OPC

OFFICE OF PEOPLE'S COUNSEL

State of Maryland

Comments on EmPOWER Maryland 2024-2026 Program Plans

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Prepared by

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Table of Contents

Summary of Findings & Key Recommendations

The 2024-2026 cycle represents a unique opportunity for evolution and transition for EmPOWER. The program administrators have the ability to increase savings for ratepayers and contribute critical, cost-effective reductions in greenhouse gas emissions to meet state policy objectives. To meet this promise, the Commission will need to take an active role in directing utilities and shaping programs. The new low-income savings goals in Maryland law have prompted DHCD to propose a dramatic ramp-up of its programs, which will result in a substantially more equitable EmPOWER program.

In its order directing the development of 2024-2026 plans, the Commission stated, "Because it is substantially easier to adjust plans downward than to order that programs be expanded beyond their original design, the utilities should develop and present ambitious, creative, and forward-thinking plans for the Commission's consideration." Unfortunately, with a few exceptions, the utilities have not risen to this challenge. The scenarios do not reflect a significant degree of variation; few program proposals are ambitious, creative, or forward-thinking. For example, with the exception of SMECO, the utilities do not anticipate a more electric-dependent future for buildings by accelerating their focus on peak demand management. It is likely that only a clear demand reduction and management goal will cure this deficiency.

The primary difference between scenarios is the inclusion of electrification programs in the Middle and Maximum scenarios. Unfortunately, the budgetary and program strategies proposed by utilities for electrification are unclear, underdeveloped, and vary widely. They are not ready for implementation. The core existing EmPOWER strategy for promoting cleaner, more efficient space and water heating equipment (i.e., heat pumps) has been through the HVAC and Appliance programs, which use a "midstream" strategy. The utilities have plainly failed to confront their ailing midstream programs through diagnosis or new directions, proposing instead to maintain the status quo. The status quo program design does not appear to work for most supply chain actors (distributors and contractors), and the utilities' inconsistent approaches are impeding evolution. Better approaches exist and should be ordered by the Commission.

OPC is very mindful about the near-term cost of paying for EmPOWER programs, even when those programs provide net benefits in the billions of dollars. It is especially important that limited-income households receive program benefits commensurate with their need and their contribution to the EmPOWER surcharge. It is essential that the Commission hold the course on phasing in the expensing model of cost-recovery, preventing the accumulation of greater unamortized ratepayer obligations. Cost-recovery for electrification deserves further analysis (along with questions about program delivery and alignment), and the Commission may want to consider a slightly extended period to pay down the past unamortized balance to ease the transition to expensing while allowing programs to deliver greater energy savings.

The utilities protest that achieving greater savings will be increasingly difficult, yet their historical achievements tell a different story: exceeding savings while spending less than budgeted. The

Commission should not allow non-EmPOWER, front-of-meter savings to displace behind-the-meter savings and programs, and it should not approve without modification Performance Incentive Mechanisms that would yield earnings out of proportion to risk.

The following key recommendations are outlined in greater detail throughout our comments.

With regard to goals and budgets, we recommend the Commission:

1. Approve the Middle scenario for each electric utility, with exceptions for electrification and demand response described below.
2. Approve Demand Response programs at the Maximum scenario level.
3. Approve the Maximum Scenario for WGL while prohibiting both WGL and BGE from offering gas appliance incentives in most cases. Require both utilities to file an amendment to gas savings forecasts.
4. Approve the DHCD budget and savings proposal.
5. Direct staff to propose electric Demand Reduction and Management goals for EmPOWER programs.
6. Deny utilities' requests to count additional front-of-meter savings toward EmPOWER goals.

With regard to electrification, we recommend the Commission:

7. Defer until 2024 any decision to approve cost-recovery for utility electrification programs pending additional planning from Maryland Department of the Environment ("MDE") and the Maryland Energy Administration ("MEA").

Two critical policy decisions should be made for EmPOWER's midstream and limited-income programs. We recommend the Commission:

8. Deny the electric utilities' HVAC program and direct them to re-file a program that includes a single statewide implementer and certain program design changes.
9. Deny the utilities' proposal to launch any program that primarily targets buildings served by DHCD, e.g., multifamily affordable housing program.

