



BUILDING CODE CONSIDERATIONS

FOR
COMPREHENSIVE
BUILDING
DECARBONIZATION

REPORT TO THE
HOWARD COUNTY COUNCIL
PURSUANT TO CB5-2023



Calvin Ball
County Executive

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CHAPTER 1

Introduction and Overview

The science is clear. The combustion of fossil fuels is the primary driver of human-caused global heating and climate disruption that is already evident. It is increasingly posing risks to ecological and human health, public safety, national security, and economic prosperity. The World Meteorological Organization recently confirmed that 2023 was the hottest year ever recorded. Extreme weather events are becoming more frequent and severe around the world and in the United States. The 6th Assessment Report¹ produced by Intergovernmental Panel on Climate Change (IPCC) showed how climate change is affecting every region on Earth in multiple ways. As a result, we are seeing more frequent and extreme rainfall events and heatwaves disrupt water resources, reduce agricultural productivity, damage infrastructure and property, and exact a growing toll on the health and well-being of people, economies, and ecosystems.

The federal government's Fifth National Climate Assessment (NCA5)² reported that, "As extreme events and other climate hazards intensify, harmful impacts on people across the United States are increasing. Climate impacts—combined with other stressors—are leading to ripple effects across sectors and regions that multiply harms, with disproportionate effects on underserved and overburdened communities."

NCA5 details the dramatic increase in the number and cost of extreme events over the past 40 years across the United States, leading to increased "... heat-related illnesses and death, costlier storm damages, longer droughts that reduce agricultural productivity and strain water systems, and larger, more severe wildfires that threaten homes and degrade air quality."

Climate change is shifting weather patterns with extreme weather events increasing in frequency and intensity. In 2019, the Baltimore Metropolitan Council (BMC) and the Baltimore Regional Transportation Board (BRTB) completed a study on historical changes in climate and projections for future changes in climate for all counties in the BMC region, including Howard County.³ In general, the study found that the greater Baltimore region is getting hotter and is likely to experience more extreme weather events. Howard County is already experiencing documented impacts from climate change such as increasing temperatures, precipitation, and extreme weather events. As a result, Howard County has already experienced the devastating consequences from severe downpours associated with the climate crisis such as the devastating Ellicott City floods of 2011, 2016 and 2018.

¹ Dodman, D., B. Hayward, M. Pelling, V. Castan Broto, W. Chow, E. Chu, R. Dawson, L. Khirfan, T. McPhearson, A. Prakash, Y. Zheng, and G. Ziervogel, 2022: Cities, Settlements and Key Infrastructure. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 907–1040, doi:10.1017/9781009325844.008.

² Jay, A.K., A.R. Crimmins, C.W. Avery, T.A. Dahl, R.S. Dodder, B.D. Hamlington, A. Lustig, K. Marvel, P.A. Méndez-Lazaro, M.S. Osler, A. Terando, E.S. Weeks, and A. Zycherman, 2023: Ch. 1. Overview: Understanding risks, impacts, and responses. In: *Fifth National Climate Assessment*. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. <https://doi.org/10.7930/NCA5.2023.CH1>

³ Baltimore Metropolitan Council and Baltimore Regional Transportation Board. Planning, Designing, Operating, and Maintaining Local Infrastructure in a Changing Climate. 2021.

To avoid the worst impacts of climate change, the United States committed to zeroing out its greenhouse gas (GHG) emissions by 2050 pursuant to our international obligations under the 2015 Paris Agreement. The State of Maryland adopted similar goals under the 2022 “Climate Solutions Now Act,” in which the Maryland General Assembly expressed its intent “. . . that the State move toward broader electrification of both existing buildings and new construction” in line with the MD Commission on Climate Change’s recommendation that Maryland transition to an all-electric building code.

