



Energy Efficiency

Increase energy conservation and efficiency and reduce fossil fuel use in all existing and new buildings and infrastructure. Commercial and residential buildings account for 58% of Rockville's greenhouse gas emissions.



Action C-01

Advocate for Montgomery County to adopt a Building Energy Performance Standard (BEPS) for existing commercial and multifamily buildings

Objective	Improve building energy performance to reduce building energy use intensity and greenhouse gas emissions				
Metrics	% of eligible buildings in compliance, building energy use intensity (kBtu/ft ²)				
Target	Community emissions, multifamily and commercial	Development Stage	In progress, ordinance introduced to County Council in 2021		
Lead	Montgomery County	City Upfront Cost	No direct implementation cost; City compliance costs (M-01)		
Partners	Public Works (Environment), Pepco, Washington Gas, Planning and Development Services	City Operating Cost	-		
GHG Benefit	Resiliency	Feasibility	Health	Equity	Co-Benefits
+++	+	++	+	-	Economic

Montgomery County's Building Energy Benchmarking Law applies in Rockville and requires owners of nonresidential buildings over 50,000 square feet to benchmark their building energy use and report annually to the County for public disclosure. Currently, approximately 110 properties covering 15 million square feet are covered by the benchmarking law in Rockville (including two City-owned buildings). In May of 2021, the County proposed to change the law's requirements to apply to buildings greater than 25,000 square-feet and phase in additional building types, such as multifamily buildings. If adopted, it would automatically apply in Rockville and the proposed covered buildings in Rockville would increase to 225 properties, covering roughly 28 million square feet.

Additionally, the County proposed to institute a building energy performance standard (BEPS) that requires building owners to make energy efficiency improvements while also giving them flexibility to determine how to achieve these upgrades. Energy and water performance standard compliance could be measured in energy or water use intensity (the amount of consumption per square foot) or greenhouse gas reductions (metric tons of carbon dioxide equivalent). These standards would continually increase in stringency to ensure that existing buildings are set on a path toward decarbonization. The City should coordinate with the County to ensure that once established, new performance standards are consistent with new construction building code requirements, so that newly constructed buildings are set up for success in meeting future performance standards. Finally, several City facilities (e.g., City Hall, 6 Taft Court, Swim and Fitness Center, Senior Center) may be covered under the proposed law and would need to implement building energy efficiency improvements (see M-01 for compliance costs).

Equity Considerations

The County is considering ways to implement the BEPS program to ensure it does not negatively impact income-limited or vulnerable groups, such as small and minority-owned business tenants and affordable multifamily housing. The County will explore ways to provide technical assistance, financial incentives, and/or flexible and affordable compliance pathways.



Action C-02

Expand the low and moderate income (LMI) home repair and weatherization program to increase energy efficiency, resiliency, and renewable energy opportunities

Objective	Provide funding and support for equitable home energy performance improvement opportunities to reduce building energy use intensity and greenhouse gas emissions, support renewable energy systems, and improve home resiliency				
Metrics	Number of participating homes, energy savings, GHG reduction				
Target	Community emissions, residential	Development Stage	Proposed program expansion		
Lead	Housing and Community Development	City Upfront Cost	-		
Partners	Public Works (Environment), Maryland Energy Administration, Pepco, Washington Gas, Housing non-profits	City Operating Cost	Low LOS: \$100,000 per year +1 FTE High LOS: \$250,000 per year +2.5 FTE (includes solar). Shared resources: C-05, C-09, C-20		
GHG Benefit	Resiliency	Feasibility	Health	Equity	Co-Benefits
+	++	++	++	+++	Housing, Economic

Climate change is increasing the incidence of extreme weather events that threaten life and property and deepen socioeconomic divides through its disproportionate negative effects on low-income communities, communities of color, seniors, and other vulnerable populations. Climate change is already causing more frequent and extreme heat waves, but many low-income households lack sufficient (or affordable) air conditioning, ventilation, and insulation which increases the risk of heat-related illnesses. The increase in frequency and severity of storms also makes the vulnerable populations more susceptible and less able to recover from flooding, water damage, moisture and mold, poor indoor air quality, loss of power, and storm debris. Ensuring residents live in safe, weatherproof, energy-efficient homes with access to efficient cooling/heating systems will help mitigate climate change disruptions, reduce household energy costs, help enable aging in place for seniors, and produce better health outcomes.

