agricultural groups prior to introducing legislation to ask if proposed legislation would adversely affect farmers. Bill 13-22 as proposed would prohibit farmers from installing new grain bins and drying systems, building new green houses and aquaponic operations with industry standard heating units, and would stifle scaling up local food production. If the agricultural groups were provided the opportunity to review the bill and provide feedback, these comments would have been provided before introduction.

When the Council was considering bill 16-21, Building Energy Performance Standards, the APAB asked that agricultural structures be exempt from the bill's coverage. As noted in our letter late last year, Washington State, which passed similar building energy performance standards, exempted "agricultural structures" from the requirements of the standards, such structures being defined as structures:

> "designed and constructed to house farm implements, hay, grain, poultry, livestock, or other horticultural products, and that is not a place used by the public or a place of human habitation or employment where agricultural products are processed, treated, or packaged."

The Council declined to adopt such an exemption into the County's Building Energy Performance Standards. If the County is serious about becoming food secure, more greenhouses will need to be built. These greenhouses require heating units powered by LP gas. An outright ban on industry standard units is counterintuitive for a County committed to increasing food security. The APAB urges the Council to incorporate an agricultural structure exemption from Bill 13-22.

Sincerely,

Michael B. Jamison

Michael Jamison, Chairman

cc: Marc Elrich, County Executive
Jeremy Criss, Director, Office of Agriculture

Office of Agricultural Services
18410 Muncaster Road · Derwood, Maryland 20855 · 301/590-2823, FAX 301/590-2839

pepco
AN EXELON COMPANY

RE: Formal Comments of Potomac Electric Power Company
Bill 13-22 Buildings – Comprehensive Building Decarbonization

On behalf of Potomac Electric Power Company ("Pepco" or "Company"), thank you for the opportunity to provide formal comments on Bill 13-22, entitled, Buildings – Comprehensive Building Decarbonization. As introduced, the legislation would require the county to issue all-electric building standards for new construction, major renovations and additions by January 1, 2024. We, respectfully, submit our comments and look forward to ongoing engagement as the county considers this legislation.

Pepco is supportive of efforts being undertaken to decarbonize Maryland and the counties we are privileged to serve. While Bill 13-22 advances the county's decarbonization efforts, we recommend that the legislation is considerate of the recently approved Senate Bill 528 - The Climate Solutions Now Act which was passed by the Maryland General Assembly in 2022. This Act, establishes a framework for studying the state's decarbonization goals and development of a transition plan that involves engagement by a diverse set of stakeholders, including the utilities. The new law establishes a goal to reduce economy-wide greenhouse gas emissions by 60% from 2006 levels by 2031 and achieve net-zero by 2045. Another specific provision of the law requires the Commission to complete a general system planning study by September 2023. The study will assess the capacity of the larger electric company distribution systems under a managed transition to a highly electrified building sector. We believe that the evaluation of the results of the Commission's study (due in September 2023) will allow the county and Pepco, as the electric distribution company, the opportunity to incorporate the results of the study into the county's proposal and will help inform investments and upgrades required by Pepco to ensure a more reliable, resilient, secure and smart system to facilitate increased electrification and other decarbonization pathways for our valued customers. Accordingly, we, respectfully, oppose the legislation, based on the timeline that is set forth, which does not provide an opportunity for a study to be conducted to help inform the goals and outcomes of the proposed legislation.

Please know that Pepco supports Montgomery County's leadership in addressing climate change, with a strategic focus on resiliency, as outlined in the Montgomery County Climate Action Plan ("MCCAP"). Our Company provided comments on the MCCAP, which are attached, and we look forward to being an active partner in helping the county reduce greenhouse gas ("GHG") emissions. To achieve a decarbonized future, this will require further analysis regarding infrastructure investments as well as technology upgrades to advance a clean energy future. With an increase in significant weather events, as a result of climate change, our investments must be able to support a more resilient grid that can withstand the worst impacts of climate change on the operations of the electric distribution system and our customers. As the electric utility that serves the majority of Montgomery County, Pepco recognizes that we have a unique and important role in helping to make this transition to a more decarbonized future, equitable and affordable, through

our platform – the electric grid. Every day, we are working to make the grid smarter, stronger and cleaner, with affordability being foundational.

As part of the Exelon family of companies, in 2021, we announced a new goal targeting a reduction in GHG emissions of at least 50% below 2015 levels by 2030, and net zero emissions by 2050. At Pepco, we are working to align our operations, grid investments, and customer product offerings and services with Maryland's climate change and clean energy goals. This means, reducing our own GHG emissions from operations on a trajectory that meets or exceeds the state's reductions goals and working to inform and advocate for policies and processes that enable further decarbonization, in alignment with the goals set forth by the jurisdictions in which we take great privilege in serving. Additionally, we strive to support our customers and the larger community by providing the tools, programs and resources needed to enable the transition to a more equitable and inclusive clean energy future and enhanced resilience. In order to drive down GHG emissions to the level necessary to avoid the worst impacts of climate change, actions must be taken to decarbonize all sectors of the economy, while advancing efficiency, resilience, reliability, security, equity, inclusion, affordability and innovation.

Pepco has been a long-term supporter of helping our customers reduce their energy usage and consumption. For decades we have been implementing energy efficiency programs to support our customers. With the passage of the EmPOWER Maryland Energy Efficiency Act of 2008, Pepco has advanced additional programs that are saving our customers money, reducing their energy usage and greenhouse gas emission levels. This act authorizes and establishes the framework that allows Pepco to offer energy efficiency programs that provide cost-effective, long-term benefits, including reduced energy consumption and costs; smart investments in customer facing tools; job creation and contracting opportunities for local and diverse businesses; and enhancements to the local environment. Most recently, Pepco has worked with other stakeholders to recommend these programs adopt a greenhouse gas emission abatement target. EmPOWER MD programs are designed to deliver 2% energy savings to customers, annually. Pepco currently offers a robust portfolio of energy efficiency programs, including lighting and appliance rebates for homeowners, the Home Performance Program with ENERGY STAR (e.g., home energy assessments and 50% rebates for energy improvements like insulation and air sealing), commercial lighting rebates, and energy efficiency services for industrial facilities. Pepco has successfully engaged public and private sector entities on small- and large-scale energy efficiency projects throughout Montgomery County. Since 2008, Pepco has assisted our residential and business customers save energy through the completion of over 9,814 energy efficiency projects. These projects have saved over 333,676 MWhs of energy which is the equivalent of taking 50,952 cars off the road each year.

Electrification of the transportation sector is another key strategy in driving large scale decarbonization efforts. Pepco is well-positioned to be a partner in supporting programs, policy development, and the build out of infrastructure for mass transit electrification and increased electric vehicle use in the county by 2035 through its EVSmart program, which was approved by the MDPSC in 2019. Currently, Pepco has over 95 charging stations in the construction pipeline or deployed across the county. As the county seeks to electrify public transit buses, school buses and county fleet vehicles, this increases the need for a clean and resilient grid. In 2020, the Maryland Public Service Commission ("Commission") issued an order approving six energy storage pilot projects in Maryland. One of the approved projects is a third-party owned and

operated battery storage system at the Montgomery County bus depot in Silver Spring. The Brookville Bus Depot is used to maintain, service, and house more than 200 county Ride-On buses. The Pepco battery storage pilot project, at this location, will support the charging of buses served by this site. This battery storage facility also represents the implementation of a "non-wires alternative" to defer the construction of an additional feeder to support charging facilities at this location. This battery storage pilot program will provide learnings on the effectiveness of this technology when deployed at appropriate sites and integrated into the utility's electricity delivery operations. Batteries will assist distribution utilities in more readily accommodating additional solar and other distributed energy resources at a lower cost, as well as building a level of resiliency for these charging facilities. This type of innovative approach will be needed as the county looks to decarbonize the building sector.

In closing, we believe that these steps and the framework and study established by the Climate Solutions Now Act provide a pathway for achieving the decarbonization goals of Montgomery County and Maryland. Thank you again for the opportunity to share our formal comments for your consideration, as you review the proposed legislation. Pepco is committed to continuing our work and partnering with the county and other key stakeholders to advance a decarbonized and resilient future for our customers, the county, and the state.

To: Montgomery County Council
From: Christopher Smith, Montgomery County Resident
Date: June 13, 2022
Re: Bill 13-22, Buildings – Comprehensive Building Decarbonization

Councilmembers,

I want to express my opposition to Bill 13-22, which effectively limits Montgomery County resident's energy choices, forcing consumers to purchase electricity or alternative energy sources. The audacity of the Council to propose such a bill without a comprehensive fact-based, cost analysis of the impact to consumers is unsurprising of this legislative body. Despite the fact it has experienced net outward migration since 2010, the county is facing a housing crisis. This is largely a result of the anti-competitive policies this county has put in place that discourage developers from constructing new housing. Developers do not green wash the cost of doing business, they make their decisions based on hard data.

In addition to the impact on housing, the county is ignoring the fact that most of the net electric generation is produced using natural gas. Will the impact of an all-electric grid create more CO_2 emissions from electric power plants than the mixed-source options residents have today?

The council's obvious response to the question above is that renewable energy sources will replace the generation lost from natural gas production. Does the county understand the cost of a power purchase agreement or the price of solar panels? How does a legislative body even propose this legislation without addressing the impact to consumers in the face of record high inflation?

The county has failed to answer these questions and should be required to before making decisions like this.

I can tell the council first-hand of my experience of a solar PPA with Tesla that I inherited when I purchased my home. Within three months of moving in, my roof, which is 99% covered with solar panels, showed signs of a leak. Upon inspection of a qualified roofer, they determined that the leak was a result of improper panel installation. Because I have twin 16-month-old children and the possibility of black mold, I quickly had Tesla remove the panels and use a third party to install a new roof. I have had the panels off my home for the past year as I argue back and forth with Tesla to make assurances that when they reinstall the panels there will not be another leak. In the meantime, my electric bill has actual decreased because of the lower rate Pepco charges compared to the rate in the inherited PPA agreement. I would love to be able to make the change to natural gas, even as prices soar. This is yet another example of how the county is willing ignore consumer protections and green wash policies that allow solar installers to take advantage of consumers.

In Favor of Bill 13-22

Good afternoon. My name is Anne Manuel. I've been a voting resident of Silver Spring for 37 years. I very much appreciate the opportunity to address the committee on this very important topic. I am writing to express my enthusiastic support for Bill 13-22 that would require electrification of all new buildings in Montgomery County.

I often find myself at a loss for words to express how urgent is our task of addressing climate change. In moments of daydreaming, I frequently find myself remembering what summers were like when I was a child, or even a young adult, and we had never heard of global warming. Our world seemed so much more secure, our future so much less frightening. Now it is no exaggeration to say that the not-too-distant future looks downright apocalyptic. Floods, droughts, wildfires, and fatally extreme heat are destroying lives around the world. And as many of you have pointed out, the intensification of these problems represents an existential threat to life on this planet.

I am a mother of two children in their 30s. I used to feel an almost biological obsession with the idea of grandchildren. Family has been such an endless source of joy and fulfillment for my husband and I – I was desperate for my children to have families of their own. It's hard to put in words how strong that desire was for me. But something has changed in the last 3-4 years as the climate scenarios scientists have long predicted began unfolding before our eyes.

I no longer want grandchildren. I do not want my children to have children. I simply can't stand the thought of deliberately subjecting a child to life under the conditions we are hurtling towards.

But I am so encouraged by the bill put forward by County Executive Marc Elrich and councilmember Hans Riemer to require the decarbonization/electrification of all new construction, major renovations, and additions by January 2024. Adopting this measure would put Montgomery County in the company of jurisdictions like Ithaca, NY, Los Angeles, Washington state, Denver, and Washington DC in tackling one of the largest single sources of greenhouse gas emissions.

In Maryland, methane gas (aka "natural gas") is responsible for 29% of our greenhouse gas emissions and more than half of those emissions come from residential and commercial buildings. Nationwide, the American Gas Association boasts that it connects at least one new house to gas *every minute*. Since gas appliances are long-lived, this locks our buildings into fossil fuel use *for decades*. The good news is that there are efficient electric appliances that can replace all major gas appliances from water heaters and heat pumps to induction cooking stoves. New construction can rely exclusively on these new appliances.

Of course electricity is only as clean as the fuel that is used to generate it. Right now, about 58% of Maryland's electricity is produced by fossil fuels. But our fuel sources are getting cleaner everyday with the increased availability of wind and solar power.

I'd like to add a few words about cost, as I imagine that will be an issue raised by the bill's opponents. While retrofitting existing buildings would obviously include considerable up-front costs, installing all electric appliances in new construction would not incur those costs. Further, going electric is likely to have a beneficial impact on homeowners utility bills. According to data from the Federal Energy Information Administration, fuel costs for heating using heat pumps are lower than those for methane gas. There are many reasons – economic, climate, and health – for moving as quickly as possible to electrifying buildings. Bill 13-22 would take an important step in the right direction.

Thank you for this opportunity to express my views.
Anne Manuel

Journeymen Pipe Fitters and Apprentices

Local Union No. 602

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AFFILIATED WITH AFL-CIO

UA STEAMFITTERS LOCAL 602 TESTIMONY

CB 13-22, COMPREHENSIVE BUILDING DECARBONIZATION

POSITION: OPPOSE / UNFAVORABLE

Dear Members of the Council:

On behalf of UA Steamfitters Local 602, our over 5,300 Journeyman and Apprentices, I write in strong opposition to CB13-22.

As a preliminary legislative measure advancing a prospective framework for future electrification, this legislation is a misguided and reckless approach towards building greater clean energy density throughout Montgomery County.

Generally, our union and members support a reduction of overall emissions, as a percentage of a larger diverse energy portfolio. Achieving that, however, must be a result of a balanced approach to our overall energy portfolio, while efficiently and economically addressing necessary demand. To that point, reducing cheap natural gas sources without also increasing other carbon-free sources, like nuclear and hydrogen, is perhaps the least efficient and most expensive means of achieving a carbon-free future. Moreover, making fossil fuel systems that we install and service illegal, while expanding only electrification, fails to address the vast majority of source-energy used to energize the very buildings that are targeted for decarbonization and electrification: coal.

This Council and Executive have already done a great deal to address the issue of expanding Building Energy Performance Standards (BEPS). These include:

- Recent legislation to invest nearly $20 million annually in the County's Green Bank for energy efficiency upgrades across the County
- Expanding the County's green buildings property tax credit, and
- Expanding the County's commercial property-assessed clean energy (CPACE) program.

These are reasonable measures. However, this legislation is a bridge too far, setting a framework of picking winners and losers in an evolving energy transition, by excluding and making illegal scopes-of-work that perform natural gas work.

In conclusion, this legislation takes a radical and reckless approach to reduction of emissions, targets good, existing jobs with benefits, and replaces them with a completely unknown labor force.

For these reasons, we strongly oppose CB 13-22.

Sincerely,

Christopher M. Madello

Chris Madello
Business Manager / Financial Secretary Treasurer

Testimony in favor of Bill 13-22

Good afternoon, councilmembers. My name is Bill Mascioli and I've been a voting resident of Montgomery County for 37 years. I am grateful for this opportunity to lend my support to Bill 13-22, which would require that by January 1, 2024, the County Executive issue *all-electric* building standards for new construction, major renovations, and additions. This would significantly move the county towards phasing out the burning of natural gas – that is, methane, a potent and dangerous greenhouse gas – for residential and commercial space heating, water heating, and cooking.

I can't think of a more important issue for the county. All my life, I've been guided by a sense that each of our lives derives meaning from working towards the betterment of others. I have, as we all have, weathered political vicissitudes, but there was always an animating sense of hope that the future would continually improve on the present in terms of justice and the quality of life. Climate change has existentially undermined that sense of hope. That we could be irrevocably altering the physical basis of our very existence – including that of future generations and indeed of all other species – is nothing short of dreadful. I am distressed beyond words that our national government cannot rise above parochial politics to address this issue but heartened that Maryland has passed the Climate Solutions Now Act and that Montgomery County, with this bill, now has the opportunity to play an essential part in making the aspirations expressed in that Act a reality.

About a third of Maryland's CO2 emissions come from burning methane, and more than half of that comes from residential and commercial buildings. By promptly reducing those uses, Montgomery County can take a large chunk out of the state's GHG emissions. And in doing so, we will also be removing the health risks associated from burning methane in our homes, not to mention the devastating effect explosions associated with natural gas. Bill 13-22 is thus crucial both on its own merits and because tangible actions like this are necessary to meet the state targets set by the Climate Solutions Now Act.

In addition, while 58% of Maryland's electricity is now generated by burning fossil fuels, our electricity sources are getting cleaner every day with the increased availability of solar and wind generation, which will be tremendously improved as Maryland advances with the Skipjack offshore wind development.

Thank you for this opportunity to express my views.

William Mascioli

PLUMBERS LOCAL UNION NO.5

UNITED ASSOCIATION OF JOURNEYMEN AND APPRENTICES OF THE PLUMBING AND PIPE FITTING INDUSTRY OF THE UNITED STATES AND CANADA, AFL-CIO

4755 Walden Ln. Lanham, MD 20706 • 301-899-7861 (T) • 301-899-7868 (F)

TERREIA "T" SMALLS, UA PLUMBERS & GASFITTERS LOCAL 5

CB 13-22, COMPREHENSIVE BUILDING DECARBONIZATION

POSITION: OPPOSE / UNFAVORABLE

Dear County Executive Elrich and Members of the Council:

On behalf of UA Plumbers and Gasfitters Local 5, I write in strong opposition to CB13-22.

This legislation recklessly targets the jobs and livelihoods of our members, including hundreds of working apprentices, some of whom have found re-entry second chances through our outstanding training programming, and the hundreds of retirees who have built world-class infrastructure throughout the State of Maryland for 100 years.

This legislation also fails to address the majority energy generation sources underlying the Council's concerns: coal and natural gas. Requiring the complete electrification of county buildings, as CB13-22 begins to do, simply increases the usage of these electricity generation sources at issue. That makes no sense.

If the goal is to incentivize carbon-free sources and Building Energy Performance Standards (BEPS), this Council and Executive have already made substantial progress in that regard, including legislation to invest some $20 million annually for energy efficiency upgrades through the Green Bank, expanding the County's green buildings property tax credit, and expansion of the County's commercial property-assessed clean energy (CPACE) program.

We support an "All the Above Approach" to energy production and consumption. There is a broad range of potential outcomes for the future energy mix, and no single energy source or technology solution is sufficient to achieve sustainable climate goals pertaining to the built environment. All lower-emission sources play important roles, and the scenarios include unprecedented deployment of bioenergy, solar, wind, carbon capture and storage, and hydrogen. Fuel gases, including natural gas, are a significant part of the energy mix in these scenarios, reinforcing the need for continued investment, research, and development.

Terriea "T" L. Smalls — Business Mgr. / Financial Sec-Treas.

James L. "Lou" Spencer — Asst. Business Manager

Anthony A. Solis — Business Rep. and Organizer

Michael S. Canales, Jr. — Business Rep. and Organizer

Whether it is working in the energy sector that delivers electricity to our homes, building pipelines carrying natural gas to market, developing the rapidly expanding renewable sector, or securing the future of our nuclear facilities, the members of UA Local 5 Plumbers and Gasfitters are heavily invested in working towards securing our communities and our Nation's energy future. Strengthening these efforts is our continued commitment to advancing the interest of our members, our signatory contractors, their families, and their communities

For these reasons, we strongly oppose CB-13-22.