Finally, with regard to cost-recovery, we recommend the Commission:

10. Modify the utilities' proposed Performance Incentive Mechanisms (PIMs), primarily by adjusting savings thresholds and award amounts to better balance earnings with risk.
11. Direct the utilities to re-file their surcharge impact analyses with the unamortized balance to be paid down by 2031, so that the Commission has greater flexibility to address surcharge impacts.

Key Definitions and Acronyms

Definitions

Annual savings refers to the savings achieved in the first year after a measure is installed or otherwise paid for. Annual savings can be used to measure greenhouse gases reductions or energy savings, in this report we only use it for the latter.

Lifecycle savings/reductions refers to the energy savings or greenhouse gas reductions achieved throughout the expected life of the measure, taking into account projected changes over time (e.g., avoided emissions from future electricity savings will be lower). When lifetime savings are put in monetary terms, projected future energy costs are used and everything is discounted to present value dollars.

Gross savings refers to the total savings (either annual or lifecycle) from measures promoted by EmPOWER programs, without consideration to whether the measures might have been installed or pursued absent the program.

Net savings refers to the estimated savings (either annual or lifecycle) from measures promoted by EmPOWER programs that are *attributed* to the program and deemed to have not occurred absent the program.

Scenario refers to one of the three planning scenarios which the Commission ordered the utilities to present in plans, a "2023" business-as-usual (BAU) scenario, a "Maximum Achievable" scenario, and a "Middle" scenario in between those two. To avoid confusion with program year 2023, the first scenario is called "BAU" in these comments, and the other two are called "Middle" and "Maximum".

Acronyms

AMI: Area Median Income or Advanced Metering Infrastructure
ASHP: Air-source heat pump
BAU: Business-as-usual, specifically the lowest savings scenario, referred to as the "2023" scenario by the Commission
BGE: Baltimore Gas and Electric Company
BTU: British Thermal Unit
CAC: Central air conditioner
DHCD: Department of Housing and Community Development (Maryland)
DPL: Delmarva Power & Light Company
DR: Demand Response
ESRPP: ENERGY STAR Retail Products Platform
GHG: Greenhouse gas, frequently referring to a reduction in greenhouse gas emissions
HEERHA: The federal "High-Efficiency Electric Home Rebate Act" program (part of the Inflation Reduction Act)
HEIP: Home Energy Improvement Program (SMECO only)

HER: Home Energy Report
HOMES: The federal "Home Energy Performance-Based, Whole House Rebates" program (part of the Inflation Reduction Act)
HPWH: Heat pump water heater
HPwES: Home Performance with EnergyStar
HVAC: Heating, ventilation and air conditioning
IOU: Investor-owned utility
IRA: Inflation Reduction Act (U.S.)
KWh: Kilowatt-hour
LED: Light emitting diode
MEA: Maryland Energy Administration
MEEHA: Multifamily Energy Efficiency and Housing Affordability Program (DHCD only)
MEET: Maryland Energy Efficiency Tune-Up (DHCD only)
ML: MailLog. This is a reference to a filed document identifier on the Maryland Public Service Commission's website.[1]
MMBTU: Million BTU
MWh: Megawatt-hour (1,000 kilowatt-hours)
OHEP: Office of Home Energy Programs (Maryland)
Pepco: The Potomac Electric Power Company
Potomac Edison: The Potomac Edison Company
QHEC: Quick Home Energy Check-up
SMECO: Southern Maryland Electric Cooperative, Inc.
WGL: Washington Gas Light Company
ZERH: Zero Energy Ready Homes

[1] Filed documents can be searched by MailLog number through this page: https://webpsc.psc.state.md.us/DMS/maillogsearch

Background and Context

Historic Progress

Judged on the central metric with which EmPOWER Maryland was designed—gross annual savings of electricity—the EmPOWER initiative has been an enormous success over the last two cycles. Figure 1 shows total energy efficiency electric savings by utility since 2017, indicating strong and relatively upward trends. Figure 2 shows residential gas savings by utility since 2018, indicating slight growth in savings from WGL and dramatic reductions in annual gas savings from BGE. Achievement of a high level of electrical efficiency savings has contributed substantially to Maryland being ranked in the top ten on ACEEE's annual energy efficiency state scorecard for the last several years.[2]