The City can expand existing housing programs to better promote affordable, safe, energy efficient, and resilient housing opportunities. Rockville's Department of Housing and Community Development currently administers the Single-Family Rehabilitation Program, using Community Development Block Grant funding. Under this program, income-eligible Rockville homeowners may apply for forgivable loans to make repairs such as roof replacement, plumbing and electrical upgrades, furnace replacement, and kitchen and bathroom rehabilitation. To meet residents' needs, funds are typically used on the most urgent repairs to meet health and safety standards. The current program has a budget of \$263,000 and typically serves approximately seven homes per year using all CDBG funding allocated.

Equity Considerations

Housing programs need to address disparities vulnerable populations face with housing energy burden (% of income spent on energy costs), safety, weatherization, and barriers to renewable energy installations and housing resiliency solutions.

Renters face additional barriers because they do not control properties and landlord retrofit investments are not incentivized because they typically do not cover utilities.

Housing upgrades should also preserve affordability.

The City has already begun to leverage this program to promote energy efficiency and help reduce the burden of energy bills on residents. If more repairs are needed than the current maximum per household cap, the City has partnered with a non-profit receiving funding from the Maryland Energy Administration's (MEA) Low-to-Moderate Income Grant Program to fund repair needs that involve energy and water efficiency upgrades. This program could be expanded to include additional efficient equipment, building envelope sealing, insulation, efficient cooling systems, solar or other renewable energy systems, and help homes become more resilient to heat and severe storms (e.g., cooling systems, drainage). Investment of additional City staff and funding resources into this program could enable the City to tap into more outside funding sources to increase program capacity to support approximately 45 applicants annually, where feasible. Upon researching other communities, the consultant estimated resources needed for program expansion may require:

- Additional staff to administer (2.5 FTE for a program manager and support staff).
- Increase funding for energy weatherization services at an average of \$5,000 per home once the maximum from CDBG and State grants are reached. An additional \$100,000 could support an additional 20 homes per year.
- Support for the installation of solar systems to promote renewable energy and reduce monthly utility bills, where site conditions allow. This expansion may cost about \$15,000 per home for a 5kW system or could work with partners to identify other financing sources. While financing opportunities may be available through Montgomery County's Green Bank; grants or forgivable loans may be more effective at reducing the upfront cost barriers for solar; providing up to \$150,000 could support solar installations for approximately 10 homes per year.

The rehabilitation program only addresses single-family homes; meanwhile, public comments in the CAP survey reported additional barriers for residents living in multifamily properties and/or renting. The program should examine ways to include low-income renters, multifamily buildings, or landlords renting affordable units. Program expansion would need to fully investigate models and outside sources of rebates, grants, financing, and State and Federal funds to defray upfront costs and identify opportunities for weatherization upgrades, resilience upgrades, and solar installations that can reduce monthly electric bills without raising rents. Such a program could involve technical assistance, outreach, or grants and incentives. Potential partners include the Housing Opportunities Commission of Montgomery County, Rockville Housing Enterprises (RHE), utilities, the Montgomery County Green Bank, Maryland Solar United Neighbors, and State and Federal agencies.



 Action C-03	Progressively strengthen green/energy conservation building codes for new construction to reach net zero or equivalent.					
	Objective: Improve residential and commercial building performance to reduce energy and water use intensity, support renewable energy systems, and improve resiliency					
Metrics: Number of high-performance buildings constructed						
Target: Community emissions, residential and commercial	Development Stage: Proposed to phase in by 2030 building code cycle					
Lead: Planning and Development Services	City Upfront Cost: -					
Partners: Public Works (Environment), Montgomery County, Development Community	City Operating Cost: 1 FTE/Consulting support; expand staff capacity and training. Shared resources with C-09, C-20					
GHG Benefit ++	Resiliency ++	Feasibility ++	Health +	Equity N	Co-Benefits Economic	

A net-zero building consumes the amount of energy equal to the amount of energy produced by renewable energy sources calculated over a year. There are a variety of net zero building rating and classification systems. The 2021 International Energy Conservation Code (IECC) includes appendices for both residential and commercial buildings that requires greater efficiency over the base code and onsite or offsite renewable energy production to achieve an Energy Rating Index (ERI) score of zero. Renewable energy compliance may combine onsite power production, energy generated through community renewable energy facilities, and renewable energy purchase contracts or leases.