Sincerely,

Terriea "T" Smalls

Business Manager / Financial Secretary Treasurer

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July 21, 2022

The Honorable Gabe Albornoz
and Members of the Montgomery County Council
100 Maryland Avenue, Sixth Floor
Rockville, Maryland 20850

RE: **Bill 13-22, Buildings – Comprehensive Building Decarbonization**

Dear Council President Albornoz and Members of the Council:

Atlantech Online shares the County's goal of a greener society. I am writing today to express opposition to and raise serious concerns about Bill 13-22, which would eliminate natural gas in all commercial and residential buildings and replace it with electricity.

The U.S. power grid is already under tremendous strain from lack of investment in new transmission lines and repair of existing facilities. Power outages over the last six years have more than doubled in number compared to the previous six years, according to a Reuters examination of federal data and noted in this article; it is a must read. Renewable energy solutions will put even more pressure on the system. And upgrading the grid won't be cheap or easy. It will require regulators to approve huge rate increases that will face strong opposition from consumers. Before legislating a program that will add more pressure onto the grid that serves us, County officials, specifically this bill's sponsors, need to engage in direct talks with Pepco to learn, in detail, how it will be able to handle the increased demand because of a shift from natural gas to electricity, and what the cost will be to consumers in our community.

Further, before putting in place laws that will reduce demand for natural gas, the County needs to determine how Washington Gas will respond. The bill allows exemptions to the all-electric mandate for emergency back-up systems and some types of businesses. But, as fewer buildings are powered by natural gas, we fear that Washington Gas will no longer invest or have the resources to keep the network operating effectively and efficiently as it does today. Further, we fear that those who are exempt, like hospitals that are part of our critical infrastructure, will face increased costs beyond what is financially feasible as the gas company seeks to keep service going with dwindling revenues.

The bottom line: Now is not the time for the County to be concerned with imposing changes that will force buildings to convert from natural gas to all electric. We face serious issues related to public safety, the physical and mental health of our citizens, increasing crime, guns, schools, and food insecurity. We should take care if these matters first. That's the responsible thing to do. At the same time, pushing Pepco to provide a more reliable network and holding them to environmental standards does make sense. Doing that would be smart business.

Thank you for considering our concerns and comments.

Sincerely,

Ed Fineran

Ed Fineran
President

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Testimony on Bill 13-22- Comprehensive Building Decarbonization- Support with Amendments

Submitted by:
Todd Nedwick
Senior Director of Sustainability Policy
National Housing Trust
July 26, 2022

National Housing Trust (NHT) is a non-profit that creates and preserves affordable homes to provide opportunity, advance racial equity, reduce economic disparities, and strengthen community resilience through practice and policy. NHT has preserved 450 affordable rental homes in Maryland.

NHT supports an equitable approach to decarbonizing buildings that does not adversely impact affordable housing providers and residents in Montgomery County. As stated in the Montgomery County Climate Action Plan (CAP), low-income and very low-income households are burdened by the lack of affordable housing in Montgomery County, with demand outgrowing supply.[1] More than half of low-income households in Montgomery County live in multifamily homes.[2] The CAP further states that "if landlords are required by law to make costly energy efficiency retrofits and/or electrification conversions, this could adversely impact the availability or price of affordable housing, and costs could be passed on to renters."[3]

NHT appreciates and fully supports the two-year delay for affordable housing included in Bill 13-22. The delay is necessary to accommodate the lengthy development timeline for affordable housing. The "predevelopment phase" in affordable housing, when the project concept is conceived, the building is designed, and construction financing is identified and secured, typically takes 3-5 years. This timeline means affordable housing projects expected to break ground in 2025-2027 are already in predevelopment. Without the delay for affordable housing as currently included in the legislation, affordable housing providers could be required to make significant changes to the construction scope of work, creating financial hardships that might threaten the project's viability.

NHT recommends that the Council take the following additional actions to provide affordable housing providers flexibility and support to decarbonize their buildings without creating financial hardships for residents or contributing to the potential loss of affordable housing:

1. Amend the definition of "Major Renovation" to ensure that the standards apply only to renovation project scopes of work that include replacing mechanical and electrical systems.
2. Require the use of electric heat pumps over electric heat resistance equipment.
3. Create complementary financial and technical assistance programs to support affordable housing providers to adopt high-efficiency space and hot water heat pumps.

[1] Montgomery County Climate Action Plan, pg. 23
[2] Ibid
[3] Ibid

Amend the definition of "Major Renovation" to ensure that the standards apply only to renovation project scopes of work that include replacing mechanical and electrical systems.

The legislation's current definition of "Major Renovation" is too broad. It could impact affordable housing renovation projects where the scope of work does not include addressing existing heating equipment. Decarbonizing an existing multifamily building can be more difficult financially and technically than building a new all-electric multifamily building. Steven Winters Associates analyzed the costs of electrifying space and water heating systems in several existing affordable buildings in Montgomery County.[4] They found costs of $13,000-15,000 per dwelling unit. Such costs would significantly burden affordable housing providers, given limited property cash flow and reserves.

The definition of Major Renovation should be amended to ensure that building owners are not required to electrify existing heating equipment if the equipment hasn't reached the end of its useful life and if the replacement of the equipment is not planned as part of the renovation scope. The definition should be amended as follows:

> "*Major Renovation* means any renovation where the work area exceeds 50% or more of major structural components, including exterior walls, interior walls, floor area, roof structure, or foundation, or has an increase of 50% or more of floor area, AND INCLUDES REMOVING AND REPLACING THE EXISTING ELECTRICAL AND MECHANICAL SYSTEMS."

The Washington State Building Code Council followed this approach when it adopted a requirement for commercial buildings and large multifamily buildings to install electric heat pumps. The Code exempts the requirement to install heat pumps if a planned building alteration does not include the replacement of a heating appliance. The New York City Council took a narrower approach by limiting the applicability of its all-electric building code to new construction.

Require the use of electric heat pumps over electric heat resistance equipment.

Electric resistance heating systems are less costly to install than heat pumps but are also less efficient and result in higher utility bills compared to the use of natural gas equipment. More than a quarter of Montgomery County residents pay more than 6% of their annual income on energy bills.[5] High energy burdens can force families to choose between paying energy bills or other household necessities.

As mentioned above, Washington State's Building Code requires new construction commercial and large multifamily buildings to install heat pumps instead of electric resistance heating. Montgomery County should consider taking the same approach as it develops the all-electric construction code.

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[4] Steven Winters Associates. Building Energy Performance Standards Development – Technical Analysis. Prepared for Montgomery County, Maryland Department of Environmental Protection: February 2022.
[5] Montgomery County Climate Action Plan, pg. 24-25

Create complementary financial and technical assistance programs to support affordable housing providers to adopt high-efficiency space and hot water heat pumps.

Technical support and resources will be required to ensure that affordable housing providers can install higher-cost heat pumps and adopt high-efficiency measures like high-performing building envelopes, resulting in lower energy costs for residents. NHT applauds the Montgomery County Council's recent actions to provide financial resources to support building decarbonization, including providing $18.6 million in new funds for the Montgomery County Green Bank and $1 million to provide incentives for replacing existing fossil fuel equipment in residential, multifamily, and commercial buildings. However, more resources will be needed to provide financial and technical support to scale up high-efficiency, all-electric construction in new and existing affordable housing. Example programs in other jurisdictions with all-electric building requirements include the following:

- **The California Building Initiative for Low-Emissions Development Program (BUILD).**[6] BUILD provides a design award of up to $100,000 to defray direct design costs for all-electric new construction projects. The program provides free technical assistance to support building owners through all development phases. The program provides a financial incentive of $150/metric ton of total annual avoided GHG emissions, multiplied by the 30-year effective life of the building and up to $1,000 per bedroom depending on the energy savings achieved compared to a standard building.

- **New York City Department of Housing Preservation and Development (HPD) Retrofit Electrification Program.**[7] The program provides grant funding to cover the incremental construction cost to electrify domestic hot water heating and/or space heating & cooling systems in affordable multifamily housing. Participating building owners have access to a Technical Assistance Provider to design and scope the electrification project. The program provides up to $26,300 per apartment if building owners electrify hot water, space heating, and cooking appliances and incorporate comprehensive energy efficiency upgrades.

Thank you for considering these recommendations. If you have questions about this testimony, please contact Todd Nedwick, Senior Director of Sustainability Policy, at tnedwick@nhtinc.org or 202-333-8931 ext. 128.

[6] https://www.energy.ca.gov/programs-and-topics/programs/building-initiative-low-emissions-development-program

[7] https://www1.nyc.gov/site/hpd/services-and-information/hpd-nyserda-retrofit-electrification-pilot.page

Testimony of Walter Weiss MD

Good afternoon. Thanks to the County Council for the opportunity to speak today on Bill No. 13-22. This important bill will electrify new homes and buildings in Montgomery County, reducing greenhouse gases and improving our health.

My name is Walter Weiss, and I am speaking as a member of the Montgomery County Climate Action Plan Coalition. I am also a medical doctor.

Buildings make up 50% of the County's Greenhouse Gas emissions. This bill will reduce greenhouse gases from new buildings. As Maryland moves toward cleaner electricity, the benefits of making new buildings electric will increase. It is more expensive to retrofit a building than to make it all electric in the first place. Making new buildings electric now makes financial sense.

All electric buildings are also healthier buildings. As a doctor, I know that asthma is worse in buildings using gas or oil. This is especially important for children and people with lower incomes who are at a higher risk of asthma to begin with. An summary of many medical studies in the *International Journal of Epidemiology*, Volume 42, Issue 6, December 2013, Pages 1724–1737, https://doi.org/10.1093/ije/dyt150 concluded that

"Our meta-analyses suggest that children living in a home with gas cooking have a 42% increased risk of having current asthma, a 24% increased risk of lifetime asthma and an overall 32% increased risk of having current and lifetime asthma; per 15 ppb increase in indoor NO_2 level, children have a 15% increased risk of having current wheeze. "

In June 2022, the American Medical Association recommended that all new homes have electric stoves for health reasons. https://www.ama-assn.org/system/files/a22-refcmte-d-report-annotated.pdf see recommendation 439 page 16

Opponents of this bill raise several arguments but the facts are these:

1. Pepco can meet the energy needs if all new buildings are electrified.
2. Buildings such as hospitals which need backup power systems do not need gas but can use diesel generators.

3. Modern heat pumps work well down to 5 degrees. There is no need for backup fossil fuel heating systems.

4. All electric single family homes cost less to construct and operate than new mixed-fuel homes.

Just this month Washington DC passed a bill requiring all new commercial buildings to be electric. Montgomery County should do the same.

Thank you

MID-ATLANTIC PIPE TRADES ASSOCIATION

PLUMBERS - STEAMFITTERS - SPRINKLER FITTERS
PIPE FITTERS - PIPE WELDERS - HVAC SERVICE TECH

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Montgomery County Council

To: Council President Albornoz and members of the County Council
From: Jason Ascher, Political Director, Mid-Atlantic Pipe Trades Association – United Association of Plumbers and Steamfitters

OPPOSE Council Bill 13-22

On behalf of the Mid-Atlantic Pipe Trades Associations, our Locals, and our members living and working in Montgomery County, I ask you to **OPPOSE Council Bill 13-22**.

As an organization whose members build and service fossil fuel infrastructure, this legislation will irrevocably harm the careers of many of our members. These workers have been earning good family-sustaining wages with benefits for, in some cases, decades. They have been working hard, paying their taxes, and taking care of their families without the need for public assistance programs. Their work has ensured that taxpayers across Montgomery County can turn lights on in their homes and have hot water and heat in the cold winters. These members come from diverse backgrounds, such as immigrants from around the world, returning citizens, and some whose membership is a family tradition. Many of these workers will tell you these careers changed their life. Now, this legislation threatens their careers and the livelihood of their families. It does this without a care for what happens to them. These members trained for five years to be the industry's most skilled Plumbers and Gasfitters. Their training was at no cost to them or the taxpayers, and they earned wages and benefits that reflect that training. Unrelated to this specific legislation, any discussion in the past of "just transition" has not considered these wages and benefits.

As I write this, renewable energy sources are creating 8,052 MW of 133,853 MW on the PJM grid (PJM App at 2 P.M. on 7/25/22). Adding more demand to this grid while removing fossil fuels could be catastrophic. Currently, the infrastructure doesn't exist for renewable energy to replace fossil fuels without nuclear added as renewable. As of January of 2020, the country of Denmark, the world leader in wind power, only gets 47% of its energy from the wind after building infrastructure for 40+ years (Reuters 1/2/2020, *Denmark sources record 47% of power from wind in 2019*). On top of this, the cost of converting a home from gas to all-electric is $24,000 to $30,000, and there is no way landlords don't pass these costs on to their tenants. This cost would put an undue burden on families that can already barely afford to pay for the cost of housing. It would be better to increase the energy efficiency standards of new construction to help decrease the energy needed on the grid.

For all these reasons, I ask you to **OPPOSE Council Bill 13-22**

SIERRA CLUB
MONTGOMERY COUNTY, MD

July 25, 2022

Montgomery County Council
100 Maryland Avenue
Rockville Maryland

Testimony on: Comprehensive Building Decarbonization, Bill No. 13-22

Council President Albornoz and Members of the Montgomery County Council:

The Montgomery County Group of the Maryland Sierra Club, on behalf of more than 11,000 members and supporters, submits this testimony in support of Bill 13-22, which would require the County Executive to issue regulations by a date certain to establish all-electric building standards applicable to new buildings, and additions and major renovations to existing buildings.

In sum, we unequivocally support the passage of legislation to mandate, in a comprehensive manner, that new construction in Montgomery County be all-electric: new construction should utilize electricity for space heating, service water heating, cooking, clothes washing and drying, and lighting, and should not use fuel gas or fuel oil. We recognize, as this bill does, that careful consideration should be given to the mechanics of shifting to electricity from gas and fuel oil, including the basic timeline and the possibility of including certain limited extensions or exceptions for specific types of buildings.

The basic timeline should require expeditious action. The 2024 implementation date included in this legislation is in accord with the November 2021 recommendation of the Maryland Commission on Climate Change that, statewide, an all-electric construction code be in force "as early as possible but no later than 2024."[1] Any extensions or exceptions should be based on clear evidence of a demonstrated need, be narrowly drawn, and not significantly detract from the electrification effort. We look forward to further discussions about the mechanics of implementing all-electric building standards when this bill is considered in committee.

The necessity for establishing all-electric building standards for new construction is clear. As noted in the memorandum accompanying the introduction of Bill 13-22 (submitted by County Executive Elrich and Councilmember Riemer), the building sector accounts for about half of our county's greenhouse gas emissions. The Council acted in May of this year to reduce emissions from existing, already-constructed buildings by enacting Bill 16-21, establishing building energy performance standards. That left new construction unaddressed.

[1] [1] Maryland Commission on Climate Change, "Building Energy Transition Plan," https://mde.maryland.gov/programs/air/ClimateChange/MCCC/Documents/2021%20Annual%20Report%20Appendices%20FINAL.pdf, at 19.

SIERRA CLUB
MONTGOMERY COUNTY, MD

As discussed in detail in the state Climate Commission's November 2021 "Building Energy Transition Plan," the way to meaningfully reduce greenhouse emissions in new construction is to rely on electricity, not gas or fuel oil. Methane gas is an extremely potent greenhouse gas, and drilling for gas, transporting gas, and burning gas in our buildings significantly contribute to the rising level of carbon dioxide in the Earth's atmosphere.

Electricity is becoming cleaner as efforts increase to rely on wind, solar, and geothermal forms of energy. However, Maryland is still far away from achieving 100 percent clean electricity. In that regard, the Sierra Club continues to strongly support additional action by Montgomery County to effectively allow for, and support, the generation of clean electricity within the County's borders, particularly solar energy.

Constructing all-electric buildings has important benefits in addition to reducing greenhouse gas emissions. The elimination of gas will improve indoor air quality since gas stoves emit toxic chemicals and are associated with significantly increased incidences of asthma among children. All-electric construction also is cost-effective.

In 2017, the County Council adopted an Emergency Climate Mobilization resolution establishing our county's goal of achieving an 80 percent reduction in greenhouse gas emissions by 2027 and their 100 percent elimination by 2035. Half the allotted time now has passed for achieving the 80 percent reduction. Achieving this reduction requires the County to address the source of half of our greenhouse emissions – our buildings.

We applaud the enactment of building energy performance standards for existing buildings. Now the Council must act to address new construction.

Thank you for the opportunity to submit testimony on this important bill.

Sincerely,

Shruti Bhatnagar, Chair
Sierra Club Montgomery County Group, MD
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Statement of Mike Tidwell, Director,
Chesapeake Climate Action Network and CCAN Action Fund
before the Montgomery County Council
on the Comprehensive Building Decarbonization Bill No. 13-22
July 26, 2022

I am Mike Tidwell, director of the Chesapeake Climate Action Network and the CCAN Action Fund. Our organization has been based in Montgomery County for more than twenty years. I want to thank Councilmember Hans Riemer and County Executive Marc Elrich for together proposing this legislation, and Councilmember Will Jawando for becoming an early cosponsor. I also want to especially thank my friend Hans Riemer for his years of service to Montgomery County as he moves towards making a positive impact on county and the world in other arenas.

Each of you knows that we are in a climate crisis. The last seven years have been the hottest since temperature recording was begun. Storms are getting worse. Glaciers are breaking up. The ocean is becoming more acidic and sea levels are rising. The UN Secretary General, echoing the science of the Intergovernmental Panel on Climate Change, has repeatedly said that we need to cut emissions 45% off a 2010 baseline by the end of this decade and calls this a "code red for humanity." You may know that in a hospital, a code red generally means that the building is on fire. It is an appropriate metaphor for this emergency.

The burning question for all of us is what action we can take right now to reduce emissions and slow down the climate chaos that has already begun.

I am going to make three overall points:

1) 13-22 is a modest bill, consistent with and necessary to the achievement of the State of Maryland and Montgomery County's greenhouse gas reduction goals.

2) Even if we were not in a climate crisis, this bill would be good policy because of cost and health considerations.

3) Don't be taken in by opponents' argument that the grid can't handle the new building load or their non-substantive arguments for choice and delay.

The Comprehensive Building Decarbonization legislation is a modest bill, consistent with and necessary to the achievement of the State of Maryland and Montgomery County's greenhouse gas reduction goals

Given the scale of the climate crisis that the planet is facing, directing the County Executive to create new building codes that stop digging the big hole we have dug for ourselves is a very modest step indeed. There are climate experts who argue that we shouldn't even be spending our time talking about something this modest and this well understood.

After considering the state of Maryland's greenhouse gas emissions reduction goals and the unbiased professional analysis that I discuss below, the Maryland Commission on Climate Change, chaired by Governor Hogan's Environment Secretary, made all-electric building codes for the state "beginning as early as possible but no later than 2027" its top recommendation. However, since that recommendation was made, the General Assembly has passed legislation to move up the date by which the state has to be carbon neutral. We now have until 2045 – just 23 years – to implement all the many changes that have to be made to hit that target. This legislation will take a modest bite, just as the recent BEPS and climate impact assessment bills did. Even if they are not to the scale we need, modest bites are critical. But there is far, far more that needs to be done.