When national leadership on climate action waned, in 2019, Howard County Executive Ball joined other local and state leaders around the nation in signing the “We Are Still In” declaration. This effort committed Howard County to meeting goals in the Paris Agreement to reduce GHG emissions enough to avoid the worst of potentially life-threatening heatwaves, sea level rise, and ecosystem loss. Also in 2019, Howard County was the first county in the United States to accept the Natural and Working Lands Challenge to actively pursue nature-based climate solutions to maximize opportunities to reach net zero emissions through carbon storage in healthy soils, forests, meadows, and farmland.

Under County Executive Ball’s leadership, Howard County has been and will remain a leader in climate and clean energy action through our commitment to public and private investment in solar and other renewable generation, including the largest clean energy power purchase agreement of any County in Maryland. As a result of the County’s extensive array of sustainability and quality of life initiatives, Howard County became the nation’s first county to earn a “LEED Platinum” designation by the U.S. Green Building Council, the highest ranking possible under the current version of USGBC’s LEED for Cities and Communities program.

In response to increasingly dire warnings from scientific bodies like the IPCC, County Executive Ball issued Executive Order 2022-12 in October 2022 setting forth new Countywide goals to reduce GHG emissions by 60% from 2005 levels by 2030 and to achieve net zero emissions by 2045. These ambitious goals are aligned with recommendations of the scientific community and they surpass both Maryland and federal GHG reduction goals. These goals are also the overarching aims of the “Climate Forward: Climate Action and Resiliency Plan” that Dr. Ball launched in June 2023. “Climate Forward” represents a comprehensive, science-based workplan of mitigation and adaptation measures aimed at achieving the County’s ambitious climate goals.⁴

This report addresses the topics outlined in Council Bill 5-2023 (CB5)⁵, which the Howard County Council adopted in March 2023. CB5 required a report to the County Council with recommendations regarding all-electric standards for new construction, major renovations, and additions. In addition, the County Council sought information on changes that would be needed in the Howard County Building Code to implement an electrification requirement. Requested information also includes ways in which Howard County can achieve certain climate goals, maximize the use of certain funds to help reduce greenhouse gas (GHG) emissions, and maximize resident investments in climate infrastructure.

⁴ [Howard County Climate Forward: Climate Action and Resiliency Plan, June 2023](#)

⁵ [Council Bill 5-2023, Howard County Council, effective May 9, 2023](#)

CHAPTER 2

Recommendations On Changes to The Building Code Necessary to Enact All-Electric Buildings Standards for All New Construction, Major Renovations, and Additions

Interest in building electrification standards is not unique to Howard County. This report coincides with multiple other studies recently completed at the State level as well as legislative efforts recently undertaken by other jurisdictions in our region, including Montgomery County and the District of Columbia.

In December 2023, the Maryland Public Service Commission (PSC) released its study on the capacity of Maryland's electric grid capacity, which concluded "... that high levels of electrification can be handled by Maryland electric systems through 2031."⁶ The PSC study found "... that peak load growth through 2031 with high electrification of the building sector will be comparable to or less than the growth rate the Maryland system has seen over the past 40 years." In March 2024, the Maryland Building Codes Administration released its report⁷ addressing building code considerations related to electrification pursuant to provisions of the 2022 Climate Solutions Now Act.

During the adoption of the 2024 International Code Council (ICC) codes, the International Energy Conservation Code (IECC) will include provisions in the appendix for both residential and commercial buildings to be all-electric. Upon review of the 2024 IECC by the Department of Inspections, Licenses, and Permits (DILP), the next code adoption could incorporate the all-electric appendix.

The adoption of the 2024 codes will be delayed this cycle as a result of appeals related to some of the approved code changes. Those appeals are affecting the finalization and printing of three codes:

- The International Energy Conservation Code (IECC);
- The International Residential Code (IRC); and
- The International Green Construction Code (IgCC).

We anticipate these three codes will be available for County review in late Spring or Summer of 2024. We expect to review these codes and have legislation regarding building code updates prepared to submit to the County Council for consideration by the first quarter of 2025.