Montgomery County is proposing to phase in net zero commercial and residential building code requirements by the 2030 building code cycle. The City can align with the IECC's and County's proposals and prepare the development community to transition to new zero construction through gradually strengthened building codes during the 2021, 2024, 2027 and 2030 amendment cycles. Each code cycle involves working with the County and building and developer stakeholders on cost and feasibility and identifying potential alternative pathways (i.e. passive house, LEED). More sophisticated codes will require additional plan review and inspection staff, training or consulting technical assistance to provide the expertise to adopt and administer the codes. Ensuring building code compliance will also help new buildings comply with future building energy performance standards (C-01).

There are currently incentives for property owners that go beyond base energy and green building codes. Montgomery County provides an energy and environmental design property tax credit for buildings that exceed energy performance standards or achieve green building certifications which applies in Rockville.



Equity Considerations
While net zero buildings reduce long term utility costs, upfront costs may pose challenges. Certain types of buildings and owners, such as affordable housing or small businesses, may need technical assistance, financial incentives, or financing tools for building code compliance and construction. Outside resources, such as Montgomery County's Green Bank, may serve financial assistance.

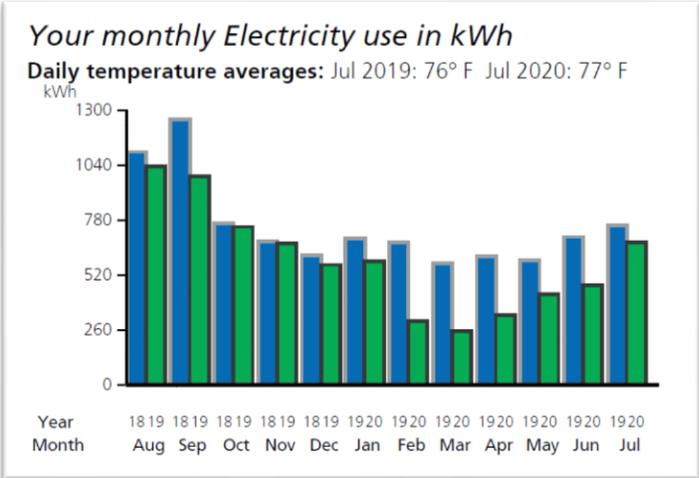
Opt into Montgomery County's point of sale energy disclosure (Chapter 40, Real Property, Section 40-13B)

Action C-04

Objective	Educate buyers on home energy consumption and costs during the point of sale to reduce building energy use intensity and greenhouse gas emissions.				
Metrics	Milestone/status update				
Target	Community emissions, residential	Development Stage	Proposed for FY 2023		
Lead	Public Works (Environment)	City Upfront Cost	-		
Partners	Montgomery County	City Operating Cost	-		
GHG Benefit	Resiliency	Feasibility	Health	Equity	Co-Benefits
+	N	+++	N	+	Housing

Montgomery County requires home sellers to provide an energy cost and consumption history, along with information on residential energy efficiency opportunities. The law went into effect January 1, 2009 and applies to owner-occupied single-family homes and condos which are individually metered by electricity or natural gas utilities. Before signing a contract, the seller of the home must provide copies of applicable electricity, gas, and home heating oil bills, or a cost and usage history for the 12 months immediately prior to the sale, unless the home was unoccupied for the entire 12-month period. The seller must also provide [list of resources](#) and energy conservation tools such as Pepco energy incentives and ENERGY STAR® yardstick. This requirement is intended to ensure that the home buyer is informed of the home’s energy performance before the sale and provides options to finance future energy efficiency improvements.

This requirement is found within Chapter 40, Real Property, Section 40-13B of the County Code and is. This section currently does not apply in the City of Rockville; however, the City could voluntarily opt into this program by amending Chapter 1-8, Application of County Law. This law is enforced by Montgomery County’s Office of Consumer Protection.