Here in Montgomery County, we declared a climate emergency nearly five years ago, we have committed to a greenhouse gas emissions reduction of 80% by 2027 and 100% by 2035, and we have developed a county-wide Climate Action Plan. The Climate Action Plan recommends this modest step. The Council needs to respect that citizen-driven process and the recommendation to pass this implementing legislation. Then next year we all need to move on to other items that will have a larger impact on reducing our greenhouse gas emissions and protecting our most vulnerable populations.

Electrification bills like this are becoming common in several cities, including Seattle, New York City, and several in California. Just two weeks ago, the DC Council unanimously passed a bill that goes far beyond this, not only banning the combustion of all fuel for thermal energy in all new or substantially renovated buildings except for residences three stories and less but requiring all of

those new buildings to be Net Zero Energy. This means that the building will have to produce or directly purchase enough renewable energy to meet its energy consumption over the course of a year. Bill 13-22 does not go nearly that far.

Even if we were not in a climate crisis, this bill would be good policy because of cost and health considerations

I want to make clear to you that this bill would be very good public policy for the people of Montgomery County even if it didn't directly help to achieve our climate goals. This legislation may officially be called "Comprehensive Building Decarbonization", but it might be more appropriately entitled the Montgomery County Resident Support and Protection Act. By requiring new and substantially renovated buildings in the county to be all-electric, the legislation strongly directs Montgomery Council residents away from burning a product in their homes which is bad for their wallets and bad for their health and their children's health, and sometimes even bad for their lives. That is good public policy. I'm going to go into detail on two ways that is true.

First, let's consider the costs to Montgomery County residents that this bill will avoid. When thinking about building costs, it is important to distinguish between incremental construction costs (between what is currently required by codes and what is proposed) and the ongoing operational costs that are locked in by the decisions made when a building is built. First costs are paid by the builder and reflected in the sales price of the building. Ongoing costs are paid by the eventual building owner (maintenance) and the tenants (utilities or rent increases.) As an easily understandable example: if an affordable, low-income multifamily building is built with the minimum required insulation values and methane gas heat and hot water, the tenants will pay higher monthly utility bills for as long as they live there, or higher rents to compensate the landlord for higher utility costs.

There is a widespread contention among opponents of this legislation that the all-electric construction codes required by bill 13-22 would cost more money. This assertion becomes the basis for both regional competitiveness and equity arguments and is meant to scare you away from supporting the bill, but these arguments are simply untrue.

The Maryland Commission on Climate Change commissioned the topflight international energy economics consulting firm Energy and Environmental Economics (E3) to provide unbiased analysis of three future growth scenarios. These scenarios were all-electrification, electrification with fuel backup, and carbon-neutral methane. I have taken the four slides reproduced below from E3's

final September 2021 report to the Commission. For reading convenience, I am including their headlines here:

1) "Switching to heat pumps saves costs for both retrofit and new construction **residential single-family** customers**.** All-electric new construction buildings are less expensive than mixed-use buildings."

2) "All-electric new construction is cheaper than mixed-fuel new construction for **multifamily residential homes** across all decarbonization scenarios due to both low capital (with avoided gas connection) and operating costs."

3) "All-electric new construction is cheaper than mixed-fuel new construction for **small commercial buildings** across all decarbonization scenarios due to both lower capital (with avoided gas connection) and operating costs."

4) "All-electric new construction is cheaper than mixed-fuel new construction for **large commercial buildings** in a high electrification scenario and roughly cost neutral in all other decarbonization scenarios; by 2045, all-electric new construction is cheaper in every scenario."

The study found that, in Maryland, construction and costs are cheaper across almost all building types and all scenarios. The entire presentation can be accessed at E3 Maryland Buildings Analysis Slide Report.pdf.

Beyond the Commission's E3 study, the most comprehensive recent study of new electric building costs was completed this past April by a building think-tank called the New Buildings Institute (NBI) and its partners. NBI rigorously studied costs in both typical single-family homes and medium size commercial buildings in climate zone 5A, just to the north of Maryland, which is typically slightly colder (and therefore slightly more expensive) in the winter heating season.

The NBI study's methodology was to examine both incremental first costs and life-cycle costs of going from the 2021 International Energy Efficiency Codes to NBI's Building Decarbonization Code, which incorporates all-electric requirements. (Montgomery County is currently using the 2018 IEEC codes but is likely to upgrade to the 2021 IEEC codes in the new code cycle.) The study took into consideration both high labor and materials cost areas (New York City) and moderate cost areas (Buffalo), making it even more applicable for the DC metro area.

Among the NBI study's principal conclusions were these:

> "The all-electric single-family home is $7,500-$8,200 cheaper to construct than the baseline code home."
>
> "The all-electric medium office has an incremental cost of $0.33-0.50/sf."

And among its policy recommendations is this:

> "All jurisdictions in Climate Zone 5A adopt all-electric provisions for new construction, strongly considering the inclusion of EVCI (Electric Vehicle Charging Infrastructure) requirements to mitigate future costs of electrifying the transportation sector."

Following its recommendations, the report goes on to say:

> "Because of the factors used in this study, costs in the scenarios analyzed are likely on the high end of an expected range. The favorable cost savings found in these market scenarios support the case for implementation of electrification across more temperate climate zones and less expensive utility markets."

Here, the NBI study's assumptions (including the climate zone and the labor and materials costs) may have been a little different than the E3 study, but the conclusions are largely the same: costs are lower for residential homes and may be only a little higher for medium offices – at least to the north of us where the winter season requires more heat.

The entire NBI study can be accessed here: NBI BuildingDecarbCostStudy.pdf

Finally with regard to costs, it is important to note that NOT building to an all-electric code now locks houses and buildings into fossil fuel use for years to come. In that context it is important to consider what is almost certain to happen to the price of methane gas in our region over time.

There are hundreds of pages of likely scenarios for future WGL rates, BGE rates, and other publicly owned utility rates, but the short version is this: the utilities in our area will incur very significant costs to maintain the safety of their old and failing gas distribution system, which they necessarily will seek to recover from ratepayers. At the same time, they will need to make very expensive investments in trying to replace their fossil gas product with biogas or hydrogen, which they will also seek to recover.

As more and more customers understand the benefits of electrification in the coming years and policies are enacted to meet our greenhouse gas emissions reduction targets, the gas utilities' rate base will shrink, and those large capital investments will need be spread across a smaller and smaller denominator, meaning that rates for remaining customers will rise dramatically. Those left behind as methane gas customers will see their costs skyrocket, including many low-income people whose energy burden is already high.

Below is an illustrative slide from the Energy and Environmental Economics presentation to the Maryland Commission on Climate Change. This shows what residential gas delivery costs are projected to be under a high electrification scenario and either a "structured" or an "unstructured" transition. Even the best case "structured" transition shows methane gas delivery costs rising dramatically by 2045. Furthermore, this analysis doesn't even take into consideration

the likely large increase in commodity price as the methane gas companies try to move away from fossil fuels into mass production and distribution of biogas or hydrogen.

Along these lines, our friends at AOBA (the Apartment and Office Building Association of Metropolitan Washington) recently filed twenty-four pages of comments with the DC Public Service Commission regarding WGL's pitiful climate business plans. As she concluded the filing, AOBA Senior Vice President and General Counsel Frann Francis took pains to explain this "death spiral" (her words, not mine.) Mrs. Francis wrote:

> "In the context of the foregoing concerns, the District's pursuit of electrification alternatives should be viewed as providing opportunities for (a) avoidance of extremely large and uneconomic gas system pipe replacement expenditures; (b) avoidance or minimization potential future stranded gas system cost; and (c) more economical use of overall (gas and electric) ratepayer resources."

Translation: electrification is a good idea to avoid high future costs. New buildings built with fossil fuels are going to lock in their owners and tenants to high variability in utility costs are the very least, and massive increases at worst. This is, among other things, a serious social justice issue.

For more largely relevant cost analysis, see "The Challenge of Retail Gas in California's Low-Carbon

Future," a report prepared for the California Energy Commission's (CEC) Natural Gas Research and Development program in April 2020 by Energy and Environmental Economics and the University of California, Irvine: The Challenge of Retail Gas in California's Low-Carbon Future (lpdd.org).

Now consider the health of Montgomery County residents. There is irrefutable scientific evidence going back to the 1990s that burning fossil fuels in homes is bad for you, particularly when the resulting NOx and other gasses and the particulate matter isn't fully vented. Here is a short and memorable phrase that sums it up nicely: you burn it, you breathe it.

The evidence of the serious health effects of burning gas in homes is not new. One meta-analysis done nine years ago of 41 prior studies concluded:

> "Our meta-analyses suggest that children living in a home with gas cooking have a 42% increased risk of having current asthma, a 24% increased risk of lifetime asthma and an overall 32% increased risk of having current and lifetime asthma."

Many more recent studies have been done, including at the Lawrence Berkely Labs, UCLA, Stanford, the National Center for Healthy Housing, and Harvard. Most studies have focused on the health impacts of burning methane gas for cooking, but the recent Harvard study focused on the air quality and health implications of unburned methane gas leaking into homes in the Boston area. The study identified 296 unique chemical compounds routinely leaking into the homes, 21 of which are listed by the EPA as hazardous air pollutants. The press release accompanying the study summarized:

> "A new study finds that natural gas used in homes throughout the Greater Boston area contains varying levels of volatile organic chemicals that when leaked are known to be toxic, linked to cancer, and can form secondary health-damaging pollutants such as particulate matter and ozone."

One of the study's authors went on to say:

> "This study shows that gas appliances like stoves and ovens can be a source of hazardous chemicals in our homes even when we're not using them. These same chemicals are also likely to be present in leaking gas distribution systems in cities and up the supply chain. Policymakers and utilities can better educate consumers about how natural gas is distributed to homes and the potential health risks of leaking gas appliances and leaking gas pipes under streets, and make alternatives more accessible."

The Harvard study can be accessed here: Harvard acs.est.1c08298.pdf
I believe that at least three medical doctors will be offering testimony to you about these health impacts on your constituents. They will likely mention that the quite conservative American Medical Association recently passed this resolution at its annual policy meeting:

> "RESOLVED, That our American Medical Association recognize the association between the use of gas stoves, indoor nitrogen dioxide levels and asthma; and be it further
>
> RESOLVED, That our AMA inform its members and, to the extent possible, health care providers, the public, and relevant organizations that use of a gas stove increases household air pollution and the risk of childhood asthma and asthma severity; which can be mitigated by reducing the use of the gas cooking stove, using adequate ventilation, and/or using an appropriate air filter; and be it further
>
> RESOLVED, That our AMA advocate for innovative programs to assist with mitigation of cost to encourage the transition from gas stoves to electric stoves in an equitable manner."

The methane gas industry is desperate for you not to understand the health impacts of their product so that you can create good public policy in response, just as the tobacco industry was desperate for all those years. The industry's principal political strategy these days is to convince state legislatures in red states to completely take away the right of local governments to protect the health and economic well-being of their own constituents. Fortunately, they haven't yet made any progress in Maryland.

Finally, and I'm not going to dwell on this, methane gas and propane blow up. We have had two awful incidents in the county in the past year, and there was an entire office complex destroyed in Howard County not long ago.

Finally, don't be taken in by opponents' argument that the grid can't handle the new building load, or their non-substantive arguments for choice and delay

One of the arguments that we have seen from opponents is that the grid will not be able to manage the additional load from moving to electric heat, water heat, and cooking in new buildings in Montgomery County. This is absurd. While there has been no study done specifically on the grid demand impact of this legislation, a relevant Pepco electrification study done by the Brattle Group was presented to the DC Public Service Commission, pursuant to a Commission order, less than a

year ago. The Pepco study examined the effects of the District electrifying everything to the greatest possible degree in order to meet its greenhouse gas emissions reduction goals. The Pepco Assistant General Counsel's transmission letter has the best summary of the full report's findings:

> "The study found that future growth in the Pepco DC distribution system will remain well within the rate of system growth that Pepco DC has successfully managed and operated historically, even under the assumption that the District's landmark decarbonization goals are met largely through new electrification initiatives across all sectors. As shown on page 3 of the study, under certain assumptions Pepco's study estimates that peak demand will grow at an average annual rate of 1.4% between 2021 and 2050. Between 1950 and 2020, Pepco managed annual peak demand growth rates on its DC system well in excess of 2%.
>
> The District's decarbonization and supporting goals extend over a 30-year period, allowing the load growth associated with electrification to be addressed at a manageable pace spanning three decades. Moreover, EE [energy efficiency] and load flexibility can significantly reduce future increases in peak demand and can be scaled up as electrification initiatives gain traction. Indeed, with an achievable portfolio of EE and load flexibility measures, the annual peak demand growth rate can be reduced from a projected 1.4% down to 0.9% between 2021 and 2050. Finally, heating electrification is expected to shift the Pepco DC system peak to the winter season, which is currently lower than its summer peak demand. As a result, heating load will have "room to grow" before it begins to contribute to new capacity needs."

Clearly, bill 13-22 would have nothing close to the impact of the District of Columbia's electrifying everything over the next 30 years in order to meet its net zero carbon goal by 2045. This bill's focus on electric appliances in new construction in Montgomery County would add modestly to Pepco's load, but obviously stay well within its achievable growth rates. Especially notable is the last point in the Pepco letter, stating that heating electrification will shift electric load to the winter, where there is "room to grow."

Other arguments that we have seen from opponents of this and similar legislation are not even about the merits. One is that somehow consumers deserve a choice to continue to use a product that is terrible for the climate and bad for their wallets and health. Let me emphasize that this bill does not take away anyone's choice. This is all about Montgomery County moving into the future with modern, clean, healthy, climate friendly new buildings. At some point we will need to have a serious discussion about helping current customers to understand the risks and move away from

burning climate-destroying methane gas in their homes for heat, water heat, and cooking when their appliances age out, but that is not the issue with bill 13-22. And furthermore I ask you, what sort of choice is it to continue to harm your constituents' finances, their health, and the planet?

Similarly, I urge you not to accept the empty argument that we just need to delay until more studies are done. Given the magnitude of the climate crisis we face, delay is the last thing we need. The status quo that opponents of this legislation want desperately to protect is exactly that which has gotten us to where we are. This policy change for new buildings in Montgomery County is far smaller than the statewide all-electrification codes that the Maryland Commission on Climate Change enthusiastically recommended and that the slow-down-and-delay forces of the status quo were able to kick down the road. The statewide study that will come late in 2023 will have little relevance to this Montgomery County policy. You need to have the conviction and the courage to change the deeply harmful status quo in Montgomery County right now.

In conclusion, I implore you in the strongest possible terms to continue to make Montgomery County a leader in the global fight to stop the climate from reaching the point where trillions of dollars must be spent on adaptation and millions of human beings may die. Bill 13-22 is a modest but important step in that fight. Please pass it for the people of Montgomery County, the State of Maryland, and the world before this year's Council session comes to a close.

July 25, 2022

The Honorable Gabe Albornoz
Council President
Montgomery County Council
100 Maryland Avenue
Rockville, Maryland 20850

Dear Council President Albornoz:

The Montgomery County Chamber of Commerce (MCCC) opposes Bill 13-22, *Comprehensive Building Decarbonization*. This proposed legislation would require all-electric building standards for new construction, major renovations, and additions to be fully in effect by January 1, 2024, less than 18 months from consideration of this proposal.

To be clear, MCCC does not oppose the implementation of clean energy policy solutions. Climate change is a serious global threat to our national security, economy, and our quality of life. However, MCCC urges the County to first coordinate its plans with both state and national efforts as we are part of a regional and national economy.

With awareness of the regional and national scope and complexity of any effective energy and climate policy, the Maryland General Assembly required further study of the impact of proposed solutions when it passed SB 528 – *Climate Solutions Now Act of 2022.* For that reason, the legislation requires a study by the Public Service Commission to determine whether there is adequate energy infrastructure in place now, or to identify the need for additional infrastructure, to support the recommendations.

MCCC agrees that the results of a study, and the opportunity for public hearings and comment, are essential for effective energy policy to move forward. For this reason, MCCC recommends that Montgomery County postpone adopting specific bans as included in Bill 13-22 until it has the benefit of the state's findings and holds hearings to gather testimony on the recommendations.

As always, MCCC looks forward to working with Montgomery County on this and other important issues.

Sincerely,

Georgette "Gigi" Godwin
President & CEO
Montgomery County Chamber of Commerce

cc: Members, Montgomery County Council

Testimony from Frances Stewart, M.D. to the Montgomery County Council on the Comprehensive Building Decarbonization Bill No. 13-22, July 26, 2022

I have been a physician for 41 years and a resident of Montgomery County for over 24 years. I have long-standing concerns about public health and our environment.

The effects of the climate crisis on our health are potentially devastating. For several years, leading medical journals like the Lancet and the New England Journal of Medicine have published a growing body of research on the threats of climate change to our health.

Last October, the World Health Organization stated that climate change is the biggest threat to human health. In June, the American Medical Association declared that climate change is a public health crisis.

For this bill, I'd like to focus on the health effects of natural gas. Natural gas is 70-90% methane, a highly potent greenhouse gas. Methane's global warming potential over 100 years is 25 times higher than carbon dioxide.

Some of natural gas's health and safety problems are dramatic, like the devastating explosion at the Friendly Garden Apartments in Silver Spring in March. Others are more insidious, like carbon monoxide poisoning from a malfunctioning gas furnace that almost killed four members of my family.

The hazards of cooking with gas are less well known. Recent research showed that gas stoves leak natural gas even when turned off. Researchers at the Harvard School of Public Health found at least 21 different chemicals that may pollute the air and affect health wherever gas is leaked.

When natural gas is burned, the most concerning pollutants are carbon monoxide, nitrogen dioxide, and particulate matter. The EPA doesn't set standards for them as indoor air pollutants, but the levels they reach in our homes are often above the standards for outdoor air. These pollutants can contribute to many health problems, including asthma, increased

susceptibility to respiratory infections, chest pain in people with heart disease, and problems with thinking and memory. Children are particularly vulnerable because of their developing respiratory and immune systems, higher breathing rates, and higher lung surface area to body weight ratios.

People in low-income households are at higher risk from hazards related to gas cooking. They often live in smaller homes or apartments, may use stoves for supplemental heat, and are more likely to be exposed to higher levels of outdoor air pollution.

Gas appliances also pollute the outdoor air we all breathe. Researchers at UCLA showed that if all residential gas appliances in California were replaced with clean electric alternatives, the reduction in outdoor nitrogen oxides and fine particulates would result in 596 cases of acute bronchitis, 304 fewer cases of chronic bronchitis, and 354 deaths annually. The monetized health benefits would be approximately $3.5 billion per year.

Fortunately, we have excellent alternatives to gas appliances. I am in the process of planning the renovation of my 1970s kitchen, and I'm excited about getting rid of my old gas stove and replacing it with an induction cooktop and a convection oven. My niece's husband was a chef in a Michelin 2-star restaurant in DC and had a lot of experience with induction cooking there. My brother is an avid amateur gourmet who remodeled his kitchen two years ago. Both are enthusiastic about induction cooking because of its precise temperature control and rapid heating. Induction cooktops and ranges are also safer, easier to clean, and more energy efficient. Since they only heat the pot or pan, the kitchen stays cool.

As excited as I am about the renovation, it would be easier and cheaper if my kitchen was already all-electric. I hope everyone who moves into a new apartment or house in Montgomery County will have a safer, healthier, all-electric kitchen and home.