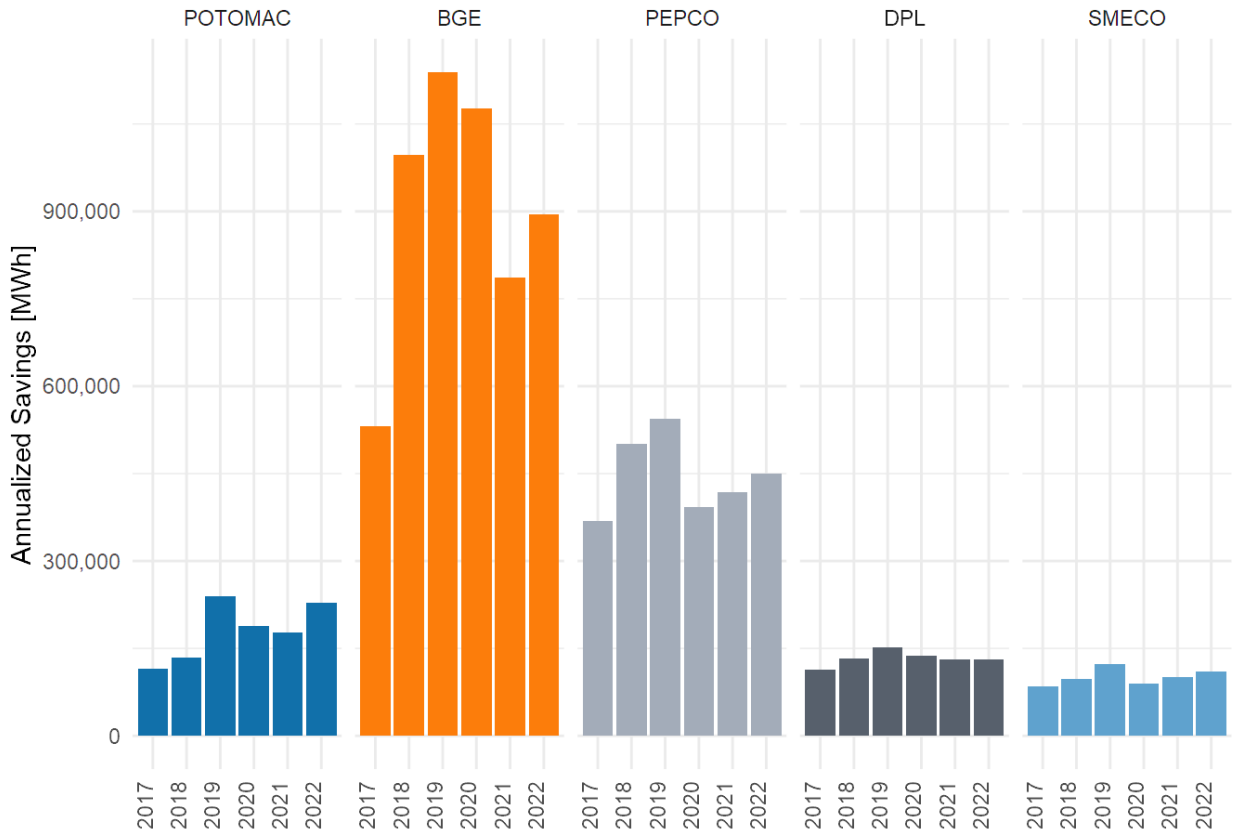


Figure 1 - Total annual electric savings by utility by year, 2018-2022

[2] American Council for an Energy-Efficient Economy (ACEEE), The State Energy Efficiency Scorecard, https://www.aceee.org/state-policy/scorecard#:~:text=Top%20finishers%20in%20this%20year's,of%20electricity%20nationwide%20in%202021. (last visited October 16, 2023).