Equity Considerations
 Utility bill disclosure is intended to ensure that all home buyers are informed of a home’s energy performance and utility costs before the sale. This helps inform household budgets and provides options for energy efficiency improvements.



Action C-05

Expand the home energy efficiency outreach program to increase participation in utility energy audits and rebates

Objective	Educate and incentivize resident participation in utility energy audits, rebate programs, and Montgomery County Green Bank financing resources.				
Metrics	Number of participating homes, energy savings, GHG reduction				
Target	Community emissions, residential	Development Stage	Proposed expansion		
Lead	Public Works (Environment)	City Upfront Cost	-		
Partners	Montgomery County, Environment Commission, Nonprofits, Pepco, Washington Gas, Housing and Community Development	City Operating Cost	Low LOS: \$5,000 per year +.5 FTE (multilingual outreach materials and staff support) High LOS: \$15,000 per year +1 FTE (includes City incentives) Shared resources with C-02, C-09		
GHG Benefit	Resiliency	Feasibility	Health	Equity	Co-Benefits
+	+	++	++	++	Economic, Housing

Expanding home energy efficiency outreach programs to encourage more residents to take advantage of available utility incentives to reduce GHG emissions, improve home comfort, and help residents save money on energy bills. For example, Pepco offers free quick home energy assessments, discounted comprehensive home energy assessments, and rebates on home energy efficiency upgrades. Washington Gas offers rebates to purchase efficient natural gas-powered equipment. The Montgomery County Green Bank also offers financing options that use energy savings to pay back low-interest loans over time. In order to take advantage of these programs residents or contractors must submit various applications, which may be confusing or time-consuming for residents.

The City could better leverage Montgomery Energy Connection, a network of County Government and community partners created to provide customized education on the benefits of energy efficiency, availability of programs and incentives, and opportunities for assistance. It helps residents better understand energy bills and energy use, lower energy bills, and learn about renewables. To amplify its effectiveness, the City could increase outreach in Rockville which would involve funds for staff/outreach contractors and outreach materials. Materials and messaging could also support opportunities under Action C-02 for low-income residential properties. The City could also provide funding to further incentivize uptake of utility incentives to offset the upfront costs for residents.



Equity Considerations

To better serve Rockville's diverse community, multilingual and culturally appropriate outreach programs need to be developed in coordination with trusted community leaders.

Additionally, many community members may not have internet access or use traditional outreach sources. Resources that support community-specific communication modes and face-to-face outreach may be more impactful.



**Action
C-06**

Coordinate with Montgomery County on electrification incentives for existing building systems

Objective	Promote outside technical and financial assistance to help residents and businesses replace fossil fuel building equipment with electric options				
Metrics	Number of participating buildings, GHG reduction				
Target	Community emissions, residential and commercial	Development Stage	Proposed in Montgomery County Climate Action Plan		
Lead	Maryland, Montgomery County, Pepco	City Upfront Cost	-		
Partners	Public Works (Environment), Planning and Development Services	City Operating Cost	Shared resources: C-02, C-05		
GHG Benefit	Resiliency	Feasibility	Health	Equity	Co-Benefits
+++	+	+	+	+	Economic, Housing

Most buildings run on multiple fuels. They use electricity to power lights, refrigerators, air conditioners, and electronic devices. They also consume fossil fuels such as natural gas, propane, or heating oil to power furnaces, boilers, cooking appliances, and water heaters. Building electrification shifts building systems to use electricity rather than fossil fuels for heating and cooking. In a fully electrified home or office, furnaces and boilers that run on natural gas, propane or heating oil can be replaced with ground- or air-source heat pumps. Gas-powered water heaters can be replaced with heat pump water heaters. Gas-powered ovens and burners can be replaced with electric ranges and induction cooktops. Maryland is considering broadening the goals of the EmPOWER program and removing existing barriers to fuel switching to provide incentives for homeowners and building managers. The benefits include reduced on-site fossil fuel combustion, and public health and safety benefits from eliminating combustion of gas and air pollutants inside the home. Montgomery County explored electrification as part of Climate Action Plan implementation; however, they found that state-level preemption issues constrain their ability to ban natural gas in new construction. Until that changes, the County is focusing on developing alternative strategies to a disincentivize fossil fuels or incentivize electrification.