Thank you for your attention to this important matter. I would be happy to answer any questions you may have.

Frances Stewart, M.D.

Elders Climate Action Maryland

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July 26, 2022

The Honorable Gabe Albornoz
Montgomery County Council
Council Office Building
100 Maryland Ave.
Rockville, MD 20850

The Honorable Evan Glass
Montgomery County Council
Council Office Building
100 Maryland Ave.
Rockville, MD 20850

Re: Bill 13-22 — Buildings – Comprehensive Building Decarbonization – Favorable with Amendments.

Dear Chairman Albornoz and Vice Chair Glass:

This bill, which establishes a goal of county-wide reductions in greenhouse gas emissions, requires aims to accelerate the Montgomery County building sector moving towards 100% electric-powered systems.

The Pool and Hot Tub Alliance (PHTA) favors clean air, requiring gas utilities to develop an infrastructure, supply, and alternatives plan that will not negatively impact consumers and businesses utility bill. Taking away the choice of natural gas use significantly raises costs and changes the way we use our homes. The cost of electricity from both traditional and renewable sources is significantly higher than natural gas and not as efficient.

Our backyard swimming pools, BBQs and firepits have become much more important since COVID-19 and will continue to be in the future. Having natural gas infrastructure in place is pivotal and the discontinuation would not only effect backyard amenities such as grills and fireplaces but would also have negative impacts on the consumer's swimming pool and spa. As such, practical alternatives to natural gas are currently unavailable to the swimming pool and hot tub industry. Additionally a change at this time would result in a higher-priced and less efficient product, thus making it more difficult for homeowners, schools, recreational and commercial facilities to be able to afford it.

POOL & HOT TUB ALLIANCE
2111 Eisenhower Ave., Ste 500
Alexandria, VA 22314

PHTA is in support of balanced approaches to the inevitable climate issue and ultimately reducing carbon emissions. This includes the usage of solar, electric, and natural gas utilities as well as the implementation of these wherever they are the most efficient, logical, and least financially burdening for the consumer. Implementing electricity for pool heating and other applications can be achieved, however it would cause wide implications if it were the only option. We support a balanced and consumer-driven approach to building decarbonization which includes the usage of natural gas, solar, and electricity as they pertain to pools and spas.

The goal of eliminating the use of natural gas, or otherwise phasing out the use of natural gas, will undermine the swimming pool and hot tub business, resulting in a significant economic blow to the County, as well as depriving the citizens of Montgomery County a backyard place for staycations that they so desire. Without natural gas hookups in new residential and commercial construction, citizens of this County that reside in these areas will be deprived of all the benefits associated with access to swimming pools and hot tubs.

On behalf of the many Maryland pool and spa professionals represented by PHTA, as well as those states that do business in Maryland, we respectfully request that you do not move this legislation.

Sincerely,

Jason Davidson

PHTA, Director of Government Relations

jdavidson@phta.org

About the Pool & Hot Tub Alliance

The Pool & Hot Tub Alliance (PHTA), a non-profit organization with over 3,600 members from around the world, was established in 1956 to support, promote, and protect the common interests of the $36.5B pool, hot tub and spa industry. PHTA provides education, advocacy, standards development, research, and market growth to increase our members' professionalism, knowledge and profitability. Additionally, PHTA facilitates the expansion of swimming, water safety and related research and outreach activities aimed at introducing more people to swimming, making swimming environments safer and keeping pools open to serve communities. For more information, visit www.phta.org.

Good afternoon. My name is Jonathan Lacock-Nisly, and I am the Director of Faithful Advocacy for Interfaith Power & Light DMV. I'm speaking today in support of Bill 13-22 because our faith communities have long been taking action to green our houses of worship as a way to care for our climate and our neighbors.

In the past year, many congregations have been learning more about the danger that burning gas in our buildings 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 in their own community.**

I know that sometimes these conversations about our power sources and our heating systems can seem very dry and technical, but for these congregations that have found gas leaks in their communities, the consequences of our dirty energy system are all too relatable.

Sadly, what the Sikh Spiritual Center found here in Rockville is not surprising. My organization and our partners recently released a report highlighting hundreds of leaks we found in Washington, DC's gas network. That report echoes what similar efforts across the country have found: **the gas networks beneath our streets, bringing gas to our furnaces, water heaters, and stoves leak constantly.**

And the dangers don't end at our front door. Studies have shown children growing up in a home with a gas stove are significantly more likely to have asthma. That's why I ask you to amend this bill to keep affordable housing on the same timeline as the rest of our buildings. The communities that depend on affordable housing deserve equal protection under the law. We must make sure that new affordable housing is built with electric appliances that protect the lungs of our youngest neighbors.

Across Maryland, faith communities are starting the work of turning away from burning, getting off of our leaky gas network and choosing clean electric appliances instead. **We call on you to join us.**

My name is Dr.Elise Riley, I'm a longtime Montgomery County resident and Internal Medicine physician . Much of my career has been involved in the care of uninsured and underinsured patients. I'm also a member of the steering committee of Chesapeake Physicians for Social Responsibility. It is a statewide organization of physicians and healthcare professionals that addresses the existential public health threats to life on this planet: the climate crisis, nuclear war and the issues of pollution and toxic effects on health. I'm writing in support of bill number 13–22, the Comprehensive Building Decarbonization bill.

The evidence of the devastating effects of climate change abound. We see it in the increasing episodes of excessive heat, extreme weather events, drought, fires, flooding and melting glaciers. There is no more time to procrastinate; we are in a **Climate Emergency**. The time to act is now. Montgomery County has the opportunity to be in the vanguard of addressing this issue.

The Montgomery County Climate Action Plan notes that buildings are the cause of up to 50% of our greenhouse gas emissions. Moving towards 100% electric new construction will help move us off fossil fuels and be an important step on a local level in decreasing the greenhouse gas emissions which is critical for the viability of our planet.
New York City, the largest city in the country passed legislation last year to move to all electric construction. This is in addition to other cities in California and Washington state which have already done the same.

We have viable options for construction without the use of natural gas. The cost of building all electric now is usually less than or equal to the cost of using gas .It is less expensive to build with electric rather than trying to retrofit in coming years. We also have good options to replace gas run appliances. The future is electric and it does not make sense to build with fossil fuels going forward.
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Breaking the habit of fossil fuels has benefits not only in terms of Greenhouse Gases but also health benefits for our citizens. Natural gas is not as safe as electricity. One rarely hears of electric leaks but gas leaks are a dangerous reality.

Natural gas explosions from gas leaks result in devastating effects including significant morbidity, mortality; and millions of dollars in damage. I vividly remember the horrific 2016 explosion in the Flower Branch neighborhood incurring the loss of seven lives and many more lives ruined.

Carbon monoxide (CO) poisoning is a risk with a number of fuels including gas; it is a byproduct of combustion. Inadequately maintained, installed and vented gas appliances such as furnaces, hot water heaters and stoves may be a source of exposure and health risk. At low levels it may be a cause of dizziness, confusion and headaches, and high levels may be fatal. As a physician I have had patients who have had carbon monoxide exposures and poisoning. It is frightening. Their stories have made me a strong advocate for CO detectors and when my family members move into new places, I always gift them a new CO monitor.

Gas stoves emit a wide range of dangerous pollutants inside homes including nitrogen oxide (NO2), carbon monoxide (CO), formaldehyde and fine particulate matter. All of these have health effects. The average person spends 90% of their time indoors possibly putting them at higher exposure from indoor pollutants. .

The burning of natural gas in stoves releases NO2 into the indoor air and is an important source of household air pollution. Breathing air with high concentrations of NO2 can have significant respiratory effects including inflammation and irritation of the airways. Children are at higher risk due to their developing lungs.
Studies have shown that even routine cooking on gas stoves can quickly increase peak levels of NO2, that may be well above the EPA standards for outdoor air quality particularly if not vented properly. A 2013 meta-analysis of 41 studies showed that children living in homes with gas stoves have a 42% increased risk of experiencing asthma type symptoms and 24% increased risk of ever being diagnosed with asthma in their life. Increased indoor NO2 levels also increased the risk of current wheezing symptoms.

The Australian Climate Council suggests a child living in a home with gas has a similar risk to living in a home with cigarettes. Ventilation can reduce NO2 exposure but not completely eliminate it and this is obviously very dependent upon consistent use of adequate ventilation and the efficacy of the vent, which should be vented outdoors. Estimates are that homes with gas stoves have approximately 40-50% higher NO2 levels than those with electric stoves .In low income housing, frequently there isn't adequate ventilation. Living units tend to be smaller increasing exposure. These communities have additional risks frequently due to more heat and pollutant exposure in their neighborhoods.

On June 22nd of this year the American Medical Association (AMA) in the annual committee meetings took the step of the adopting a resolution recognizing the association between the use of gas stoves and indoor NO2 levels and asthma. They resolved to inform members and the public that the use of gas stoves increases household air pollution and the risk of childhood asthma. In addition they resolved to advocate for innovative programs to transition from gas to electric stoves.

Decarbonization of buildings is critical to achieving greenhouse gas emission reduction goals to address the Climate Emergency that we face. This will also help reduce the significant health and safety effects of natural gas.

The decision you make will impact the future for us and future generations. Montgomery County has the opportunity to be a leader and set an example in taking the necessary steps to address the issue of natural gas use in building construction .I strongly urge you to support Bill 13-22, The Comprehensive Decarburization Bill.

Thank you for your attention
Elise Riley MD FACP

References:

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3. Batnbrick,Charlesworth Australian Climate Council report, 6/5/2021,Kicking the Gas Habit, how gas is harming our health, https://climatecouncil.org.au
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5. Lebel ,Eric:Finnegan,C; et al., Methane and NO2,Emmissionsfrons from natural gas stoves, cooktops and ovens in residential homes, Environmental Science and Technology, 2022, 56,2529-2539. https://pubs.acs.org/doi/10.1021/acs.est.1c04707

Testimony in Support of Bill 13-22
Comprehensive Building Decarbonization
David Goodrich
Rockville

I am a retired NOAA climate scientist, Board Chair at Chesapeake Climate Action Network, and Steering Committee member at 350 Montgomery County. I write this as my strong endorsement of the Comprehensive Building Decarbonization Bill, sponsored by Councilmember Hans Riemer and endorsed by County Executive Marc Elrich.

As heat waves sweep across our nation and the Northern Hemisphere this summer, it's difficult not to conclude that the effects of climate change are upon us. The County Council recognized this nearly five years ago with their Climate Emergency resolution. Yet concrete action has been desperately hard to find. The short version of climate action is this: *We have to stop burning stuff.* No, this can't happen overnight, but we need to begin. At a minimum, as we build new structures, we cannot lock in carbon emissions for decades into the future. This is what Bill 13-22 is designed to avoid.

I bring a personal experience to this issue. We installed a new heat pump and electric hot water heater in our house in May, and our rooftop solar installation came online in January. Yesterday, on one of the hottest days of the year, we still made more electricity than we used, while keeping the house quite pleasant. This can be done, and done cost-effectively, especially for new construction.

I'll submit one more item of my experience. I've ridden my bicycle through the major oil and gas fields in North America, including the Permian Basin in Texas and the Bakken field in North Dakota. [I wouldn't recommend it.] Never out of sight are the flames from oil well flaring, scenes reminiscent of Mordor. This is where our gas is coming from. A t-shirt seen more than once says, "God Give Me One More Oil Boom. I Promise I Won't Blow It This Time." It reminds me of the attitude of our national oil and local gas companies: They know their days are numbered, but they just want to ride out one more boom to get them to retirement. Hence the pleading for just one more study, then another, before action. But we just don't have that kind of time.

Please support this bill and begin to make good on the promises that the Council made five years ago.

TESTIMONY BY COUNTY EXECUTIVE MARC ELRICH

on Bill 13-22, Comprehensive Building Decarbonization

July 26, 2022

My name is Adriana Hochberg, Climate Change Officer and Acting Director of the Department of Environmental Protection, speaking on behalf of the County Executive. Thank you to Council President Albornoz for the opportunity to testify on Bill 13-22 and thank you to Councilmember Reimer for partnering with the County Executive on this important piece of legislation. The Comprehensive Building Decarbonization bill requires the County Executive to issue all-electric building standards for new construction, major renovations, and additions by January 1, 2024.

I strongly support passing Bill 13-22. We are in a climate emergency and have pledged to reduce greenhouse gas emissions by 80% by 2027 and 100% by 2035. This reduction is in response to the warnings from the UN Intergovernmental Panel on Climate Change that states without swift actions to reduce emissions, we will face calamity to our climate, economy, and our way of life.

The actions recommended by the Panel require coordinated efforts at all levels of government and society. For us, that means we will not meet this crisis unless we phase out combustion of fossil fuels.

19% of the County's total emissions comes from natural gas use directly in our buildings. Bill 13-22 pursues the pathway to reduce those emissions, continuing the mitigation from the building sector by the ambitious Building Energy Performance Standards passed in April 2022 and accompanied tools to reduce emissions from existing buildings.

The transition to all electric buildings in new construction is already underway in the County, because of the efficiency and safety all-electric equipment offers. This means instead of using systems that rely on the combustion of fossil fuels - equipment like natural gas furnaces and boilers to heat our spaces and water, Bill 13-22 requires fully electric systems that take advantage of market-available technologies that are cleaner, more efficient, and cost-effective.

This is electric equipment like high-efficiency heat pumps, which are 2 to 3 times more efficient at transferring heat energy than natural gas furnaces.

This is induction stoves for our homes that cook food faster and reduce the pollutants and particulate matter we breathe in.

It is important to note, we are not alone in taking this step. Bill 13-22 is consistent with the latest recommendation of Governor Hogan's Commission on Climate Change to electrify new construction by 2024, as well as mirroring legislation passed by peers like New York City, San Jose, San Francisco, and Seattle.

Like these other jurisdictions, we recognize there are isolated situations where 100% electric isn't yet ready due to technology, conflicting requirements such as life safety, or simply needs an extended timeline for the switch. Systems related to emergency back-up power, life science uses, manufacturing, and commercial kitchens are some of those areas Bill 13-22 exempts. And schools and affordable housing are exempt if the building permit is submitted prior to January 1, 2026.

Bill 13-22 pushes us forward with technologies that are available on the market today. It is a crucial step for the County to achieve its zero-greenhouse gas emissions goal and ensure new construction is built with safer, human-focused, and cost-efficient equipment.

Dear Council members,

AGA represents more than 200 local energy companies that deliver natural gas throughout the United States. AGA's mission is to facilitate, on its members' behalf, the promotion of safe, reliable, and efficient delivery of natural gas to homes and businesses across the nation. There are more than 77 million residential, commercial, and industrial natural gas customers in the U.S., of which 96 percent — more than 73 million customers — receive their gas from AGA members including the residents of Montgomery County.

Thank you for the opportunity to share the progress our industry is making to both reduce greenhouse gas emissions and ensure our customers and communities have safe and affordable energy every single day. AGA's member companies are at the foundation of a healthy economy and a purpose-driven innovation agenda. We have a bold vision, with ambitious emissions reductions goals to demonstrate what is possible when government and communities harness America's abundant resources, vast delivery infrastructure, and deep well of talent. We can, and therefore we must, strive for an energy future where affordability, reliability, and safety go hand-in-hand with emissions reductions and a cleaner environment. Gas utilities and gas infrastructure have crucial and enduring roles when building pathways to achieve a decarbonized future, including net-zero.

The Direct Use of Natural Gas is Significantly More Affordable than Electricity

According to the U.S. Department of Energy the direct use of natural gas is 3.4 times more affordable than electricity.[1] Economic modeling conducted by AGA demonstrates the negative consequences a local natural gas ban would have on the Baltimore metropolitan area[2], the closest area to Montgomery County that was modeled. The analysis[3] found that the annual average energy cost for a home with high-efficiency gas would be $1,100 per year. The annual energy cost for an all-electric home, without the addition of any upgrades to the electrical panel, would be $1,420 per year. In total, the all-electric home would witness a 29-46 percent cost increase compared with a home with high-efficiency gas appliances.

[1] Available at: https://www.federalregister.gov/documents/2022/03/07/2022-04765/energy-conservation-program-for-consumer-products-representative-average-unit-costs-of-energy.
[2] Baltimore-Columbia-Towson, MD MSA, which includes Baltimore County, Baltimore City, Anne Arundel County, Howard County, Harford County, Carroll County, and Queen Anne's County in Maryland.
[3] *See* American Gas Association, *Grounded in Reality: The Implications of Electrification in Baltimore, MD*, (2021) https://www.aga.org/research/reports/implications-of-policy-driven-residential-electrification/grounded-in-reality-the-implications-of-electrification/.

Daniel Lapato *Managing Director, State Affairs*

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A recent study by Home Innovation Research Labs found a similar sticker shock for all-electric homes.[4] An all-electric home in Baltimore costs between $3,832 and $14,495 more to build than a mixed-fuel home without even considering the potential need for upgraded electric service given the increase in demand.

The Natural Gas Distribution System Has Unique Reliability & Resilience Attributes that Should be Considered

On an energy equivalent basis, the gas system provides 2-3 times the energy as that of the electric sector during peak winter months. Overreliance on any one source of energy can jeopardize overall energy system reliability and resilience and ultimately result in greater costs for all consumers. Widespread electrification would likely result in significantly higher peak-day electric power asset requirements which often takes the form of higher-emitting resources.[5] The modeling done for the Maryland Commission on Climate Change's Building Decarbonization Study found that meeting electric loads in the High Electrification scenario would require around $3-$4 billion of annual incremental system costs.[6] These costs would be borne directly by homes and businesses across Montgomery County.

The natural gas distribution system is an incredibly reliable energy delivery system with unplanned outages affecting only about 1 in 800 natural gas customers per year.[7] By comparison, electric distribution systems have an average of one outage per year per customer.[8] In a 2020 analysis, the Government Accountability Office found that compared to electric power outages, the frequency and scope of outages to natural gas consumers appears relatively limited.[9] Gas interruptions usually did not result in a complete loss of service to affected consumers however the scope of electric outages can be extensive, affecting millions of consumers for days at a time.[10] Following the past extreme cold weather events that left many homes and businesses without power across Texas, the International Energy Administration

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[4] Home Innovation Research Labs, *Cost and Other Implications of Electrification Policies on Residential Construction*, Feb. 2021, https://www.nahb.org/-/media/NAHB/nahb-community/docs/committees/construction-codes-and-standards-committee/home-innovation-electrification-report-2021.pdf.

[5] GTI Energy, *Seasonal Residential Space Heating Opportunities and Challenges*, (May 2022), https://www.gti.energy/residential-space-heating/.

[6] Energy & Environmental Economics, Maryland Building Decarbonization Study, Slide 10 (Sept. 21, 2021), https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/MWG/Building%20Decarbonization%20Study%20Update%209.21.21.pdf.

[7] Gas Technology Institute, *Assessment of Natural Gas and Electric Distribution Service Reliability*, at 2 (July 19, 2018), https://www.gti.energy/wp-content/uploads/2018/11/Assessment-of-Natural-Gas-Electric-Distribution-Service-Reliability-TopicalReport-Jul2018.pdf.

[8] *Id*.