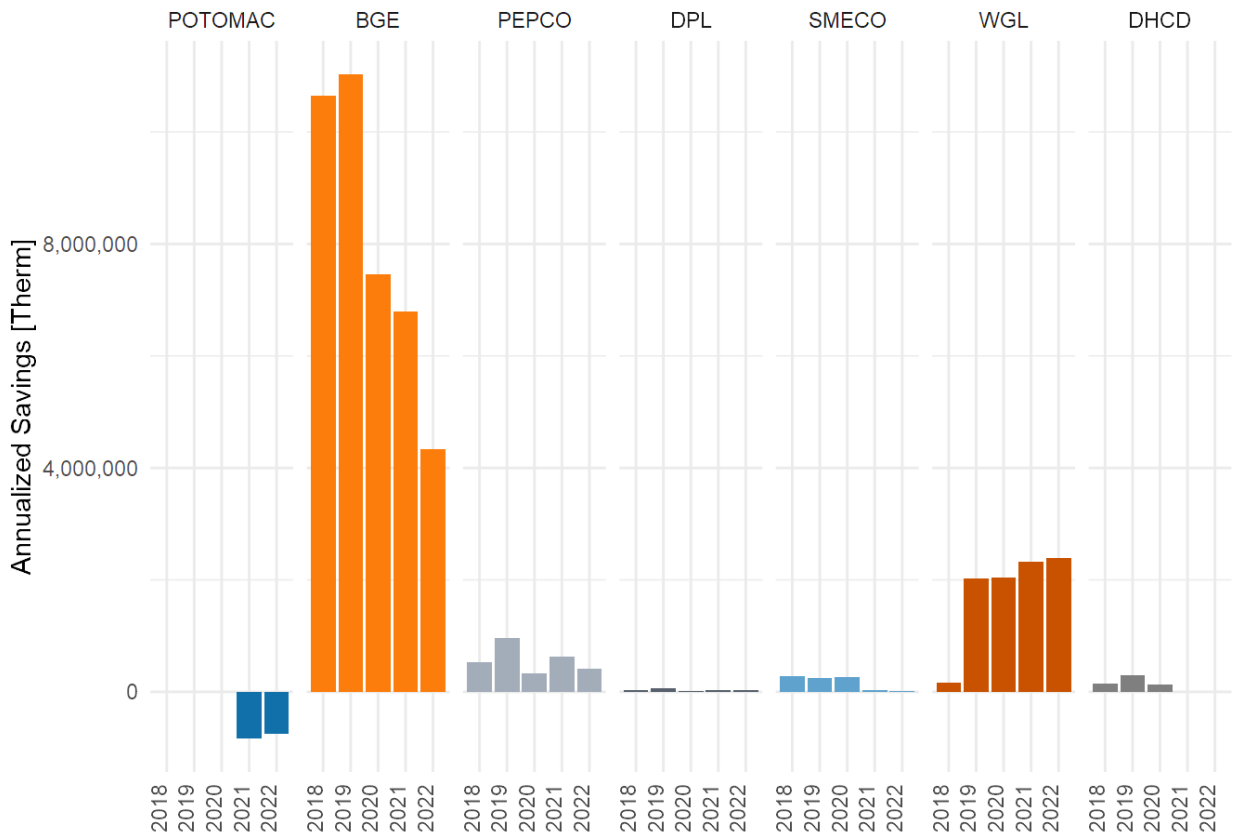


Figure 2 - Annual residential gas savings by gas utility by year, 2018-2022

In its most recent full year (2022), EmPOWER utilities were achieving electricity savings at a cost of 2.6 – 4.7 cents per kilowatt-hour (shown in Table 1), far less than the 6.5 – 8.3 cents per kilowatt-hour available under Standard Offer Service.[3] By the end of 2022, EmPOWER had generated more than $13 billion in lifetime benefits for Maryland households, commercial and industrial customers, and the State as a whole.

Table 1 - CTD energy and cost savings—all EmPOWER electric utility programs.

Utility	Reported Program Expenditures ($)	Reported Lifecycle Savings (MWh)	Cost per Lifecycle Savings (c/kWh)
POTOMAC	63,394,075	2,422,266	2.6
BGE	265,960,403	7,562,215	3.5

[3] The 2021-2023 EmPOWER Maryland Program, *Comments to the Maryland Public Service Commission on EmPOWER Semi-Annual Reports for Q3-Q4 2022*, ML No. 302522 (CN 9648, April 21, 2023).

PEPCO	165,337,201	5,574,925	3.0
DPL	52,052,635	1,573,354	3.3
SMECO	49,251,486	1,050,005	4.7

Guided by EmPOWER's broad statutory authorization and annual electricity savings targets, the Commission has given utilities broad discretion to develop 3-year savings plans. The utilities' achievements over the past several cycles have correlated with very high annual earnings for the investor-owned utilities (in relation to program spending).[4]

Neither the legislature nor the Commission have required the EmPOWER gas utilities to achieve a particular level of savings. Gas savings goals have been proposed by the utilities each cycle based on what they deem feasible, although like all EmPOWER utilities, they must achieve a positive benefit-to-cost ratio at the sectoral level (i.e., residential and commercial/industrial). The Commission has generally accepted the proposed gas savings targets. Despite the fact that the gas utilities have largely set their own savings targets, going back to 2018, WGL has yet to achieve its annual savings goal.