The upfront costs for existing building electrification can be challenging. Financial incentives and technical assistance programs may offset the barriers. Montgomery County’s Climate Action Plan proposes to help residents and businesses pay for upfront costs and defray the marginal costs associated with fossil fuel equipment replacement, operation, and maintenance through technical assistance and incentives. Electrification incentives may target large equipment, such as space and water heaters, as well as an appliance trade-in program for electric options for other gas appliances, such as stoves and clothes dryers. In addition, a technical assistance program could provide individual guidance to facilitate electrification retrofits for existing commercial and residential buildings and provide design assistance for any major renovations. The City should follow the development of County and State programs and ensure that City mechanical, electrical and plumbing permitting can be streamlined to support the transition to electrification. The program could provide economic benefits through increased demand for local jobs in the building, electrical, and mechanical sectors.

Equity Considerations
The upfront costs of electrification may be a barrier. Programs should ensure that income-limited, vulnerable groups, and small businesses receive priority and eliminate barriers to accessing incentive programs.



**Action
M-01**

Complete energy assessments of City facilities and develop a strategic plan to reduce facility energy consumption

Objective	Improve municipal building energy performance to reduce energy use intensity and greenhouse gas emissions, support renewable energy systems, and improve resiliency				
Metrics	Facility energy use intensity, GHG emissions				
Target	Municipal GHG emissions	Development Stage	Proposed expansion of existing projects		
Lead	Recreation and Parks	City Upfront Cost	Phased: \$11,000/facility for a consultant audit + costs of energy conservation measures. Group: up to 6 for \$66,000		
Partners	Public Works (Environment), Utilities, Maryland Energy Administration	City Operating Cost	0.5 FTE; Shared resources with M-04, M-07, C-22, M-11; Potential long-term savings		
GHG Benefit	Resiliency	Feasibility	Health	Equity	Co-Benefits
+	+	++	+	+	Efficient and Effective Services, Utility Savings

The City operates a variety of facilities, parks, water and sewer utilities, street and traffic lights, and fleet that consume significant energy resources, costing approximately \$3 million annually. Given that electricity accounts for more than 70 percent of energy costs, the Mayor and Council adopted a resolution declaring the City’s intent to take a leadership role in reducing electricity consumption and generating renewable energy and partner with the Maryland Energy Administration (MEA) to enroll as a Maryland Smart Energy Community (MSEC). As part of the MSEC program, the City adopted an energy policy for City buildings and operations that establishes a 15 percent electricity reduction goal. The City developed an electricity baseline and continues to plan and implement cost-effective energy projects to reduce energy costs at various sites with a combination of funds from the City, MSEC grants, and utility rebates.

To continue to support the goals of the MSEC program, the CAP, and begin compliance with the County’s propose building energy performance standard (C-01), the City can continue to complete building energy assessments and tune-ups of the larger and highest energy consuming facilities, such as the Water Treatment Plant, City Hall, 6 Taft Court, Senior Center, Swim and Fitness Center, Gude Maintenance Yard, and the Police Station. The energy assessments will identify sources of energy waste and the most cost-effective energy improvements that could either be incorporated into modifications to facility operations, future planned equipment replacements, building renovations, or new energy retrofit CIP projects. These assessments also provide the basis for future energy grants and utility incentives. In FY 2021, the City conducted a lighting audit and budgeted \$11,000 to conduct an energy assessment of City Hall, one of the City’s lower performing buildings. The process identified LED lighting upgrades eligible for a MEA grant and equipment scheduling, occupancy controls, and weatherization improvements eligible for utility rebates and long-term energy savings. This model could be expanded to include assessments and tune-ups of other facilities. This would involve a consultant cost of approximately \$11,000/facility; up to \$66,000 for a group of six, plus costs for any energy conservation measures. Additional staff support are needed to oversee a consultant, retrofit projects, the various incentives and contribute to other related CAP actions. Depending on available staff resources, this could be phased or a one-time cost.