[9] Government Accountability Office, *Gas Transmission Pipelines: Interstate Transportation of Natural Gas Is Generally Reliable, but FERC Should Better Identify and Assess Emerging Risks*, GAO-20-658, (Sept. 23, 2020), at 16, https://www.gao.gov/assets/gao-20-658.pdf.

[10] *Id*. at 12, 15.

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highlighted that "energy systems with heavy dependence on electricity for space heating will be challenged by exceptionally cold temperatures."[11]

Gas Utility Infrastructure is Vital to Achieving the County's Emissions Reduction Goals

To achieve lasting, affordable, and reliable deep emissions reductions the existing natural gas distribution infrastructure that Montgomery County residents have already invested millions of dollars in must be part of the solution. Montgomery County can achieve significant emissions reductions by working with its local utility to accelerate the use of tools available today, including high-efficiency natural gas applications, renewable gases, methane reduction technologies, and enhanced energy efficiency initiatives.[12]

Pathways that utilize natural gas and the vast utility delivery infrastructure offer opportunities to incorporate renewable and low-carbon gases, provide optionality for stakeholders, help minimize customer impacts, maintain high reliability, improve overall energy system resilience, and accelerate emissions reductions. The ability of natural gas infrastructure to store and transport large amounts of energy to meet seasonal and peak day energy use represents an important and valuable resource that needs to be considered when building pathways to achieve net-zero greenhouse gas emissions goals. Continued utilization of natural gas and the vast utility delivery infrastructure can increase the likelihood of successfully reaching net-zero targets while minimizing customer impacts.

Montgomery County Should Await Pending State Analysis to Inform its Decision Making

During the 2022 legislative session the Maryland General Assembly directly considered a ban on natural gas in new construction and rejected the concept choosing instead to devote further study to the issue given several uncertainties raised by lawmakers, the Maryland Energy Administration, and various stakeholders.

Accordingly, Maryland municipalities should evaluate the balance of energy sources to residential and commercial customers, the impact to state and local economies and the impact on utilities after the Maryland Building Codes Administration has had the opportunity to complete its study as required by the Climate Solutions Now Act of 2022. Furthermore, the Public Service Commission has been directed to complete a general system planning study to assess the capacity of Maryland's distribution systems under a highly electrified scenario. As noted above, careful planning is required before making any rushed decisions to fundamentally overhaul how Montgomery County residents heat their homes and cook their meals particularly

[11] International Energy Administration, *Severe power cuts in Texas highlight energy security risks related to extreme weather events*, (Feb. 18, 2021), https://www.iea.org/commentaries/severe-power-cuts-in-texas-highlight-energy-security-risks-related-to-extreme-weather-events.

[12] To learn more about how AGA members can help the communities they serve achieve net-zero emissions, *See* ICF & American Gas Association, *Net-Zero Emissions Opportunities for Gas Utilities*, (Feb. 2022), https://www.aga.org/research/reports/net-zero-emissions-opportunities-for-gas-utilities/.

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on the coldest days of the year. As the most populous county in Maryland, decisions in Montgomery County have ramifications far beyond its county lines.

Conclusion

AGA appreciates and echoes the County Council's commitment to the welfare of tis constituents. Thank you for the opportunity to share how the natural gas energy delivery network can help provide a safe, reliable, and affordable energy source well into the future.

Respectfully submitted,

Daniel Lapato

Daniel Lapato *Managing Director, State Affairs*

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TESTIMONY OF THE GREATER CAPITAL AREA ASSOCIATION OF REALTORS® BEFORE THE MONTGOMERY COUNTY COUNCIL

In Opposition to Bill 13-22, Buildings - Comprehensive Building Decarbonization

July 26, 2022

Good afternoon, Council President Albornoz and members of Council. My name is Avi Adler and I serve as the 2022 President-Elect of the Greater Capital Area Association of REALTORS® (GCAAR) – the voice of Montgomery County's more than 12,000 REALTORS®, property managers, title attorneys, and other real estate professionals, as well as thousands of area consumers and residents. I would like to share our association's opposition to Bill 13-22, Buildings - Comprehensive Building Decarbonization.

The aim of this legislation, according to the sponsor, is to accelerate the decarbonization of our County by moving towards 100% electric-powered systems. What the sponsors fail to mention is that moving towards "100% electric-powered systems" will not decarbonize Montgomery County. According to MyGreenMontgomery, over 60% of the energy from our county's electricity providers comes from coal-fired power plants and other fossil fuel sources. Less than 10% comes from renewable sources such as wind and solar. How can we call that "comprehensive decarbonization"?

Making Montgomery County more affordable has been a focus in county policy making for many years, especially with an eye towards aging in place. But make no mistake, this bill will hit our current homeowners in their wallets. Cutting new construction off from natural gas usage will cause the cost of that utility to increase dramatically over time. As the user pool decreases those with gas in their homes will be squeezed into a costly decision – pay more annually to continue with their natural gas or pay more upfront to retrofit their current home and replace their appliances.

With higher costs than neighboring jurisdictions, Montgomery County has already seen an exodus of residents causing a budget shortfall on the level of hundreds of millions of dollars. Instead of incentivizing residents to make the changes through further support for our brand-new Green Bank programs or enhanced green buildings property tax credits, this bill seeks to strip residents of their choice as consumers. Alienating prospective residents and chasing away current residents seeking to scale up is the wrong way to take Montgomery County forward.

Advocates, including stakeholders from across multiple industries, spent years working on the County's new Building Energy Performance Standards (BEPS) and the improved commercial property-assessed clean energy (CPACE) programs. The ink is barely dry on those efforts and, before seeing what progress is yielded from that work, this bill seeks to move the goal posts further.

Just this year, the State Legislature moved sweeping climate legislation through the Climate Solutions Now Act. It has 100 plus pages of initiatives, including a 15-month study of the feasibility of transitioning to an all-electric building code, most notably the condition of our power grid as we look at such changes. Moving forward only to find an ill-equipped grid would be dangerous for our residents.

We greatly appreciate your consideration of our Association's perspective and look forward to our continued work on these important issues.

William Kominers

July 26, 2022

Via Electronic Mail

The Honorable Gabe Albornoz
President and Members of the Montgomery County Council
Stella B. Werner Council Office Bldg.
100 Maryland Avenue
Rockville, MD 20850

Re: Bill No. 13-22

Dear President Albornoz and Members of the Council:

This letter presents my comments as an individual in opposition to Bill No. 13-22. Please place this letter in the Record of the July 26, 2022, Public Hearing on Bill No. 13-22.

Bill No. 13-22 would make Henry Ford proud. Henry Ford said the public was allowed to have any color car they wanted, so long as it was black. I would not want to have Henry Ford selecting the details of my home or business. But with Bill No. 13-22, the County seems to be paraphrasing Henry Ford by saying that: "a person or business in the County can have any kind of power source desired, so long as it is electricity (rather than any other type)." This represents an unacceptable restriction of choices to our citizens.

This blanket approach elevates opinions about one problem, and its presumed solution, over all others issues, such as energy efficiency, cost, and personal safety. I am disappointed that on matters so related to personal use and energy efficiency, the Council would presume to dictate to the public the sole method of heating, cooking, and operating homes and businesses. Yet, that is exactly what this Bill proposes to do.

To further eliminate the choices that individuals may make, the Bill ignores the dangers of reliance on a single source of power. A source whose inability to maintain and restore power supply is legendary for its failures.

The Bill raises many questions, but provides very few answers. One would expect that such far-reaching legislation, that of necessity relies upon the ability of a public utility to provide sufficient expanded service, would have explored that capability in advance and have the information incorporated into the reports on the Bill. However, that does not appear to be case. There has been no explanation or assertion that the electric power utilities have the capacity to generate, or the ability to distribute and deliver power to meet the needs of the public that will be

required by the Bill. Perhaps even more importantly, there has been no plan in the Bill to assure the public that the power source will be available without interruption. There is certainly experience in Montgomery County for occasions when electric power service has been lost for protracted periods due to storms or other damage. In those instances, there are numerous cases where restoration of power has required multiple days or a week. The Bill provides no assurance that these outages will not occur in the future. And when every operating system is electric powered, there is no alternative to be used while the utility attempts to restore service. At least today, natural gas service can power stoves, water heaters, HVAC, and emergency power to keep people safe in their homes.

As I said earlier, the Bill raises many questions for which answers should be provided before the Bill can be properly considered by the Council. Similarly, an Economic Impact Statement, as required by Bill 10–19, should be provided that shows the impact of the Bill on those who must deal with compliance and the resulting consequences.

To bring to the Council's attention the many issues that arise from this Bill, I pose for you below a series of questions that I believe should be explored and answered before any action is taken on this Bill. While I am certain that there are many more questions beyond those below, I commend these questions to you as a starting point for your analysis.

I recommend that you take no action on the Bill until these questions have been fully answered. These questions are integral to an understanding of whether the Bill can function as intended, and allow the populace to function. Therefore, I believe that after these questions are answered, and information from these questions is gathered from the many sources, such as the public utilities involved, a second public hearing should be held. That way, the public can comment on the Bill in the context of the knowledge of its implications and the facts upon which it is based, rather than just the expediency of a sound bite, as presented by the Bill today.

Questions:

1. Is there sufficient capacity on our electrical grid to handle the additional load required if buildings now powered by gas boilers require all electricity?

2. What is the projected amount of electricity that will be needed if this Bill is fully implemented, as compared to the usage today?

3. What kinds of upgrades would Pepco or BG&E need to make in order to handle the additional capacity? Who will pay for that? Will the utilities be allowed to simply pass along the costs to the ratepayers?

4. Would the County provide incentives, tax credits, or low-interest loans to help defer the heavy costs to property owners for replacement of equipment? Commercial and residential?

5. What will be the fuel source for the utility for creating all the additional electricity that will be needed? Burning natural gas? Burning coal? How does that solve the basic

problem?

6. How will this Bill prevent monopolistic treatment and pricing by the electric utilities?

7. When there is an electrical power outage, as many experience in the County, how will the County assure power is available for, often lifesaving, systems?

8. What is the expected plan to address/repair outages more quickly than they do now? This is a matter of public safety when we find ourselves with six (6) day or more outages, as have occurred.

9. Even a one day or part day outage can be life threatening due to loss of food supplies or inability to have water or sanitation (well and septic systems require water, usually via an electric pump). Likewise, sump pumps or sewer ejector devices require power. How will people be assured electric service will be sufficient and available?

10. Will this Bill exacerbate food insecurity, as power outages without backup generators with other power sources, cause food in refrigerators and freezers to spoil as electricity is not restored quickly?

11. How are emergency generators treated? Commercial? Residential? You do not want emergency generators run by gasoline, because they would require people to go out during a storm event to replenish the gasoline supply. Or have to store large quantities on site. Both can endanger people. Especially elderly. Natural gas is much safer and secure.

12. What are the relative efficiencies of electric systems rather than natural gas or oil (boilers, water heaters, stoves/cooktops)? Are we trading one cost for another?

13. How well do some of these electric heating systems work? Electric heat pumps are generally viewed to have significant challenges during cold, and especially extreme cold weather. Severe cold may not be that frequent, but it is a danger and big concern when it occurs. What alternatives are there that solve this problem so that even with operating electric service, residents can be comfortable in their homes?

14. How is the supply chain for all the new appliances that would replace gas powered water heaters, heating system boilers, stoves, clothes dryers, and other home appliances?

15. How well will residents and businesses be treated by the gas or oil companies for service or supply when the market share in this area will be so drastically reduced?

16. Are hospitals included in "life sciences"?

17. What does "major renovation" or "addition" mean? This seems very vague.

18. What is the grandfathering of existing equipment and fuel sources? For commercial? For residential?

Thank you for your consideration of these questions and my comments. I look forward to the answers to these and the many other likely questions, and to then have an opportunity to comment to you based upon that factual background.

Very truly yours,

William Kominers

William Kominers

July 26, 2022

Written Testimony for Introduction of Bill 13-22, Comprehensive Building Decarbonization

Submitted by:

Denisse Guitarra, Maryland Conservation Advocate, Audubon Naturalist Society (ANS)

Jamoni Overby, DC Conservation Advocate, Audubon Naturalist Society (ANS)

Dear Montgomery County Council,

For 125 years, Audubon Naturalist Society has inspired people to enjoy, learn about and protect nature. Our Conservation priorities are human health & access to nature; biodiversity & habitat; fighting the climate crisis; and sustainable land use. The urgency of the climate crisis and its impacts right now and continuing in the future on people and wildlife, and the challenges of legislation at the federal level, underscore the importance of passing ambitious local bills like this one throughout our region. We thank the Council for the opportunity to provide testimony. ANS strongly supports the introduction of Bill 13-32, **Comprehensive Building Decarbonization, with some recommendations,** as this bill moves the county closer to meeting its climate goals of reducing 80% of its greenhouse gas emissions by 2027 and 100% by 2025.

This bill will establish two specific policies:

- Require all electric building standards by January 1, 2024, for new constructions, major renovations, and additions. This will also coincide with the county's next building code adoption.
- The bill also provides exceptions including income restricted housing and schools which have an extended deadline of January 1, 2026,

Bill 13-32 will ensure net zero and energy efficiency to begin on January 1, 2024. Newly built net zero buildings that incorporate energy efficient strategies into design, construction, and operation of buildings will positively impact our climate goals as net zero buildings produce a surplus of energy which contributes significantly less to greenhouse gases than traditional buildings. The efficiency requirements proposed by the bill will drastically reduce the county's need for electricity, which will have downstream long-term, positive impacts on many sectors of the economy and on energy affordability for residents on every part of the income spectrum.

All Electric Construction is Cost Effective:

The good news is that all-electric new buildings typically have the lowest construction and operating costs. (See Maryland Commission on Climate Change (MCCC) Building Energy Transition Plan). The MCCC found that all electric construction is typically cheaper or the same cost as conventional construction:

- For single-family homes, all-electric homes *cost less to construct than new mixed-fuel homes*.
- For multifamily buildings, all-electric buildings cost about the same to construct as mixed-fuel buildings.
- For commercial buildings, all-electric buildings can have higher or lower construction costs than mixed-fuel buildings depending on building type and use.
- All-electric new buildings of all types – residential and commercial – have the lowest total annual costs (including equipment, maintenance, and energy costs) in every net-zero emissions scenario modeled.
- With respect to schools, the three net zero schools that have already been constructed in Maryland were built at the same cost as conventionally constructed schools and have drastically lower operating costs.

In addition to infrastructure benefits, the Bill 13-32 will provide a great opportunity to require and improve energy affordability for residents with low-to-moderate incomes, who are often the most vulnerable to climate change. Bill 13-22 specifies that income restricted housing and schools will have an extended timeline to become all electric if the permit application was submitted before January 1,2026. Even though the delay would help income restricted applicants, the bill should go further and incorporate components similar to those already created by the DC Climate Commitment Act of 2021 (B24-267) and Clean Energy DC Building Code Amendment Act of 2021 (B24-420).[1] We owe it to our neighbors to make everyday necessities such as heat and light accessible. Low-income Marylanders pay a disproportionately higher amount for utilities as a percent of income than non-low-income residents. The MCCC GGRA Plan has a goal of retrofitting 100 % of low-income households by 2030. In addition, the Climate Solutions Now Act of 2022 included additional funding for low-income energy efficiency and retrofits. Delaying the

[1] ANS Climate Commitment and Building Code Written Testimony. Jamoni Overby. January 2022. Available at: https://conservationblog.anshome.org/blog/take-action-make-sure-dc-keeps-its-climate-commitments/

electrification requirements for low-income housing is detrimental to residents, works against achieving the state's greenhouse gas reduction goals, and misses an opportunity for state and federal funding.

This Bill should be strengthened by:

- Requiring that all Montgomery County government buildings, including schools, should be net zero immediately. The government should lead by example and require that all newly constructed government buildings be net zero. Allowing our youth to spend their days in net zero buildings would not only stand as an example of your commitment to our youth to reduce emissions but would spur them on to take bolder actions in their future.
- Require that 100% of new government vehicle purchases have zero carbon tailpipe emissions from 2024 onward.
- Require that all replacements of water and space heating equipment in government buildings, including school buildings, must have zero carbon on-site emissions from 2024 onward. By requiring that any new school buildings are net zero and energy efficient, you are providing real life examples to students who will be the guardians of our planet in the future.

Our climate commitments and energy efficiency are a step towards a more equitable society, and we hope that the Council agrees. On behalf of our 28,000 members and supporters, we strongly urge the Council to vote to pass **Bill 13-22, Comprehensive Building Decarbonization, with some recommendations.**

Sincerely,

Denisse Guitarra, MD Conservation Advocate at ANS

Jamoni Overby, DC Conservation Advocate at ANS

July 26, 2022

Bill 13-22 – Comprehensive Building Decarbonization

Position: Oppose

Dear Councilmembers:

The Restaurant Association of Maryland opposes Bill 13-22 as currently drafted. Although there is language in this bill exempting commercial kitchens, the definition of "*commercial kitchens*" references Chapter 59 (County Zoning Code) and is limited to *part of a building that is accessory to Religious Assembly or Public Use.* As currently drafted, this bill does not exempt restaurant new construction/major renovation.

Restaurants depend on the efficiency and performance of gas for cooking. Electric cooking equipment is generally more expensive, much costlier to operate, and lacks the performance restaurants require. Restaurants use gas-fueled equipment for grilling, flame-broiling, sautéing, frying, baking, high-heat woks, and other cooking methods. Gas is also essential for high-temperature pizza ovens.

Though often mentioned as an alternative to gas, electric induction cooking has limitations. Induction cooktops require pans with magnetic flat bottoms. And induction is not an option for other cooking methods like baking, grilling, broiling or woks.

Restaurants rely on the efficiency of gas for hot water needs too. Electric water heaters are not as efficient for commercial uses that require consistent hot water temperatures and flow rates.

We have learned that the Council bill sponsor intends to offer an amendment in Committee to broaden the commercial kitchens exemption to also exempt restaurants and drive-thru restaurants. We would certainly appreciate such an amendment that recognizes the operating needs of our industry. While this amendment would mitigate much of this bill's impact on our industry, there are a couple of other concerns.

Establishing all-electric building standards for new construction/major renovation will increase the future cost of gas for remaining users like restaurants because gas distribution costs will be spread across a smaller customer base.

New and growing restaurant businesses seeking to open locations in new commercial properties (shopping centers, mixed-use buildings, office buildings, etc.) will likely have limited location options, because many commercial property developers may decide to forego the expense of installing gas lines solely for potential restaurant use. This could hinder restaurant industry growth in the County.

Thank you for your consideration of our concerns.

Sincerely,

Melvin R. Thompson
Senior Vice-President

Restaurant Association of Maryland 6301 Hillside Ct Columbia, MD 21046 410.290.6800 FAX 410.290.6882

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

July 24, 2022

The Honorable Gabe Albornoz
President, Montgomery County Council
Council Office Building, Third Floor
100 Maryland Avenue
Rockville, MD

RE: Opposition Bill 13-22 – Buildings - Comprehensive Building Decarbonization

Dear President Albornoz and Councilmembers,

The Maryland Building Industry Association, representing 100,000 employees statewide, appreciates the opportunity to participate in the discussion on Bill 13-22 – Buildings - Comprehensive Building Decarbonization in its current form. While MBIA supports initiatives to combat climate change and is committed to offering the most cost effective and efficient product through our members, we cannot support this bill in its current form given the timeline and requirements proposed.