Howard County could be the first jurisdiction in Maryland to adopt the new 2024 code editions. In accordance with State law, the State of Maryland has 18 months after the printing of the codes for their adoption which means they should adopt by October 2025. Local jurisdictions then have one year after the State adoption to make any local amendments to their adopted codes. If Howard County's code legislation is effective by summer 2025, it will still likely be before the State of Maryland adopts the 2024 code.

Currently, the IECC is divided into two codes - one for residential buildings (RE) and one for commercial buildings (CE). Each code will have an appendix to require all new construction and additions to provide

⁶ The Brattle Group, "[An Assessment of Electrification Impacts on the Maryland Electric Grid](#)," Prepared for the Maryland Public Service Commission, December 19, 2023.

⁷ Maryland Department of Labor, Division of Labor and Industry, Building Codes Administration, "[Report to the Public Service Commission and Legislative Policy Committee](#)," February 1, 2024.

electric power as the primary power source. This would effectively prohibit fossil fuels as a primary energy source. The appendices are not enforceable by Howard County unless specifically adopted as part of the local code.

To require all-electric for residential buildings, the Howard County Council must adopt Appendix RE of the 2024 IECC (RE). To require all-electric for commercial buildings, the Council must adopt Appendix CG of the 2024 IECC (CE).

To make the above-referenced code appendices apply to major renovations, a definition would need to be created for “major renovations” within the code.

If its desire is to adopt an all-electric standard, the Council should consider a phased-in approach for new construction.

For reference, in July 2022, the District of Columbia enacted legislation directing the Mayor to issue final regulations by December 31, 2026 “. . . requiring all new construction or substantial improvements of covered buildings to be constructed to a net-zero-energy standard.”⁸ Similarly, in November 2022, Montgomery County enacted its “Comprehensive Building Decarbonization” bill requiring their County Executive to issue all-electric building standards for new construction no later than December 31, 2026.⁹ Montgomery County’s law does not apply to building permit applications submitted before December 31, 2027, for (1) housing development projects where 50 percent or more of the dwelling units are moderately priced, (2) public or private schools, or (3) residential buildings with four or more stories.

⁸ [D.C. Law 24-177. Clean Energy DC Building Code Amendment Act of 2022, effective September 21, 2022.](#)

⁹ [Montgomery County Bill 13-22, Buildings – Comprehensive Building Decarbonization, enacted December 12, 2022 and effective March 13, 2023.](#)

CHAPTER 3

Exemptions for All-Electric Buildings

If the Council decides to adopt broad electrification standards, exemptions should generally be limited. Exempted equipment should be made “electric-ready” to the greatest extent practicable, so future retrofits are not prohibitively costly. This includes adequate electrical capacity within each building for handling future loads of electric replacement equipment. In addition, it may be helpful to re-evaluate the need for certain exemptions in future years as technologies continue to evolve.

Generally, exemptions are applied in accordance with the law effective on the date a permit application is filed. When an application is filed before the effective date of a code change, the Department of Inspections, Licenses and Permits (DILP) does not consider the permit subject to the new law.

Until appropriate all-electric technology improves or becomes more widespread, the following exceptions should be taken under consideration:

- 1) **Manufacturing and production facilities.** Due to the great variations in types of manufacturing and production processes, their energy needs, and the availability of suitable electric alternatives for each, a blanket exemption from electrification requirements may not be needed. However, regulations differing between specific industrial processes may be challenging to develop and administer.
- 2) **Crematories.** Electric options for crematories do exist, but current technologies are more time intensive than gas alternatives. This is best suited only to crematories with a small volume of business.
- 3) **Life science facilities.** Life science facilities tend to use a lot of energy per square foot because their activities can be energy intensive, and they are required to have high ventilation. This requires them to continually condition new outside air. While it may be possible for some types of life science facilities to utilize energy efficient building design to achieve all-electric buildings that are cost effective, regulations differing between specific types of life science facilities and their individual functions would be challenging to develop and administer.
- 4) **Breweries and distilleries.** Electric options are not yet widely available for equipment needed for alcohol production at breweries or distilleries.
- 5) **Farming and agricultural structures.** There are many types of agricultural structures that have different requirements for energy and different availabilities for electric alternatives. While crop drying and storing structures, poultry operations, and greenhouses may have special equipment needs that currently do not have widely available electric alternatives, other agricultural structures may be suited for electrification. Therefore, regulations differing between specific agricultural structures and their suitability for electrification may be challenging to develop and administer.
- 6) **Electric power and steam generating facilities regulated by the Maryland Public Service Commission.** Outside of solar arrays, the Alpha Ridge landfill gas plant serves as Howard County’s only electric power generating facility. From a sustainability perspective, Howard County has a strong interest in promoting landfill gas and biogas usage. As such, should broad