In contrast, the electric utilities achieve their total savings goals each year and do so spending less than their proposed and authorized budgets. Figure 3 shows reported compared forecasted savings goals by utility since 2018 and figure 4 shows the actual compared to forecasted

[4] The 2012-2023 EmPOWER Maryland Program, *Future Programming Work Group Report*, ML No. 240203 (CN 9648, April 15, 2022), at 63.

(budgeted) spending.

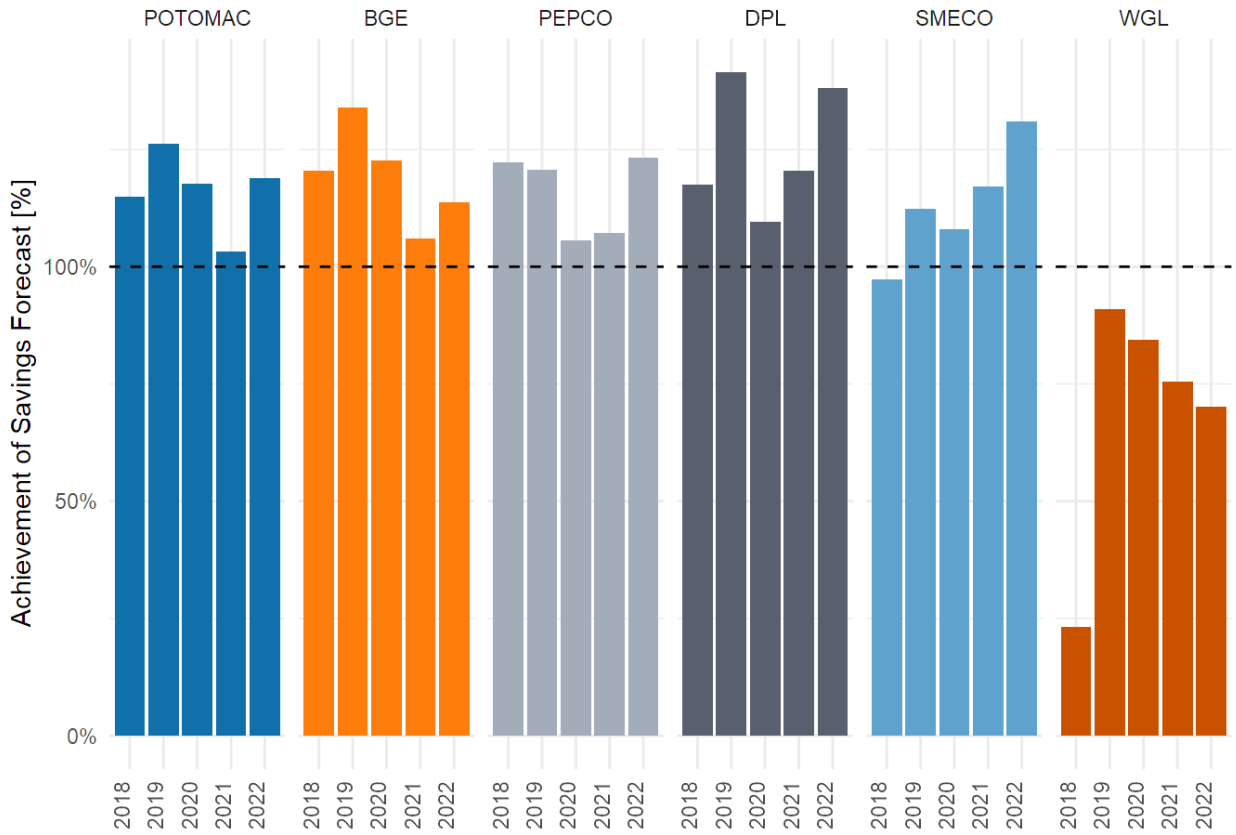


Figure 3 - Residential reported vs forecasted savings for each utility, 2018-2022