The proposed January 1, 2024 timeline is overly aggressive given the unknowns from a grid, infrastructure, and level of service standpoint. When the Maryland General Assembly took this matter up with Senate Bill 528 just a few short months ago, it was conclusively determined that a Public Service Commission (PSC) study of grid resiliency should take place prior to any further examination of whether a full ban on fossil fuel connections was necessary or appropriate. We would implore the council to at the very least wait until the results of this statewide study are available prior to this legislation moving forward. The portion of the grid that provides power to Montgomery County cannot be examined in a bubble. Without the benefit of further study, moving forward with a County project while failing to examine the implications on the local and regional portions of the power grid could have the immediate adverse impacts caused by overloading.

Further, many projects, particularly large subdivisions, multifamily developments, and custom homes often take well over a year to design, permit and bid, and then it could be and then another year before the system is up and ready. Enacting a bill that causes major infrastructure to be redesigned on such a short timeline would ensnare current project, likely slowing progress of bringing more missing middle and lower income housing to the marketplace. The bill has a variety of unintended consequences that will negatively impact the residents of Montgomery County and disproportionately target lower income residents.

This bill proposes all water and space heating demands for all new buildings after January 1, 2024 must be met without the use of natural gas. Homeowners have a strong preference for natural gas because it is efficient, clean burning, cost effective and reliable. Carbon emissions notwithstanding, natural gas is absolutely the preferred fuel source for most residents. Gas heat is "instant heat" and blows hot quickly and comfortably. All electric systems will feature "heat pumps." Heat pumps are efficient, but by design they don't "blow hot." In fact, they tend to blow somewhat cool which is why most people really dislike heat pumps. It was common and still in some cases is for a "hybrid" system to be in place, the "main" furnace in the basement was gas, and the "attic system" was a heat pump. This was done for efficiency

and cost management. But, over time, consumers really pushed back and wanted two system natural gas furnaces. Also, it isn't a one size fits all approach when it comes to powering homes. It is very common for homeowners to utilize gas and electricity for different appliances (cook tops, dryers) and for space heating and cooling. Gas is also the preferred energy source for outdoor pools and grills, given burning coal is nearly 200 times dirtier than gas. Which is why we requested the outdoor usage of natural gas be exempted.

It is also important to note that given the ongoing supply chain issues the industry continues to face, most heat pumps and in some cases water heaters have increasingly long lead times for large projects. There is doubt that the electrical systems that could be put in place to meet the heating requirements for home will be inadequate to the task in Maryland's climate. Heat pumps become less efficient in cold weather and cannot meet the temperature requirements of individual resident once the temperature drops below a certain threshold. Since the bill make no provision for creating a backup heating system, consumers will be stuck with an apparatus that does not function properly when most needed and have no opportunity to install their own gas backups because building codes will prevent it. Backup power and emergency generators need to function on natural gas to provide an unlimited emergency power resource for occupants, food preservation, heating, cooling and safety, especially for the sick, handicapped and elderly. Emergency generators should be exempt from the natural gas ban.

I also want to note that Bill 13-22 in the absence of a grid study should have a very robust economic impact statement that addresses the County requirement to analyze the costs outside of the County government, as required by Bill 10-19, requiring each piece of legislation to have an economic impact study. Most statements seem to focus only on the fiscal impacts to County government which ignores the requirements added by Bill 10-19. In this case, the bill's economic impact statement should include a section on the cost of the utilities upgrades to the grid infrastructure, personnel and service increases, and the increased rates due to those costs. Because a grid study is not readily available a cost of $0 can't be assumed.

The bill also creates cost increases for those consumers who remain on natural gas. As the number of consumers on gas decreases, basic supply and demand dictates that the utility companies who provide gas will be forced to exponentially raise costs to make up for the lack of new gas lines.

In addition to concerns about the efficiency and economic expense of requiring the installation of new heating systems, there are significant doubts that the current electrical infrastructure of not just Montgomery County but the state of Maryland can handle the load that would be created by dramatically increasing the usage of the electrical grid. The increased strain on an aged and out of date electrical grid will result in more brownouts for residents unless the infrastructure is put in place that can handle the additional load. Already we are seeing the curtailments being announced from PJM to prepare for the drastic load increases to the grid.

We appreciate the sponsors' intent and look forward to our continued work with the county in addressing climate change, but for the reasons stated above we ask the council to oppose Bill 13-22.

Thank you for your consideration, for more information about this position, please contact Griffin Benton at gbenton@marylandbuilders.org

cc: Montgomery County Council Members and staff

I am a DC resident and extremely worried about climate change. My grandchildren live in Maryland, and they, too, are very concerned. Councilmember Riemer, with the support of County Executive Erlich, has introduced a bill to make sure that new buildings and major renovations in Montgomery County stop burning fossil fuels, an essential first step to reduce greenhouse gases and slow down climate change. Please let me know you fully support this bill.

I am not a MoCo resident but, as a resident of DC, I know that it's feasible to do this; the district has already done so. I also believe it is important for the DMV to move forward together toward electrification.

The time for commitments alone is over. It is time for action!

Thanking you very much for your support.

Statement of the Apartment and Office Building Association on Bill 13-22,
Buildings – Comprehensive Building Decarbonization
July 29, 2022

The Apartment and Office Building Association of Metropolitan Washington (AOBA) is a non-profit trade association representing more than 133,000 apartment units and over 24 million square feet of office space in suburban Maryland. In Montgomery County, AOBA members own/manage over 60,000 of the County's estimated 83,769 rental units and 20,000,000 square feet of office space. AOBA submits this statement on Bill 13-22.

Before the County pursues full electrification of offices and other buildings, it's important to take into consideration the current natural gas infrastructure and the effect full electrification would have on Washington Gas and, by extension, its customers. As the County pursues its ambitious climate goals, it is critical to consider the impact of electrification on the natural gas utility in Montgomery County and the immediate and long-term consequences for customers across the region who continue to receive natural gas service. If the County continues to pursue the elimination of fossil fuels, the costs to maintain the pipeline infrastructure and ancillary services will be borne by fewer and fewer customers. Many of these customers will also likely be from disadvantaged or overburdened communities that simply cannot afford the high cost to switch their heating source from natural gas to all electric. Thus, any consideration of full electrification must include an evaluation of the impact on local utilities and the customers who receive natural gas or electric service.

Washington Gas is currently accelerating pipeline replacement through a program called the Maryland Strategic Infrastructure Development and Enhancement Plan (STRIDE). The STRIDE program allows Washington Gas to charge customers a monthly fee, shown as a separate line item on customer bills for infrastructure replacement not reflected in base rates. Moving to full electrification for new construction and major renovations will likely result in stranded natural gas infrastructure, which will allow Washington Gas to charge remaining customers for stranded costs through STRIDE or some other yet to be determined mechanism. Thus, and unless remedied, full electrification will force natural gas customers to pay for the replacement of natural gas pipeline infrastructure – even though the infrastructure and related services will be effectively abandoned by the required electrification.

PRINCE GEORGE'S
CHAMBER OF COMMERCE
EST.1924

PRINCE GEORGE'S CHAMBER OF COMMERCE

The Prince George's Chamber of Commerce ("PGCOC") is a non-profit alliance of over 600 businesses, representing over a quarter of a million employees, making it one of the largest chambers in the state of Maryland and one of the largest chambers in the Washington Metropolitan region.

PGCOC supports a sensible solution to address climate change. But we have a duty to support our member businesses to help local government develop and implement policies that improve the business environment.

Montgomery County Bill #13-22, Comprehensive Decarbonization in New Construction, prohibits natural gas use in new buildings, and buildings undergoing significant renovations.

PGCOC opposes Bill 13-22 because it will have an adverse impact to businesses not only those operating exclusively in Montgomery County. Businesses in Prince George's County and elsewhere will experience an increase in operating costs particularly with respect to their utility bills. According to the gas utility companies, there is no rate difference or distinction between rates in Frederick, Howard, Baltimore County, Prince George's, Montgomery, Calvert, Carroll, St. Mary's, or Charles Counties. When a large customer base is removed from the gas market, as this bill does, there are stranded costs. Thus, those stranded gas cost will shift to those customers remaining in the service territory.

Compounding this financial burden, this bill will require unprecedented investment in the grid distribution system by the electric utility companies. Electric utility companies will recover those infrastructure costs in rates paid by taxpayers, residential customers— and businesses!

PGCOC cautions against imposing new mandates that directly impact businesses, especially amid a global pandemic. In a time of high inflation, we do not believe this policy is prudent. If large companies experience financial setbacks during the pandemic, then imagine how long it will take small businesses to recover after the pandemic has ended. Without safeguards in place, enacting this measure will only exacerbate conditions for small to mid-sized businesses operating within the State. Once again, we oppose any legislation that threatens the survival of businesses whether in Prince George's County, Montgomery County or elsewhere in Maryland.

PGCOC, like many Chambers across the state, have worked diligently to improve the business environment in the Maryland. With policies like Bill 13-22, those businesses considering opening their doors in Prince George's County and surrounding counties will reconsider operating in Maryland.

Sincerely,

Donna C. Graves
Interim President & CEO

MONTGOMERY HOUSING ALLIANCE

www.montgomeryhousingalliance.org

A coalition of organizations focused on increasing the rate of preservation and development of affordable housing in Montgomery County

Action in Montgomery
Affordable Housing Conference of Montgomery County
AHC, Inc.
APAH
Coalition Homes, Inc.
Coalition for Smarter Growth
Enterprise Community Partners
Habitat for Humanity Metro Maryland
Housing Initiative Partnership
Housing Opportunities Commission of Montgomery County
Housing Unlimited
Interfaith Works
Jewish Community Relations Council of Greater Washington
Keystar Real Estate
Latino Economic Development Center
MHP
Montgomery County Coalition for the Homeless
Rebuilding Together Montgomery County
Victory Housing

July 29, 2022

Hon. Gabe Albornoz, President
Montgomery County Council

Re: Bill 13-22 – Building Decarbonization

Dear Council President Albornoz and Members of the Council,

Montgomery Housing Alliance (MHA) supports Bill 13-22 and the Council's efforts to electrify Montgomery County and achieve the goal of zero greenhouse gas emissions. We have several recommendations to strengthen the bill, better align with state climate policy, and help support mission-minded non-profit housing providers in meeting standards.

MHA recommends that the Council take the following actions:

1. **Provide financial and technical assistance for affordable housing providers.** Creating financial and technical assistance programs will help ensure that providers can install higher-cost heat pumps and adopt high-efficiency measures that result in lower energy costs for residents. This is a matter of equity: comprehensive decarbonization is a crucial goal, but the increased energy costs that may result disproportionately impact low-income residents.

   As noted in the Racial Equity and Social Justice Impact Statement on Bill 13-22, Black and Latinx households face greater energy burdens than white and Asian households. This is especially true of households with low incomes, including low-income homeowners and those living in affordable rental homes.

   MHA applauds the Council's recent decision to dedicate funds to the Montgomery County Green Bank; however, the Green Bank is required to structure assistance as loans. These loans can be useful tools, but it is equally critical to establish technical assistance and grant funds to help mission-minded and nonprofit providers meet standards in a way that benefits residents. Pairing loans and grants together in this way will magnify their impact.

   The Montgomery County Climate Action Plan correctly states that "if landlords are required by law to make costly energy efficiency retrofits and/or electrification conversions, this could adversely impact the availability or price of

COMMUNITY DEVELOPMENT NETWORK OF MARYLAND

The Montgomery Housing Alliance is a committee of the Community Development Network of Maryland
www.communitydevelopmentmd.org

affordable housing, and costs could be passed on to renters." Establishing financial and technical assistance programs will help prevent this unintended consequence.

2. **Clarify the definition of additions.** As written, it is unclear whether an addition would require the underlying existing structure to be entirely electrified, or whether the provisions of the bill would only apply to the addition itself.

3. **Consider an alternative mechanism to define "affordable housing."** As affordable housing providers and advocates, we recommend expanding the definition of housing affordability in Montgomery County. We are happy to have follow up discussions with the Council to further explore the best mechanism(s) for identifying affordable housing.

4. **Ensure that Montgomery County building decarbonization legislation aligns with Maryland's Building Energy Transition Plan.** This alignment should include:

    a. *Creation of a building emissions standard.* The standard should include measurement and reporting of direct (on-site) emissions and support to help implement emissions reduction measures. The state's Building Energy Transition Plan recommends a building emissions standard that shall achieve net-zero emissions from commercial and multifamily residential buildings by 2040 (with an earlier target for state-owned property).

    b. *Inclusion of a cost effectiveness test.* The Building Energy Transition Plan directs the Building Code Administration to develop a cost effectiveness test which would allow building projects to seek variances to code requirements while maintaining electric-ready standards. For example, in some cases electrification of dedicated outdoor air systems (DOAS) used to heat and cool common areas may not be cost effective, and in certain cases natural gas may be more energy efficient. A cost effectiveness test would allow for considered, targeted exemptions for DOAS. Such a cost effectiveness test should include the federal social cost of carbon.

MHA recognizes that building inefficiencies are a major driver of Montgomery County's total carbon emissions, and we support efforts to transition commercial and residential properties, especially new construction, away from fossil fuel energy. We appreciate and support the two-year delay for affordable housing included in the bill. The timeline from pre-development to groundbreaking is typically several years. Requiring affordable housing development to comply immediately could therefore dramatically change the scope of work and financing for projects already in the pipeline, potentially derailing them.

We urge you to amend Bill 13-22 with the recommendations we have outlined in order to better align it with state building decarbonization policy, support mission-minded affordable housing providers, and ensure that as we work toward net-zero emissions we do so in a way that is equitable for all Montgomery County residents. Thank you for your time and attention.

Sincerely,

Montgomery Housing Alliance

1000 Maine Avenue, SW| Suite 700 | Washington, DC 20024 | www.washingtongas.com

TESTIMONY OF
THE
WASHINGTON GAS LIGHT COMPANY
BEFORE THE
MONTGOMERY COUNTY COUNCIL

JULY 26, 2022

BILL 13-22 – BUILDINGS – COMPREHENSIVE BUILDING DECARBONIZATION

LETTER OF OPPOSITION

Washington Gas Light Company (Washington Gas) opposes Bill 13-22, **BUILDINGS – COMPREHENSIVE BUILDING DECARBONIZATION** (Bill 13-22). Bill 13-22 would require public and private actors to electrify new construction as well as homes and buildings undergoing significant renovations.

Washington Gas has a duty to support our customers and to act as a partner with Montgomery County to develop and implement policies that help us to continue to provide affordable, safe, and reliable energy.

Washington Gas hears the voice of policymakers in the Council as it relates to climate change.

However, Bill 13-22 structurally focuses on economy-wide electrification while dismissing other proven opportunities for decarbonization. These opportunities would benefit our customers, the County, and the environment immensely if given the leeway to do so. In the most recent Maryland Legislative Session, the State Legislature decided to have their experts look into the impact of full electrification before mandating such an unprecedented approach. We strongly advise that the Council wait for the results of the analysis before considering this Bill. We urge the Council to consider a more holistic approach to decarbonization, one that puts affordability, reliability, resiliency and secutiy at the forefront.

Grid Reliability and Resiliency Enhancements Must be Made Before All-Electric Mandate

During the 2022 Maryland General Assembly Legislative Session, State legislators heavily debated the issue of climate change in the 2022 Climate Solutions Now Act. One key point that came up was the question of if the power grid could manage the increased energy needs of an all-electric energy system. The electric utility companies were concerned about grid reliability and the significant infrastructure investments needed to bolster the grid distribution system. We at Washington Gas share those concerns for our current customers.

According to Pepco and Delmarva Power at a legislative hearing:

> "…***the impact on new investment needs may be considerable in fast growing areas of the system, and ongoing supply chain delays, as well as siting and permitting issues will likely slow the progress of emerging projects. Pepco and Delmarva Power, as the electric distribution companies, will need to plan for, invest in, and build these upgrades to ensure a reliable system for customers and to ensure the system can adapt to increased electrification."***[1]

Pepco's sister utility company, BGE, also warned in its testimony:

> ***"according to modeling of the BGE territory, residential gas customers can expect to pay $10,000 or more per household for heating costs and retrofits. In aggregate, this shift will cost our residential and commercial gas customers no less than $2.8 billion. These projections do not include the electric infrastructure costs described above to ready the system for load growth."*** [2]

After extensive discussion, the Maryland General Assembly decided to conduct a study to determine the readiness of the electric distribution system instead of prejudging the decision and locking the State into a single-pathway solution that could compromise energy reliability, resiliency, and affordability for customers. This point alone should signal a pause to the Council, we need to adequately assess all of the risks with transitioning to ensure all infrasture needs are met.

Electrification Today Will Drive Up Emissions

This bill's directive to require building electrification for all growth and development may have an unintended effect of increasing the near-term emissions, given that the largest source of electricity used in the State is derived from power plants burning natural gas to generate electricity. As of 12PM on July 27, 2022 PJM reported using mostly coal and natural gas to power their grid, most importantly noting that only 5% of energy produced was renewlable energy[3]. Looking forward,

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[1] Pepco & Delmarva Power's t testimony in opposition to Senate Bill 528, dated February 15, 2022. Found here: https://mgaleg.maryland.gov/cmte_testimony/2022/ehe/1DdghLP51AK7ZNdbZm_ysvNz8LvQDJwWZ.pdf

[2] BGE's testimony in opposition to Senate Bill 528, https://mgaleg.maryland.gov/cmte_testimony/2022/ehe/1N0C3kaAX0oqK_fSmlibjlizR12BWdt8g.pdf

[3] https://www.pjm.com/markets-and-operations

there doesn't seem to be much of a change in how they power their grid. In December 2021, the North American Electric Reliability Coporation issued a Long-Term Reliability Assessment of the entire Bulk Power System in the U.S., there objective is to consider the reliability, resiliency, and security of the grids. In the report, they forecasted that the fuel needed to power the PJM system, looking forward to 2031, would still be powered by mostly coal and natural gas[4].

Significant investments in the power supply infrastructure will be required to serve Maryland and provide the reliability and resiliency necessary for a modern 21st century economy. Acting too quickly will have an unintended consequence by increasing electricity generated out-of-state which will use natural gas or other fossil fuels for electricity generation. .

Focus on Growing New Opportunities, Diversifying Energy Supply and Demand

As written, this measure prohibits using "*combustion equipment relying on gas fuel"* in new construction or in buildings undergoing major renovations. Bill 13-22 would foreclose opportunities to leverage existing infrastructure to deploy carbon neutral fuel choices. The Maryland Commission on Climate Change's E3 report (published October 2021) analyzed several pathways to meet the State's climate goals to decarbonization , and determined that a fuel neutral approach provided for a more reliable and resilient energy system.[5] In a recent study in Massachusetts (February 2022), consulting firm E3 stated "a coordinated gas and electric decarbonization strategy, utilizing a diverse set of technologies and strategies, is likely to be better able to manage the costs and feasibility risks of decarbonization than scenarios that rely more heavily on single technologies or strategies."[6] In the two reports, E3 analyzed various scenarios that will lead to robust, and similar decarbonization goals as Montgomery County, it is clear that energy diversity is essential when considering affordablility, reliability, and resiliency.