electrification standards be adopted, policymakers should consider exempting any such facilities, whether PSC-regulated or not.

The following building types should be considered for partial exemptions:

1) Buildings to the extent that systems in the buildings involve emergency backup equipment (including generators, microgrids, and combined heat and power).

- a. As of December 2023, there are not many viable, practical, and cost-effective options for all-electric or batteries to provide significant long-term emergency backup for most use cases. Therefore, fossil fuel-powered emergency backup generators should be considered for exemptions. However, the need for emergency backup equipment does not warrant an exemption for the rest of the building. Natural gas lines may be justified as back-up for critical facilities, such as wastewater treatment plants, hospitals, emergency shelters, data centers, and other critical needs. In these cases, natural gas should only be used for emergency back-up generation, as an alternative to diesel, gasoline, or propane generators.
- b. Microgrids are designed to have the ability to run on grid-independent energy sources, often for the purpose of maintaining emergency management resources in the case of a macro-grid outage, and they usually involve a form of renewable energy, often in conjunction with generators. Back-up generators are essential to their operation. Depending on the size of the microgrid and the importance of the functions maintained, a natural gas line would be justified.
- c. Combined heat and power (CHP), also known as cogeneration, produces both electricity and thermal energy on site, replacing or supplementing electricity provided by the utility and fuel burned in an on-site boiler or furnace. CHP increases energy efficiency by using waste heat from power generations to heat water or air in buildings. While CHP can run on fuel cells, the most prevalent technologies natural gas, biogas, or wood waste.¹⁰
- d. In most cases, an exemption for emergency backup equipment, generators, microgrids, and/or combined heat and power does not also mean exemption of the building or facility as a whole is warranted. The day-to-day functions of the building or facility, unless otherwise exempted, can be electric.

2) Commercial kitchens, restaurants, and food service establishments. Almost every appliance in a commercial kitchen, restaurant or food service establishment has an electric counterpart (including resistance and induction). These appliances include but are not limited to: woks; broilers; grills; fryers; ovens; warmers; and wells. Induction cooking is more energy efficient and safer than natural gas, but the equipment can be significantly more expensive. A partial exemption for the cooking area of restaurants and commercial kitchens should be considered. For example, Montgomery County's 2022 law exempted only the cooking area of restaurants, not the dining area, bathrooms, or other spaces.

¹⁰ [U.S. Department of Energy, Overview of CHP Technologies](#) November 2017

The following building types do not appear to require exemptions at this time:

- 1) **Hospitals.** Hospitals are required to have reliable emergency backup power and have demands for high temperature water and steam. Emergency backup power exemptions are covered separately above. Electric technologies are available to provide all the needs of hospitals, including high temperature steam and significant hot water demands.
- 2) **District energy systems or combined heat and power facilities.** District heating and cooling networks can effectively use geothermal pipes underground to heat and cool water or air as it moves between buildings. This saves energy because the underground temperature is consistent at around 55° F. By connecting more than one building to the system, district heating and cooling saves money through economies of scale. These systems are highly compatible with heat pumps. Combined heat and power facilities are recommended for exemption under #6 above, “Buildings to the extent that systems in the buildings involve emergency backup equipment (including generators, microgrids, and combined heat and power).”