**Action
M-02**

Convert City-owned streetlights to energy efficient LED (light-emitting diode) (CIP TA22)

Objective	Convert approximately 3,200 City-owned streetlights to more efficient light emitting diode (LED) fixtures to improve lighting and safety and reduce energy consumption and GHG emissions				
Metrics	Streetlight energy use, GHG emissions				
Target	Municipal GHG emissions	Development Stage	Proposed FY 2023		
Lead	Public Works (Traffic and Transportation)	City Upfront Cost	FY 2023: \$1 Million FY 2024/2025 unfunded: \$2.2 Million		
Partners	Pepco, Maryland Energy Administration	City Operating Cost	Savings to be determined, dependent on Pepco rebates and tariffs		

GHG Benefit	Resiliency	Feasibility	Health	Equity	Co-Benefits
+	+	+	+	+	Safe and Livable Neighborhoods, Stewardship of Infrastructure, Utility savings

The LED Streetlight Conversion (CIP TA22) project provides for the replacement of all remaining City-owned and maintained high pressure sodium (HPS) streetlights (approximately 3,200) with more energy efficient, light-emitting diode (LED) luminaires. This project is partially funded in the CIP. There is currently \$1 million budgeted in FY 2023 and a total of \$2.2 million unfunded in FY 2024 and FY 2025. Current funding covers replacement of approximately 2,000 non-decorative HPS fixtures. The unfunded portion of this project covers the remaining 1,200 decorative fixtures.

In addition to energy savings and greenhouse gas reductions, the project supports safe and livable neighborhoods through improved lighting quality and stewardship of infrastructure. The project is eligible for rebates through the EmPOWER Maryland incentive program to offset some of the upfront costs. The project amount of maintenance and electricity costs savings is dependent on Pepco’s tariff rate for LED fixtures.

Community feedback on this climate action recommended the planning phase for this project consider potential light pollution impacts and be considerate of dark skies, including cutoffs and avoid uplighting. As LEDs are brighter than the City’s existing mercury vapor or high-pressure sodium streetlights, project planning should avoid over-lamping or overly blue temperatures which could result in added installation and billing expenses, increased light-pollution, and resident complaints. Planning could involve piloting different light wattages and colors to help tailor the new lighting to meet community needs.



Equity Considerations
Outdoor lighting is important for community safety especially for those who work early or late hours, and depend on transit, walking, rolling, or biking. LED retrofits should prioritize areas that benefit socially vulnerable residents first.



Action
M-03

Advocate for a Pepco-owned streetlight LED conversion agreement that serves the public interest

Objective	Convert approximately 2,925 lighting Pepco-owned streetlights to more efficient light emitting diode (LED) fixtures to improve lighting and safety and reduce energy consumption and GHG emissions				
Metrics	Streetlight energy use, GHG emissions				
Target	Municipal emissions	Development Stage	PSC review of Pepco proposal/rate case		
Lead	Pepco, Maryland Public Service Commission (PSC)	City Upfront Cost	-		
Partners	Public Works (Traffic and Transportation)	City Operating Cost	To Be Determined, dependent on Pepco rebates and tariffs		
GHG Benefit	Resiliency	Feasibility	Health	Equity	Co-Benefits
+	+	+	+	+	Safe and Livable Neighborhoods, Stewardship of Infrastructure

The City is currently billed by PEPCO for approximately 2,925 streetlights owned and maintained by PEPCO. PEPCO streetlights in Rockville are primarily overhead cobra head-style fixtures with mercury vapor or high-pressure sodium light sources. The City spends more than \$700,000 annually on PEPCO utility bills serving our combined streetlight network. PEPCO proposed a Multi-Year Plan (MYP) (PSC case No. 9655) in 2020 that included a Smart Streetlight Initiative to replace fixtures with LED technology.

On the surface, upgrading streetlights would appear to reduce energy usage, modernize the system to reduce operating and maintenance costs, and improve visibility for all transportation corridor users. However, this is an important initiative with long lasting impacts on infrastructure, budgets, and rate payers. In addition, to optimally serve the public, the conversion should accommodate local needs and preferences for brightness and color temperatures to ensure a safe, efficient, and comfortable experience for road users and adjacent residents and businesses. The Mayor and Council submitted comments on Potomac Electric Power Company’s Application for an Electric Multi-Year Plan – Case 9655 in May of 2021. The City should continue to advocate for the Maryland Public Service Commission to require PEPCO to design a retrofit program that serves the public interest.