At Washington Gas we have already started to introduce low/no carbon non-fossil-based gases into the natural gas delivery system. For instance, feedstocks from municipal solid waste landfills, wastewater treatment plants, food production facilities, and organic waste management operations and hydrogen are options that have strong decarbonization potential. We are continuing to increase the use of certified natural gas into our energy delivery and supply system. And recently, we partnered with WSSC Water to turn waste into energy so that we can further lower greenhouse gas emissions in our region. Also, we are actively partnering with regional stakeholders to identify and pursue opportunities to utilize **hydrogen as a replacement for fossil fuels.** Federal funding opportunities to facilitate hydrogen production, storgage, and transport are aggressively being explored. Washington Gas stands ready to propel Montgomery County to be a leader in the energy transition space, maintaining infrasture and allowing for technology innovation is imperative to achieve this goal.

[4] https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2021.pdf

[5]https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/Documents/MWG_Buildings%20Ad%20Hoc%20Group/E3%20Maryland%20Building%20Decarbonization%20Study%20-%20Final%20Report.pdf

[6]https://thefutureofgas.com/content/downloads/2.15.22%20%20DRAFT%20Independent%20Consultant%20Technical%20Report%20-%20Part%20I%20(Decarbonization%20Pathways).pdf

An Equitable and Affordable Transition

In the Mongomery Climate Action Plan, published in 2021, the County thoughtfully put equity and social justice at the forefront of all climate solutions that will be considered[7]. Natural gas usage remains more affordable than electricity. Studies have shown that in Maryland, natural gas is less costly for customers as compared to electrification.

In Baltimore, the American Gas Association found that when equipment costs, installation costs, maintenance costs, and energy costs are annualized, the average home with natural gas would cost its customers an average of $1,115 per year while the average electrified home would cost between $1,455 and $1,631 per year. Hence, natural gas customers would save between $340 to $516 per year.[8]

We must consider the impacts on the affordability of energy for our most vulnerable customers and members of the community. Without further analysis as it relates to those issues, equity and social justice will be compromised. We have a shared responsibility in ensuring that a decarbonized future does not leave anyone behind. This bill does not address, or guarantee that.

Oppose 13-22

We at Washington Gas, in the interest of our over 200,000 customers, oppose Bill 13-22. Montgomery County should wait for the State's study on total electrification to conclude before pre-empting experts on the issue. Our primary concern with Bill 13-22 is that there are multiple pathways to decarbonize, and only one – total electrification is allowable under this Bill. We stand ready to partner with the County moving forward.

Dytonia "Dy" Reed, Esq., State Government Relations and Public Policy Manager
M 202.379.6993 | dytonia.reed@washgas.com or Brandon Todd, Director of Corporate of Public Policy |brandon.todd@washgas.com | M 202-624-6543.

[7] https://www.montgomerycountymd.gov/green/Resources/Files/climate/climate-action-plan.pdf
[8] https://www.aga.org/globalassets/grounded_methodology.pdf

NAIOP
MARYLAND CHAPTERS
THE ASSOCIATION FOR COMMERCIAL REAL ESTATE

July 29, 2022

The Honorable Gabe Albornoz, President
Montgomery County Council
Via Council Web Portal: mongomerycountymd.gov

Oppose: CB 13-22 – All-Electric New Construction and Major Renovations

Dear President, Albornoz and Council Members:

The NAIOP Maryland Chapters represent more than 700 companies involved in all aspects of commercial, industrial, and mixed-use real estate including many of the largest commercial real estate companies in Montgomery County.

NAIOP's membership is comprised of a mix of local firms and publicly traded real estate investment trusts that are invested in the future of Maryland but also have experience in national and international markets. Many of NAIOP's leading companies have adopted portfolio-wide net-zero commitments. The broad commitment of our members to high performance buildings is one of the drivers behind Maryland's decades long position among state leaders in the rate that LEED certified buildings are brought to market. NAIOP supports adoption of least-cost strategies and responsible, technically sound regulations designed to reduce greenhouse gas emissions on schedules and using methods that minimize economic disruption and result in an orderly energy transition for building owners and occupants.

I am writing to offer several points that underly NAIOP's opposition to CB 13-22 which would require Montgomery County to adopt an all-electric building code for new construction and major renovations.

1. **Utility Scale Energy Transition Requires System-Wide Coordination Rather than Patchwork of Local Laws** – Electrifying the building and transportation sectors will have financial and service-related implications for the utilities that serve Montgomery County and their customers throughout the region. In an informational letter to legislators during the 2022 General Assembly Session, The Maryland Public Service Commission warned of a gas price *death spiral* caused by the shift of operating costs onto customers who remain on the gas system as commercial and multi-family buildings electrify and leave. The county's Climate Action Plan includes interim milestones to electrify 85% of passenger vehicles and 75% of existing commercial buildings. Concurrent electrification of cars, heat and hot water in buildings will require significant changes to the electric service at buildings - both new and existing. PEPCO and Maryland's other publicly owned electric utilities have advised caution about how quickly their distribution infrastructure should be expected to accommodate abrupt increases in demand. These and related issues are being studied by the Public Service Commission at the request of the General Assembly with a report due in 2023. The results of the Public Service Commission studies will provide valuable information about the readiness of utility infrastructure, impacts on rate payers and insights about how to effectively sequence the transfer of buildings and automobiles from fossil fuels to zero carbon energy sources.

   - **Recommendation**: Montgomery County should allow the Public Service Commission to complete its evaluation of grid readiness and rate payer impacts before establishing new code requirements and deadlines for new construction and major renovations.

2. **NAIOP Opposes Decoupling from the National Building Codes** - Decoupling from national building codes and writing a local all-electric construction code raises concerns that design teams will be forced to use unproven technologies or meet costly, untested code requirements. The bill's narrow and prescriptive requirement for only an all-electric construction code crowds out the use of renewable fuels and other decarbonization or net-zero pathways that could be important least-cost alternatives, especially for major renovations. The two governing bodies that write the mechanical, building and energy codes – *The International Code Council [ICC] and American Society of Heating Refrigeration and Air Conditioning Engineers [ASHRAE]* – have both accelerated the development of codes, standards, evaluation tools and technical guidance focused on carbon reduction that will provide a roadmap for net-zero carbon construction. These organizations have the testing capacity and

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expertise to ensure that code requirements achieve carbon related performance targets in ways that are technically feasible, commercially available, and cost effective for builders and occupants.

- **Recommendation**: Montgomery County should coordinate adoption of its building codes with International Code Council's development of codes, standards, and guidance on carbon focused construction practices. Doing so would allow the county to follow a technically sound and managed transition to low-carbon and net-zero carbon construction.

3. **Electric Heat Pump Systems Do Not Necessarily Scale Up Well for Large Buildings** – While it is less challenging to electrify new construction than existing buildings, even in new construction current electric heat pump and heat pump hot water technologies are often better suited to smaller residential and commercial buildings. For larger buildings, system designs become complicated by limitations on refrigerant line length, roof and basement space available for equipment. For some applications such as water heating, there are limited all-electric equipment options in the market that can meet the energy efficiency, health and comfort needs of large multi-family buildings. While there has been some advancement in development of residential cold climate heat pumps, improvement is needed for commercial equipment. Declines in both operating and capital costs of commercial equipment are necessary to close the feasibility gap between small and large buildings.

   - **Recommendation**: Montgomery County should focus first on small buildings and uses that have low space and water heating needs.

4. **Notes About the MD Commission on Climate Change's Recommendation** – The council heard testimony implying that this bill is consistent with recommendations made by the Maryland Commission on Climate Change. I am a member of the Commission's Mitigation Working Group and want to highlight two things for the council's consideration. First, the commission recommended adopting an all-electric construction requirement subject to a cost-effectiveness test. CB 13-22 would require all-electric construction regardless of capital and operating cost considerations. Second, the consultant's study on electrification of new commercial construction used to justify the recommendation as cost-effective is based on idealized future costs for the year 2035. The study assumes that HVAC equipment costs in 2035 will be about 70% lower than what our members were paying when the study was conducted. According to the graph below from the St. Louis Federal Reserve, commercial HVAC costs increased by 29.4% between June of 2020 and June of 2022. Even if we were to agree with the study's cost assumptions, which we do not, those favorable, lower costs, will not be in place in 2024 when the provisions of CB 13-22 would go into effect.

For these reasons, NAIOP respectfully recommends the council vote no on CB 13-22 and work towards a more wholistic approach to building decarbonization. NAIOP's member companies look forward to working with the council and other stakeholders to manage the complex issues related to the energy transition and climate mitigation.

Thank you for your consideration.

Sincerely,

Tom Ballentine, Vice President for Policy
NAIOP Maryland Chapters -*The Association for Commercial Real Estate*

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Good afternoon, Mr. Chairman and members of the committee. Thank you for this opportunity to testify.

My name is Cliff Majersik. I am a Senior Adviser at the Institute for Market Transformation (IMT). IMT is a national nonprofit that catalyzes demand for high-performance buildings. To do this, we work with Montgomery County and jurisdictions across the country to create and deploy building codes and other performance policies that help decarbonize buildings. IMT strongly supports Bill 13-22 and urges the County Council to act promptly to enact it.

IMT works with more than 100 local and state governments who collectively contain roughly half of all large buildings in the U.S. One of our partners is the District of Columbia. With our help, the District Council on July 12 unanimously passed a bill requiring that all new and renovated buildings be all electric. The District bill is very similar to Bill 13-22 except that it has far fewer exemptions. The resulting new building codes in the District will complement Bill 13-22. Building owners, developers, designers and contractors will use the same strategies to comply with building codes in both jurisdictions.

In enacting the climate emergency, the County committed itself to eliminate greenhouse gas emissions by 2035. New furnaces and boilers can last 30 years or longer. There is no way the County would be able to meet its climate commitments without removing gas equipment long before the end of its useful life. Such renovations would make no economic sense. It is much less expensive to install heat pumps in the first place than to install a furnace and then a few years later have to remove that furnace.

Happily, Bill 13-22 is both an important step that the County can take to begin to achieve its climate commitment and low-hanging fruit. In addition to their climate benefits, all electric buildings are less expensive to build and operate, safer, cleaner, and healthier. When constructing a building, it is less expensive to install heat pumps than to install a gas furnace or boiler and the pipes that go with it.

While all electric grids require upgrades and maintenance to meet the evolving needs of the system, the expected demand from all-electric buildings is well within normal ranges that utilities have successfully managed over the last 70 years. Pepco's analysis of its ability to meet the future demand in the District of Columbia under the District's ambitious electrification goals:

> "The study found that future growth in the Pepco DC distribution system will remain well within the rate of system growth that Pepco DC has successfully

> managed and operated historically, even under the assumption that the District's landmark decarbonization goals are met largely through new electrification initiatives across all sectors. As shown on page 3 of the study, under certain assumptions Pepco's study estimates that peak demand will grow at an average annual rate of 1.4% between 2021 and 2050. Between 1950 and 2020, Pepco managed annual peak demand growth rates on its DC system well in excess of 2%."

Bill 13-22 benefits from best practices and lessons learned from around the country. By integrating its requirements into the County's building codes, it will make it easier for designers and contractors to learn of and comply with the requirements.

Bill 13-22 complements the County's and the state of Maryland's Building Energy Performance Standards. All electric buildings will be well positioned to comply with both standards. In this way, the bill will protect families and businesses from buying new homes only to discover a few years later that that they have to make costly renovations to make their homes climate friendly and comply with County and State standards.

Bill 13-22, will provide a valuable model for the rest of Maryland, further establishing the County's leadership.

We urge the County Council to take prompt action to move this bill forward and are available to assist the County with its implementation.

Bill 13-22 Buildings – Comprehensive Building Decarbonization
Montgomery County Council
July 29, 2022

Background: Bill 13-22 would require the Montgomery County Executive to develop electrification standards for future construction and other buildings in the County by 2024.

Comments: The Maryland Retailers Association echoes the concerns expressed by the business community regarding the impact that a County-wide transition away from non-electric energy sources could have on energy costs and business operations in Montgomery County. As the State moves forward with its own actions to reduce emissions, we would encourage local jurisdictions to unite under statewide standards in order to reduce confusion for businesses and to streamline efforts to develop alternative energy sources.

It is our understanding that the sponsor is in the process of developing amendments to make clear that restaurants and restaurants with drive-through windows fall under the exemption for commercial kitchens, and it is our hope that all food service businesses will be included. Should the Council choose to move forward with setting local standards for decarbonization, we would ask that the exemption for commercial kitchens be clarified to ensure that it includes all food service locations that provide made-to-order food, such as convenience stores that provide hot meals to order.

Ultimately, we would urge the Council to consider the overall impact that the proposal could have on business operations in Montgomery County, and we look forward to participating in the regulation process if the bill passes. Thank you for your consideration.

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

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MEMORANDUM

TO: Livhu Ndou, Legislative Attorney

FROM: Manny Geraldo

State Government Relations and Public Policy Manager, Washington Gas
M 202.924.4511 | manuel.geraldo@washgas.com

RE: Bill 13-22, Buildings – Comprehensive Building Decarbonization

Washington Gas appreciates the opportunity to provide the Planning, Housing, and Economic Development (PHED) Committee with additional information in regard to Bill 13-22: Buildings – Comprehensive Building Decarbonization ("13-22"). Washington Gas supports a lower emissions future and efforts to decarbonize the energy system. We welcome the opportunity to develop a more comprehensive solution to decarbonization in Montgomery County ("County") that brings together all the stakeholders. We are committed to advancing the Montgomery County Council's ("Council") goal to create a viable, low carbon future.

Cost Implications of the Council's Approach to Building Decarbonization

Montgomery County residents need diverse energy choices to maintain financial stability, and to protect families from outages during major winter storms. 13-22 limits energy choice, which could increase costs and disproportionately affect consumers and households on fixed or limited incomes.

According to the U.S. Energy Information Administration, many factors have led to the national natural gas price increase, such as storms, imports, exports, changes in inventory levels, and other sudden changes in demand. Global economic uncertainty has affected everyone. However, natural gas remains the affordable energy option. According to the U.S. Department of Energy, the direct use of natural gas is 3.4 times more affordable than electricity[1], and since 2008, the average national price of natural gas delivered to residential consumers decreased by almost three dollars per thousand cubic feet of natural gas.

Households that use natural gas for heating, cooking and clothes drying save an average of $879 per year compared to homes using electricity for those applications.[2] With the current economic uncertainty many Marylanders are facing, these cost savings are more important than ever, and

[1] https://www.federalregister.gov/documents/2022/03/07/2022-04765/energy-conservation-program-for-consumer-products-representative-average-unit-costs-of-energy
[2] https://www.aga.org/contentassets/5689dcf5e6b04fb68e33542e0c653886/ea-2019-03-appliance-cost-and-emissions-comparison-20192.pdf

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underscore the benefits of natural gas. According to the Home Innovation Research Labs, all-electric homes in cold climates cost $10,000 to $15,000 more than homes with natural gas heat and appliances. The study also found that in addition to higher construction costs, the electric appliances have higher lifetime operating costs and the average life expectancy of most gas equipment tends to be longer than electric counterparts.[3]

In September 2022, the Maryland Office of People's Counsel (OPC) updated its 2018 *Maryland Low-Income Market Characterization Study,* and the data shows that the average statewide gross energy burden is 12 percent for all low-income households. Energy burden refers to the percentage of a household's gross income that is spent on energy costs, such as home and water heating and electricity. Environmental policies must consider affordability. Energy affordability is a vital issue, and 13-22 threatens energy affordability at a time when Montgomery County residents and business owners are struggling to keep up with utility payments.

Other Jurisdictions

- **DC**: The Clean Energy DC Building Code Amendment Act of 2022, passed by the Council of the District of Columbia, in May 2022, is much more flexible than 13-22. The bill requires the Mayor to issue regulations that update the commercial building energy conservation codes by December 31, 2026, to require that all newly constructed or substantially improved covered buildings (50,000 sq ft or greater) be constructed to a net-zero energy building standard. The legislation doesn't propose all electrification. The legislation is not overly prescriptive and provides room for changes in the final regulations as opposed to 13-22, which requires the electrification of buildings and eliminates other clean sources of energy.
    - Earlier this month, on October 20, the District of Columbia's Construction Codes Coordinating Board (CCCB) voted 6-4 against adopting a proposal to require all-electric construction in new buildings. An email sent by Pepco raised concerns about the electric grid's capacity to handle demand from all-electric buildings, and whether a 2021 report ("report") prepared by the Brattle Group for Pepco and filed with the Public Service Commission of the District of Columbia was still valid.[4] That report supported a belief that Pepco's electric grid could handle the increased load from building and vehicle electrification.
    - In September, Pepco said the accelerated timeline for electrification measures and the all-electric construction mandate proposed in the commercial code update affected the analysis and Pepco expects to complete its updated analysis by the

[3] https://www.nahb.org/-/media/NAHB/nahb-community/docs/committees/construction-codes-and-standards-committee/home-innovation-electrification-report-2021.pdf

[4] https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/washington-dc-board-votes-down-gas-ban-in-new-commercial-buildings-72609250

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end of 2022 early 2023.[5] Until Pepco completes its updated analysis, it would be imprudent to assume that the grid, in its current state, can handle an increase in electrification.

- **Massachusetts**: The Massachusetts climate bill signed into law in 2021 requires the state to achieve "net zero" emissions by 2050. The legislation did not ban the use of natural gas. The legislation does make it permissible for a limited number of communities to ban or restrict the use of fossil fuels in new construction projects.
- **New York City**: The legislation passed in 2021 mandated a phased-in approach. Gas restrictions would apply to new buildings with fewer than seven stories by 2024 and extends to July 2027 for buildings with seven or more stories. New York City's population is over 8 million people, nearly eight times the amount of Montgomery County. New York City's geographical landscape and population needs require different energy goals. However, a phased-in approach as required by New York City's legislation is much more pragmatic than the approach proposed by 13-22, which will require the County Executive to issue all-electric building standards by January 1, 2024.
- **California**: Across the state of California, jurisdictions have passed laws restricting the use of natural gas. As a result of this and similar anti-gas policies, California residents pay the highest electricity prices in the country. According to a study by the energy institute at UC Berkeley's Haas Business School, PG&E customers pay about 80% more per kilowatt-hour than the national average. The study analyzed the rates of the state's three largest investor-owned utilities and found that Southern California Edison charged 45% more than the national average, while San Diego Gas & Electric charged double. Even low-income residents enrolled in the California Alternate Rates for Energy program paid more than the average American.
    - California has also faced increased blackouts. In 2019, there were 25,281 blackout events, a 23% increase from 20,598 in 2018. The number of utility customers affected jumped to 28.4 million in 2019, up 50% from 19 million in 2018.

Emerging Technology

There is no one solution to address climate change and achieving decarbonization requires a comprehensive look at the potential solutions for the entire system. To reach full decarbonization while also maintaining resilience and reliability, the County would be best served by a generation mix that is also powered by renewable energy. There are key technologies that can help the County in its efforts to fully decarbonize, including hydrogen, automation and smart grids, alternative fuels and carbon capture. Technological advancements are driving innovation, which is reducing costs in turn. The Council should consider a low-carbon fuels strategy that includes renewable natural gas (RNG) and green hydrogen. RNG is a gas produced by upgrading

[5] *Id.*

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methane from already existing methane emission sources like landfills and wastewater treatment plants, and it can be carbon-neutral or even carbon-negative.