CHAPTER 4

Recommendation for Stretch Code to Enhance All-Electric Buildings

DILP's next review of the ICC Codes will include the 2024 International Green Construction Code (IgCC), commonly referred to as a "stretch" code because its standards exceed those of the more universally adopted ICC Codes. The 2021 IgCC is already adopted by the State of Maryland but is not currently mandatory for local adoption. The application of stretch codes like the IgCC have environmental benefits but come with additional private sector costs in the form of building materials and capital equipment as well as public costs in training and human resources for County government.

The Department of Planning & Zoning should be involved in review of the latest IgCC as Chapter 4 deals with site issues such as Preservation of Natural Resources, Stormwater Management, Erosion Control, Transportation Impact, and Site Lighting. The County should ensure that the requirements of this chapter do not contradict or conflict with any of its current subdivision and land development regulations.

CHAPTER 5

Use of Electric Heat Pumps Versus Built-In Electric Resistance Heat Commonly Used in Affordable Housing Projects to Offset Costs for Low-Income Households

Electric resistance heating directly converts electricity into heat by running electric current through a heating element. This is the same type of heat used in toasters, hair dryers, electric blankets, and plug-in space heaters. Although electric resistance heat converts all the electricity used into heat, it is a very inefficient heat source compared to most other systems that store heat in air or water. For example, an air source heat pump can deliver up to three times more heat energy to a home than the electrical energy it consumes.¹¹

Scientific research has demonstrated that a direct and linear reduction in utility bills occurs when switching from electric resistance heating to the much more efficient air-source heat pump.¹² In fact, comparisons of the life-cycle costs (initial installation plus fuel cost and maintenance costs) show that heat pumps are more cost effective than resistance heating, fuel oil, and propane heating.¹³

According to the Howard County Housing Commission, it is very unlikely that any low-income housing properties in Howard County are using built-in electric resistance heat. The County's future building code could prohibit the installation of new built-in electric resistance heat to ensure that low-income households avoid higher electric bills resulting from such systems.

Another consideration related to the high costs of electric resistance heat is that most heat pumps include an electric resistance heat option as a backup in case of mechanical failure to the pump or in the event of extremely cold weather. It is important to have this backup system in place so that water pipes don't freeze and cause additional damage to infrastructure and or harm to human health. Most cold-climate heat pumps can run at total capacity until the outdoor temperature gets to about 5°F or below. The heat pump will still produce heat at those lower temperatures but may not keep the space as warm as occupants would typically like. This is when backup heat sources such as electric resistance heat would come in.¹⁴

¹¹ [Air Source Heat Pumps](#)

¹² [Building Decarbonization Solutions for the Affordable Housing Sector](#)

¹³ [Energy Efficiency and Pollution-Free Space Heating and Cooling in Maryland](#)

¹⁴ [Do heat pumps work in cold places?](#)

CHAPTER 6

Offering Net-Zero Energy Standards for County Government-Owned Buildings

Net-zero energy means that 100% of the operational energy use associated with a project is offset by new on-site renewable electricity such that building operations result in “net-zero” GHG emissions. If the maximum on-site renewable electricity production is inadequate to fully offset the operational energy demand, then operational energy use is supplemented by off-site renewable electricity supply.

Howard County has several fully electrified buildings in its portfolio whose electricity use is partially or fully covered by onsite and/or offsite solar power. However, because ownership of the solar renewable energy credits (RECs) for this renewable electricity remains with the solar provider, Howard County currently has no true net-zero energy buildings. A net-zero energy standard for newly constructed buildings, major renovations, and additions would require either renewable power purchase agreements (PPAs) in which Howard County retains the RECs, or for Howard County to fully own, operate, and maintain the renewable energy systems and not sell the RECs on the open market. Either of these options would raise costs. Either the County would pay more per kWh (kilowatt hour) for electricity through a PPA where the solar company owns, operates, and maintains the solar facilities and retires the RECs, or the County would need to pay the upfront costs to install, operate and maintain the solar facilities.