Several initiatives Washington Gas has planned between 2021 and 2025 can bring swift cuts to carbon emissions. These include leak detection and pipeline replacement efforts. We believe there is tremendous potential to achieve deeper carbon reductions with the use of technologies such as renewable natural gas and hydrogen produced from water using solar and wind energy (known as green hydrogen). Washington Gas is excited about hydrogen and pursuing two paths to make the fuel available to customers at scale. We expect hydrogen to be available in the next few years and become widely available around 2030. We are actively working to use more natural gas from landfills and wastewater treatment. Additional renewable natural gas supplies can potentially come from food waste and woody biomass.

Hydrogen

Hydrogen is one of the most abundant elements on earth and has the highest energy content of any common fuel by weight. When combusted, hydrogen produces water vapor, not greenhouse gas emissions. It can be safely produced, transported, stored and blended into the existing gas grid to help decarbonize the pipelines.

Hydrogen has been safely used for decades in aeronautics to fuel space exploration and in the industrial sector to process food, manufacture electronics, and make glass and metal.

In September 2022, the U.S. Department of Energy (DOE) announced that $7 billion would be available to fund regional clean hydrogen hubs (H2Hubs) across the country.

> "These H2Hubs are a once-in-a-generation opportunity to lay the foundation for the hydrogen economy of tomorrow—one that will lift our economy, protect the planet, and improve our health," said U.S. Secretary of Energy Jennifer M. Granholm. "With input from America's brightest scientists, engineers, community organizers, and entrepreneurs, this national hydrogen strategy will help us accelerate the development and deployment of technologies to realize the full potential of clean hydrogen energy for generations to come."[6]

The H2Hubs will be one of the largest investments in DOE history. Hydrogen can play a role in displacing fossil gas in the natural gas system.

13-22 would limit the potential of hydrogen. There is vast R&D investment in the hydrogen space, and mandating all-electric construction prevents the utilization of the incredibly reliable utility distribution infrastructure which will be essential to delivering zero-carbon molecules in

[6] https://www.energy.gov/articles/biden-harris-administration-announces-historic-7-billion-funding-opportunity-jump-start

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the decades to come. Meeting the decarbonization goals requires keeping all options open. Today's infrastructure is essential to tomorrow's low carbon energy future.

PSC Study

The Climate Solutions Now Act of 2022 (SB528), which became law on April 9, 2022, directs the Public Service Commission (PSC) to study the Maryland's electric grid infrastructure to determine if it can accommodate the additional load of building electrification. In July, the PSC released a notice establishing a new Electrification Study Work Group ("ESWG") led by John Borkoski, Chief Engineer, to complete a study on the potential impacts of an all-electric building code on Maryland's gas and electric service.

According to the PSC notice, the initial focus of the workgroup will be to develop a detailed study plan and schedule. The workgroup will also begin by providing input into the underlying assumptions and data necessary to ensure results from the electrification study can be reliably and consistently used by each utility company. The Climate Solutions Now Act requires the PSC to file a report with its findings from the study to the Maryland Legislature by September 30, 2023.

Careful and sensible planning is required before the Council makes any decision that would fundamentally overhaul how Montgomery County residents heat their homes and cook their meals. The PSC's study will be complete in less than a year, and the results will help guide the Council as they vote. The study will also be useful for County residents contemplating their energy choices. It would be prudent for Montgomery County and the Council to await the PSC's pending study before voting on 13-22.

Conclusion

13-22 takes viable options to decarbonize off the table at a time when we need more paths to lower emissions, and not fewer. Natural gas is critical to grid reliability and will play a significant role in ensuring this reliability as more renewable generation comes online. According to a 2021 report[7] by Columbia University's Center on Global Energy Policy, "investing more in the domestic natural gas pipeline network could help the US reach net-zero emission goals more quickly and cheaply". The report further noted that "for many of the needs natural gas currently meets, the eventual replacement may be zero-carbon gaseous fuels (e.g., hydrogen, biogas)," and that "these fuels may play a significant role in supporting reliability and making the energy transition more affordable".

In the journey to net-zero emissions, natural gas will be the affordable, on-demand generation that will enable a grid that is heavily reliant on renewables but remain dependable on hot summer

[7] https://www.energypolicy.columbia.edu/sites/default/files/file-uploads/GasPipelines_CGEP_Report_081721.pdf

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days and cold winter nights. Washington Gas continues to work diligently to achieve our shared goal of a lower carbon Maryland for all while also ensuring the vital reliability and affordability that our customers expect and want.

Councilmember Hans Riemer, Chair
Councilmember Andrew Friedson, Lead for Parks
Councilmember Will Jawando

October 26, 2022

Dear Chairman Riemer and Members of the PHED Committee:

BGE appreciates the opportunity to supplement the record before the Committee on Council Bill 13-22 in advance of its November 3 Work Session. BGE maintains its belief that the bill presents a significant policy change which will result in increased costs for customers and puts the electrical system at risk without the benefit of adequate review. BGE fully supports electrification and the decarbonization goals. We are also committed to aiding our customers and communities in identifying pathways, which equitably and affordably allows the county to meet and exceed its decarbonization goals without jeopardizing reliability, by using an integrated energy system solution approach. The Council should not enact this policy change prior to important work being done that would allow policymakers to choose the path toward decarbonization that offers emissions reductions at the lowest risk and lowest cost to the community.

State Studies

Both PEPCO and BGE have asked that the Council hold off on Bill 13-22 until state and local policymakers can obtain the necessary information to be derived from studies being conducted pursuant to the Climate Solutions Now Act. Recognizing the importance of grid reliability and controlling energy costs, the General Assembly directed the Public Service Commission to assess the capacity of each utility's gas and electricity distribution systems to successfully serve customers under a managed transition to a highly electrified building sector. That study is due by September 30, 2023.

BGE vigorously disagrees with the opinion expressed by DEP staff at the October 17 work session that they "are not expecting that we will learn much through the [PSC] study that is happening now that would impact this specific piece of legislation."

The MD PSC study will leverage input from all of the utilities on their ability to operate and maintain the electric system through its transition to decarbonization. The additional electrical load added to the grid will have an impact on system capacity and operations. This information should be used to inform Montgomery County's plan toward electrification.

In addition to the general system planning study, the Climate Solutions Now Act directed the Maryland Department of Labor's Building Codes Administration to provide critical information that would significantly improve the ability of Maryland policymakers to select the best path forward to decarbonize buildings. The Department is charged with developing "recommendations for an all-electric building code for the State" and "recommendations for the

fastest and most cost-efficient methods to decarbonize buildings." The Department is required to make an interim report by January 1, 2023 and a final report by December 1, 2023.

The Committee should consider the actions taken by the jurisdictions which have already moved toward electrification identified by DEP staff. Prior to implementing their plans, the jurisdictions identified either benefited from prior studies or directed studies be conducted to ensure a smooth transition to electrification.

There are several approaches to reducing the carbon footprint of the building sector. Bill 13-22 commits the County to one approach. BGE believes that Maryland legislators should not commit to a specific, limited decarbonization strategy without the benefit of the PSC and Department of Labor studies.

PEPCO Brattle Group Study

Similarly, BGE believes that DEP was mistaken in citing a 2021 report from economists at The Brattle Group report commissioned by PEPCO as "more relevant to the specifics of" Bill 13-22. The report itself emphasizes that it has not analyzed system capacity, stating that their general forecasts "are not a substitute for a detailed distribution resource plan, which would be conducted to identify capacity investment needs for specific locations on the Pepco DC system."

Washington, DC has delayed its electrification efforts after being informed the Brattle Group study did not consider the District's proposed accelerated electrification timeline, the impacts of electric vehicles, and other factors which will need to be reevaluated.

Costs

Regrettably, the question of the costs of Bill 13-22 were not seriously discussed at the October 17 work session. The County's own staff at the Office of Legislative Oversight warned that "enacting Bill 13-22 would have a net negative impact on economic conditions in the County," citing expected increases in commercial building costs.

Concerns about costs multiply significantly when one looks at the impacts on energy costs. As BGE's Ervin McDaniel III told the Committee, BGE projects that it will need to build or expand 250 substations and roughly double its feeder system to support building and transportation electrification in its service territory, with investments likely to exceed $50B. Beyond the financial impacts of the needed investments, the increase in infrastructure will require additional real estate for substations and the use of the public tights of way for the installation of infrastructure. The associated construction activity associated with this work will have a significant impact on traffic, the communities we serve and the county's roadways. An integrated energy system reduces the overall costs by $8B - $12B and minimize construction activity.

Further, Bill 13-22's provisions applying to existing construction will increase costs on residents of buildings required to retrofit to an all-electric residence. The bill forbids use of combustion equipment or plumbing in all-electric buildings, which will necessitate replacement of individual gas appliances as well as shared gas infrastructure. In addition, the bill as written will require the removal of plumbing used for combustion equipment inside of the home to be considered all-

electric. This will limit the ability to utilize future technologies (such as innovative fuels such as hydrogen), which may leverage the piping within homes for energy or other uses.

The prohibition against plumbing for combustion equipment in all-electric buildings significantly limits the ability for residents to benefit from an expansive and reliable energy delivery system which could be leveraged to help the county and the state meet and exceed its decarbonization goals. There is significant research being conducted on the development of renewable fuels which will be bolstered by Inflation Reduction Act funding. The current bill removes the option for new construction to leverage the future benefits of today's underground piping system.

The DEP's testimony stated builders could commit to all-electric buildings today and DPS does not consider cost impacts. BGE agrees with this statement. Their testimony continues to state the bill does not "force the hand" of the builders; BGE does take issue with this statement. Builders and their clients have the choice to construct all electric buildings, but they choose to provide diverse energy choices to their clients to allow for flexibility of supply for economic and resiliency purposes. The bill removes the option for builders and their clients to choose this option.

Consistent with DEP's testimony, BGE agrees heat pump technology allows for heat transfer and operation down to 0 degrees Fahrenheit. However, DEP agreed with BGE's testimony of the inefficiency of heat pumps below 32 degrees Fahrenheit stating this applies to "builder grade" heat pumps. The majority of heat pumps installed by builders will be "builder grade" and will require auxiliary heat with either natural gas or resistive heating. All agree resistive heating is undesirable and expensive. Providing the option of natural gas is currently more economical and reliable.

This underscores the importance for our transition to electrification to be gradual and it should adopt an integrated energy system approach to ensure reliability and affordability.

Given these critical dynamics – which affect all residents, not just those in newly constructed buildings – BGE believes policymakers should carefully select options that are shown to meet their carbon reduction goals with minimal costs on ratepayers.

OLO concluded that "Councilmembers may want to consider whether a more thorough investigation of the economic impacts of Bill 13-22 is needed." BGE strongly agrees with this advice.

Electricity Transition Context

DEP staff statements at the October 17 work session often minimized the impacts of Bill 13-22, characterizing the bill as consistent with existing building practices and unlikely to require serious analysis of the bill's impact on the electric grid. This perspective critically misses the larger context in which the bill's provisions will operate. Notably, the move to rely fully and exclusively on electric power for buildings will take place simultaneously with efforts to transition the transportation sector to fully electric vehicles.

BGE believes significant planning and investment will be needed to meet these dual and simultaneous transitions, which rely on the same distribution infrastructure. An all-electric residential development may present what seems to be only incremental demands on the system, but the demands may look far more daunting when they include powering the development's passenger vehicles, service vehicles, schools and school buses.

The compounding effects of building electrification and the electrification of transportation requires significant planning by local utilities and regional transmission operators. In its recent studies evaluating electrification and EV proliferation, PJM identifies the risks of electric load growth with higher demands occurring in the winter vs. the summer. This change and the associated risks require additional time for transition.

The utilities that need to keep those residents warm and moving are united in asking the Council for more time to ensure that the systems they run are prepared to meet these twin challenges.

Respectfully Submitted,

Marché Taylor Templeton
External Affairs Manager
BGE

Agenda Item#15C
November 29, 2022
Action Addendum

M E M O R A N D U M

November 29, 2022

TO: County Council

FROM: Livhu Ndou, Legislative Attorney

SUBJECT: Bill 13-22, Electricity – Buildings – Comprehensive Building Decarbonization

PURPOSE: Final Action - **Addendum**

We received the attached memorandum from the County Executive Office regarding Bill 13-22 following the publication of this Staff Report on November 23, 2022. The memorandum is attached at © 1.

This packet contains:	Circle #
County Executive Memorandum dated November 28, 2022	1

OFFICE OF THE COUNTY EXECUTIVE

Marc Elrich
County Executive

M E M O R A N D U M

November 28, 2022

TO: Gabe Albornoz, Council President
Montgomery County Council

FROM: Marc Elrich, County Executive

SUBJECT: Bill 13-22, Comprehensive Building Decarbonization, Proposed Amendments Posted November 23, 2022

I am writing to you regarding the proposed amendments posted on November 23, 2022, for Bill 13-22, Comprehensive Building Decarbonization. Codifying the requirements to create all-electric buildings standards is a crucial step for the County to achieve its zero-greenhouse gas emissions goal by ensuring that future construction does not rely on fossil fuels. I am grateful that the Planning, Housing, and Economic Development (PHED) Committee unanimously recommended adoption of Bill 13-22 with amendments and the Council has acted swiftly to bring it to the agenda for final action.

Electric buildings are being built today in Montgomery County, including the Marriott Headquarters in downtown Bethesda and the Housing Opportunities Commission's Hillandale Gateway project. There is no economic, technological, or scientific reason to delay implementation or weaken Bill 13-22.

However, I am concerned by the most recent set of last-minute amendments that weaken the original intent of Bill 13-22 and jeopardize our ability to effectively address the climate emergency. Overall, I am concerned with deviations from how the Department of Permitting Services (DPS) implements and enforces building codes and the potential for additional exemptions to ultimately allow fossil fuels to be used in buildings post-construction. This memo outlines my concerns in detail below:

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Effective Dates
The changes made to the effective dates are concerning, and I do not support these new date changes. First, while matching Washington, D.C.'s effective date makes sense from a regional perspective, this only further delays the implementation of the all-electric building code in our climate emergency. As stated in their Sustainable DC plan, Washington, D.C. strives for a 60% reduction in greenhouse gas (GHG) emissions by 2030. In contrast, Montgomery County has more ambitious goals to reduce GHG emissions 80% by 2027 and eliminate GHG emissions by 2035. Further delay only makes achieving our goals more challenging, if not impossible.

Secondly, these amendments to the effective dates create a longer transition period for multi-family and affordable housing. At first blush, this gives affordable and multi-family housing more time and flexibility to plan for all-electric systems in new construction projects. However, continuing to delay all-electric requirements for multi-family and affordable housing results in residents – who call these properties home – being left behind and locked into inefficient, fossil-fuel systems, while single-family residents benefit earlier from cost-effective, clean all-electric technologies. Rejecting this amendment will align with the BEPS Law I introduced in April 2021, and this Council unanimously voted for in April 2022, such that all multi-family properties will benefit from energy efficiency and indoor air quality from electrification without delay.

Lastly, the phase-in for residential buildings based on the number of units deviates from how DPS currently reviews and processes building permits. Based on a variety of factors (e.g., number of floors), each building is designated either a residential or commercial building, and different teams within DPS review those buildings, applying the relevant commercial or residential building code as appropriate. This amendment that phases in residential code enforcement does not conform to how the residential team applies building code to residential properties. Hence, requiring the plan reviewers and inspectors to implement different versions of building code in a more granular way that deviates from current practice, causes more opportunity for human error, and requires additional staff and training to comply with this too-nuanced, phased-in approach. The County Executive supports the PHED Committee date amendments but does not support these last-minute implementation delays.

Report on Results of the PSC Study
I have no concerns about this amendment. Providing an additional report to the County Council regarding the results of studies currently being undertaken by the Public Service Commission would inform our next steps with all-electric building standards.

Alternative Energy Sources
The reference to a new "waiver process" does not conform to how DPS currently handles variations to required building codes. DPS has a code modification process that could be used if an owner or developer can validate that the building will be carbon-neutral or net-zero. I strongly recommend that the term "waiver" be replaced with the term "code modification" within the language of this amendment to align with current DPS processes.

Change from Method (2) to Method (1) Regulations
Per the PHED Committee's amended version of the legislation, Bill 13-22 would require the County Executive to issue Method (2) regulations for the all-electric building codes. Chapter 8 of the County Code establishes that building codes are required to be adopted through Method (2) regulations. By amending this bill to a Method (1) regulation, Bill 13-22 would be a deviation from the current County Code.

Additionally, following the State's adoption of each building code, local jurisdictions are able to amend the building code to be more stringent than the State's version—a necessary action to achieve our climate goals that the County has benefitted from in the past. The technical experts in DPS can recommend and put forth building codes that align with complementary codes and our climate goals, while keeping our built environment safe. If Council has Method (1) authority over building codes, regulation revisions could inadvertently be made that are in conflict with other codes that work in concert with one another, or in violation of State-adopted codes if the codes are amended to be weaker than the state. I strongly recommend that this amendment be rejected.

Additional Exemptions: gas fireplaces and outdoor grills
These last-minute exemptions for cosmetic gas fireplaces and outdoor grills will enable natural gas infrastructure to be placed in any, and potentially all, new construction – directly in contrast to the intent of Bill 13-22. The exemptions in Bill 13-22 were provided because commercially available alternatives to fossil fuels do not exist. There are commercially available and cost-competitive electric fireplaces and outdoor grills available on the market today, which do not fit the spirit of exemptions in the version of Bill 13-22 that PHED voted unanimously on.

Although fireplaces and outdoor grills are relatively minor uses of natural gas, allowing natural gas lines in new construction for relatively frivolous uses, while more primary end uses are not permitted, will have resounding negative long-term impacts for the enforcement of the legislation. The Department of Permitting Services reviews and inspects newly constructed buildings to ensure their compliance with applicable building codes and issues use and occupancy permits. However, WSSC oversees and implements permits related to natural gas uses during construction and after occupancy. Once a natural gas line is provided to the property, a property owner only needs to obtain a WSSC permit to modify the existing gas service for a fireplace or outdoor grill to later fuel an HVAC system or cooking appliance. This removes oversight of the building code from DPS and will create challenges in enforcing the intent of the standards.

This amendment enables the builder to run a gas line to any property. Even if not used, the line has a monthly "system charge" from the gas utility. For example, the current Washington Gas tariff structure allows the utility to collect $11.55 per month from residential properties. This standard customer charge is in addition to, and is separate from, supply and distribution charges that vary based on the quantity of gas used—and is charged to the customer even if no natural gas is consumed. This creates a financial risk for new homebuyers because it will obligate these customers with long-term monthly fees even if they have no use for the gas line. This

amendment will increase the number of new homes being built with unnecessary gas infrastructure and wasteful fees. I strongly recommend that this amendment to add new exemptions be rejected.

Annual Audit
The County Executive has no strong concerns about this amendment. DPS could develop an annual audit as described based on information tracked in the current building permit system. However, WSSC handles all permits related to natural gas use and infrastructure, so an audit provided by DPS without WSSC data may not provide a complete view of new construction electrification.

Conclusion
All-electric building standards are crucial for the County to achieve its zero-greenhouse gas emissions goal by ensuring that future construction is electrified. However, these last-minute amendments were put forth without any engagement from our technical building experts in DPS and gave enormous allowances to special interests in future building code cycles. I urge the Council to reject the most recent amendments to Bill 13-22 that weaken our response to the climate emergency and take action on the amended legislation that the PHED Committee unanimously recommended.