There are several models that could be followed to develop net-zero energy standards. The U.S. Green Building Council has a stand-alone net-zero certification for buildings that have already received LEED certification for either Building Design and Construction, or Operations and Maintenance.¹⁵ In addition, there will be an appendix in the 2024 ICC codes regarding net-zero energy buildings.

Net-zero building codes may be more feasible in later rounds of code revisions. For example, the Clean Energy DC Building Code Amendment Act of 2022 requires Washington, DC to adopt net-zero building energy codes in new construction and major renovations by the end of 2026.¹⁶ This requirement will extend to commercial and most types of residential buildings. However, the code is very early in development.

¹⁵ <https://www.usgbc.org/programs/leed-zero>

¹⁶ [Clean Energy DC Building Code Amendment Act of 2022](#)

CHAPTER 7

Inventory of County Buildings and Current Energy Sources

Table 1 below summarizes current energy sources for existing County buildings. Among the County's larger buildings (over 15,000 ft²), only 19% are fully electrified, as opposed to 96% of buildings under 15,000 ft². Among the larger buildings, 62% use natural gas for heating, 17% use oil, and 2% use both.

Table 1 – Commodities Across County Buildings

Building Name	Electric	Natural Gas	Heating Oil	Propane
Rec & Parks Office Center	X	X	X	
Long Reach Village Center	X	X		
Detention Center	X	X		
Circuit Court Building	X	X		
Ascend One Building	X	X		
Fire Station 12 - Waterloo	X	X		
Fire Station 11 - Scaggsville	X	X		
Circuit Court House	X	X		
East Columbia Library	X	X		
North Laurel Community Center	X	X		
Gary J. Arthur Community Center	X	X		
Carroll/Ligon Building	X	X		
Fire Station 13 - Glenwood	X	X		
Charles E. Miller Library & Historical Center	X	X		
Belmont Manor and Historic Park	X		X	X
Dayton Highways Shop	X		X	X
Alpha Ridge Landfill	X		X	
Alpha Ridge Administration Building	X	X		
Fire Station 06 - Savage	X	X		
Gateway Building	X			
Roger Carter Community Center	X	X		
George Howard Building	X			
Glenwood Library	X	X		
Harriet Tubman Public School Property	X	X		
Meadowbrook Community Park & Sports Building	X			X
Tubman Center-Grassroots	X	X		
Warfield Building	X	X		
Florence Bain Senior Center	X	X		
Fire Station 01 - Elkridge	X	X		
Court Place Building	X			
Fire Station 02 - Ellicott City	X	X		

Howard County Center for the Arts	X		X	
Elkridge Library	X	X		
Savage Library	X	X		
Cooksville Highways Shop	X		X	X
Mayfield Highways Shop	X		X	
Central Library	X			
Fire Station 08 - Bethany	X	X		
Fire Station 10 - Rivers Park	X	X		
Ellicott City Senior Center	X	X		
Bureau of Utilities - Building 1	X		X	
Grempler Building	X		X	
Fire Station 09 - Long Reach	X	X		
Fire Station 07 - Banneker	X	X		
Corrections, Central Booking Facility	X	X		
Robinson Nature Center	X			
Columbia Flier	X			
Rockburn Branch Park	X	X		
Fire Station 14 - Merriweather	X	X		
Animal Control Facilities	X	X		
Old Miller Library	X			
Howard County Welcome Center	X	X		
Kiwanis Park	X		X	
Central Maryland Regional Transit Facility	X			
Schooley Mill Park	X			
Centennial Park-South-Boat Dock	X			
Western Regional Park-Maintenance Building	X	X		
Blandair Property-N-Main House	X		X	
Centennial Park Maintenance Ctr.	X		X	
Alpha Ridge Apparatus Storage Building	X			X
Cedar Lane Park	X			
Bureau of Utilities Building 2	X			
Savage Park	X			
Centennial Park-West Sports	X			
Western Regional Park-Concession	X			
B&O Railroad Station	X			
Old Detention Center	X			
Old West Friendship Fire Station	X			X
8095 Main St	X			
Waverly House	X			
Fire Grounds Building	X			
Atholton Park	X			

Centennial Park-East-Pavilion "H"	X			
Comfort Station Alpha Ridge Park	X			
Patapsco Female Institute	X			
Howard County Rec & Parks 3	X			
Salt Dome & Fuel Station	X			
Tauri Property (Howard House)	X			
Troy Park	X			
Saas Property	X			
Zaiser Property	X		X	
Hebb House	X			
High Ridge Park	X			
Alpha Ridge Radio Facility	X			
Pfeiffers Corner School House	X			
Jonestown Radio Facility - Brick Building	X			
Camp Ilchester	X			
Scaggsville Radio Facility	X			
Cedar Lane Park East	X			
Cooksville Radio Facility	X			
Dorsey Salt Barn	X			
Ellicott City Colored School	X			
Lisbon Salt Barn	X			
Police Pistol Range	X			
Centennial Park-North	X			
Ellicott City Fire Museum	X			
Lisbon Park	X			
Martin Road Park	X			
New Cut Landfill	X			
Tiber Park	X			
Waterloo Park	X			
Alpha Ridge Radio Facility - Large Building	X			
Little Patuxent Wastewater Plant Radio Facility	X			
Penn Shop Radio Facility	X			
Route 29 Pedestrian Bridge	X			
Police Satellite-Trailer @ Oakland Mills	X			
Worthington Park	X			

CHAPTER 8

Recommendations on County Plan to Reduce Emissions and Greenhouse Gases from Public and Private Buildings

Howard County published its final “Howard County Climate Forward: Climate Action and Resiliency Plan” in June 2023. The plan includes detailed strategies and actions to achieve the County’s GHG reduction goal of 60% below 2006 levels by 2030 and to reach net-zero emissions by 2045 countywide from both public and private sectors. Of relevance to this report is the Climate Forward Plan’s Mitigation Strategy E2: Construct Efficient and Low-Carbon Buildings. This strategy provides for implementing more stringent green building standards for new residential, commercial, and government properties. In addition, it includes phased-in requirements for all-electric new construction for residential, commercial and government properties. The strategies and actions outlined in the Climate Forward Plan apply to all County entities, private and public, including agencies receiving funds from the County government. Please view the full plan on the Live Green Howard website¹⁷ and review the related Climate Forward Dashboard.¹⁸

¹⁷ [Live Green Howard - HoCo Climate Forward 2023](#)

¹⁸ [ClimateForward.HowardCountyMD.gov](#)

CHAPTER 9

How Howard County Will Maximize the Use of Federal, State and Other Climate Action Incentives

Departments and offices across the County government will continue to pursue federal, state, and other climate action incentives to the maximum extent to help reduce GHG emissions. Some of the federal funding sources that the Office of Community Sustainability (OCS) have pursued include:

- U.S. Environmental Protection Agency's Climate Pollution Reduction Grants;
- U.S. Department of Transportation's Charging and Fueling Infrastructure Grants;
- U.S. Department of Energy Buildings Upgrade Prize;
- U.S. Department of Energy's Energy Efficiency and Conservation Block Grant;
- U.S. Department of Energy's Community Energy Fellow; and
- the U.S. Environmental Protection Agency's Solar For All Grant.

OCS has also pursued numerous State funding sources, including Maryland Energy Administration's Public Facilities Solar Grants, Maryland Smart Energy Communities Grants, Open Energy Grants, and EV charging infrastructure rebate funds. DPW Facilities has leveraged utility rebates for energy efficiency upgrades and building heating and cooling system tune-ups over many years. OCS and Facilities staff are collaborating to pursue new federal rebates – offered through Maryland Energy Administration – for electrification of heating and cooling equipment. Howard County is also working to pursue another new source of funding for energy efficiency and fuel switching equipment – IRS Direct Pay. This is a new program under the Inflation Reduction Act (IRA) allowing local governments, nonprofits, and other non-taxable entities to claim clean energy investment tax credits.

Howard County has active contracts with consultants that each have experience with federal grants. These consultants have been tracking new opportunities and providing information to appropriate County offices. These consultants also assist County staff, as needed, with pursuing large funding sources and developing complex applications, bolstering the County's chances of success. For example, these consultants helped Howard County manage and administer \$43 million in CARES Act Funds and \$63.2 million in American Rescue Plan Act Coronavirus State and Local Fiscal Recovery Funds.

CHAPTER 10

How to Maximize Resident Investment in Climate Infrastructure Including Rebates on Renewable Energy

There are various federal, state, and local incentives available to residents looking to invest in climate infrastructure.

New federal rebates for electrification are expected to be available sometime in 2024 or 2025. Most of the energy efficiency and electric vehicle infrastructure rebates currently available for residents are administered by the Maryland Energy Administration (MEA) and the EmPOWER Maryland utility-sponsored programs.¹⁹ These programs currently do not currently incentivize electrification, but there may be opportunities to update program guidelines through the Public Service Commission, MEA, and/or Maryland General Assembly. Another energy-related option for residential investment in climate infrastructure is the tax incentives authorized by the federal Inflation Reduction Act (IRA). These credits can help finance the purchase of new or used clean vehicles and home energy upgrades, including both energy efficiency and renewable energy investments. Low-income households in Howard County can also receive no-cost Weatherization Assistance from the Community Action Council (CAC). CAC provides weatherization services to 100 to 300 households in Howard County each year.

OCS works closely with MEA, CAC, and EmPOWER services provider CivicWorks and provides information on all available programs on its Live Green Howard website²⁰, through email newsletters, and social media posts. OCS staff tables at local events and distribute fliers with information to promote these programs. The County also distributes free light emitting diode (LED) light bulbs to the public through an ongoing LED lightbulb exchange program at all Howard County Library branches. Educational information about energy efficiency and available programs is distributed to library patrons with their new light bulbs. OCS also provides educational information through its website, email newsletter, social media, and tabling events on renewable energy opportunities including solar co-ops and community solar.

In addition to these educational outreach activities, Howard County initiated a partnership with the nonprofit organization CivicWorks in September 2023 to maximize resident investment in energy efficiency, electrification, and renewable energy upgrades for low- and middle-income residents. This partnership has already resulted in direct engagement with more than 200 Howard County residents through workshops and tabling at events through the end of November. The County also provided innovation grant assistance to CivicWorks to support an induction cookstove pilot program for low-income families in Howard County.

In addition to promotion and support of energy efficiency and renewable energy, OCS provides financial and technical assistance to foster additional residential investment in climate infrastructure. For example, the CleanScapes program provides rebates to homeowners for qualifying stormwater management activities such as rain gardens and porous/ pervious pavement. The Department of Recreation and Parks manages multiple programs residents can utilize to receive free trees. The Department of Public Works, Bureau of Environmental Services, offers curbside pickup of food waste to

¹⁹ [EmPOWER Maryland](#)

²⁰ [Incentives - Live Green Howard County](#)

about half of County residents through the Feed the Green Bin program and offers compost bins and other resources to all residents. The Howard County Climate Forward Dashboard also provides extensive information on myriad ways residents can act on climate.²¹

Following the strategies and actions detailed in our June 2023 Howard County Climate Forward Plan, County staff across all departments are working together to optimize education, outreach, technical assistance, financial assistance, programming, and other support to maximize resident investment and participation in climate infrastructure and to boost action to mitigate climate change and enhance community resiliency.

²¹ [Howard County Climate Forward \(howardcountymd.gov\)](https://howardcountymd.gov/climate-forward)