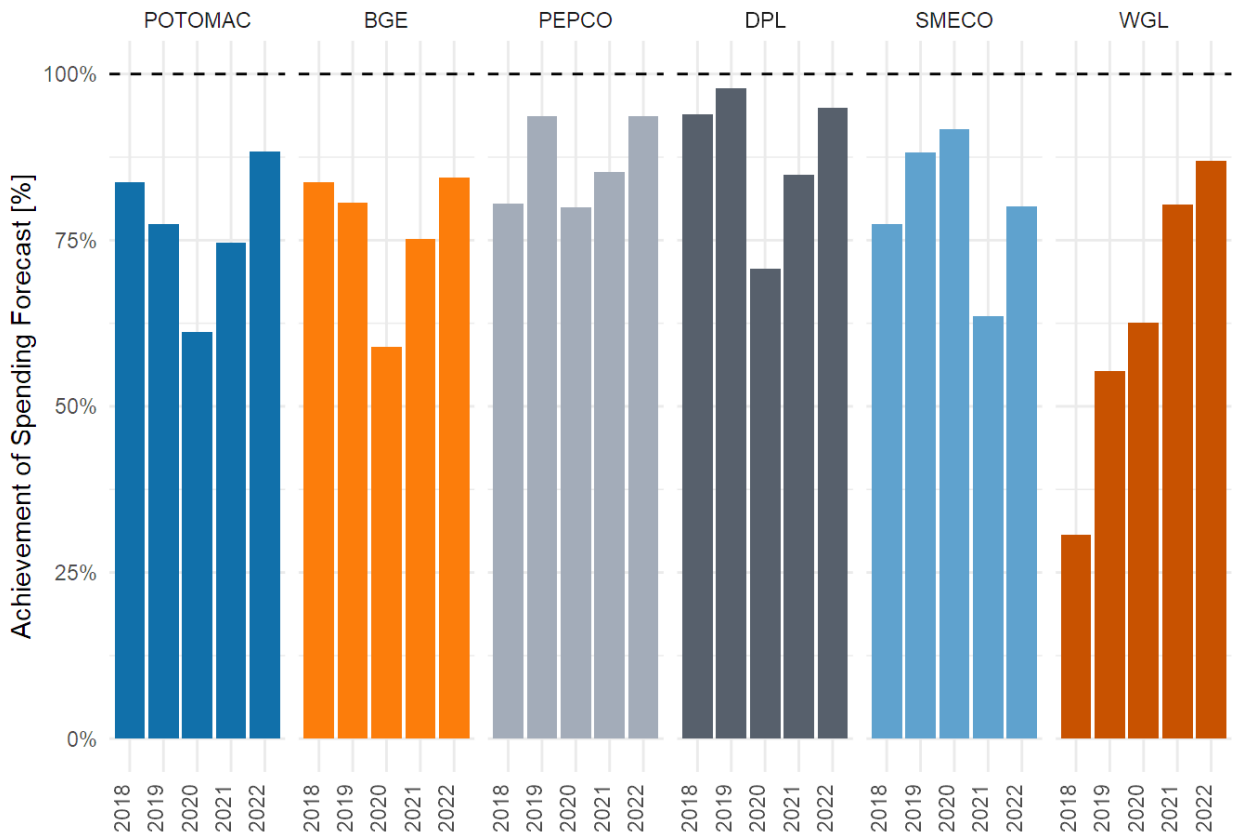


Figure 4 - Residential actual vs budgeted spending for each utility, 2018-2022

The Department of Housing and Community Development has also achieved significant energy savings for limited income households through EmPOWER. Lacking statutory goals, DHCD's programs have operated primarily in a budget-constrained context; as described below, new statutory savings targets create a new framework for the next cycle.

Although the goals for EmPOWER have been established in terms of electricity and gas savings, programs have achieved substantial GHG reductions. In the last two years, through considerable effort at the Future Programming Work Group and Evaluation Advisory Group, there is now an advanced, consensus methodology for attributing GHG reductions to EmPOWER programs. (These methods continue to be refined through consensus updates and adjustments at the EAG.) In anticipation of a greater emphasis on this metric, the utilities and DHCD now report on lifecycle GHG (as well as annual and lifecycle energy savings). Figure 5 indicates how metrics affect the view of EmPOWER programs, showing relative contributions to annual electricity savings vs lifetime GHG reductions.

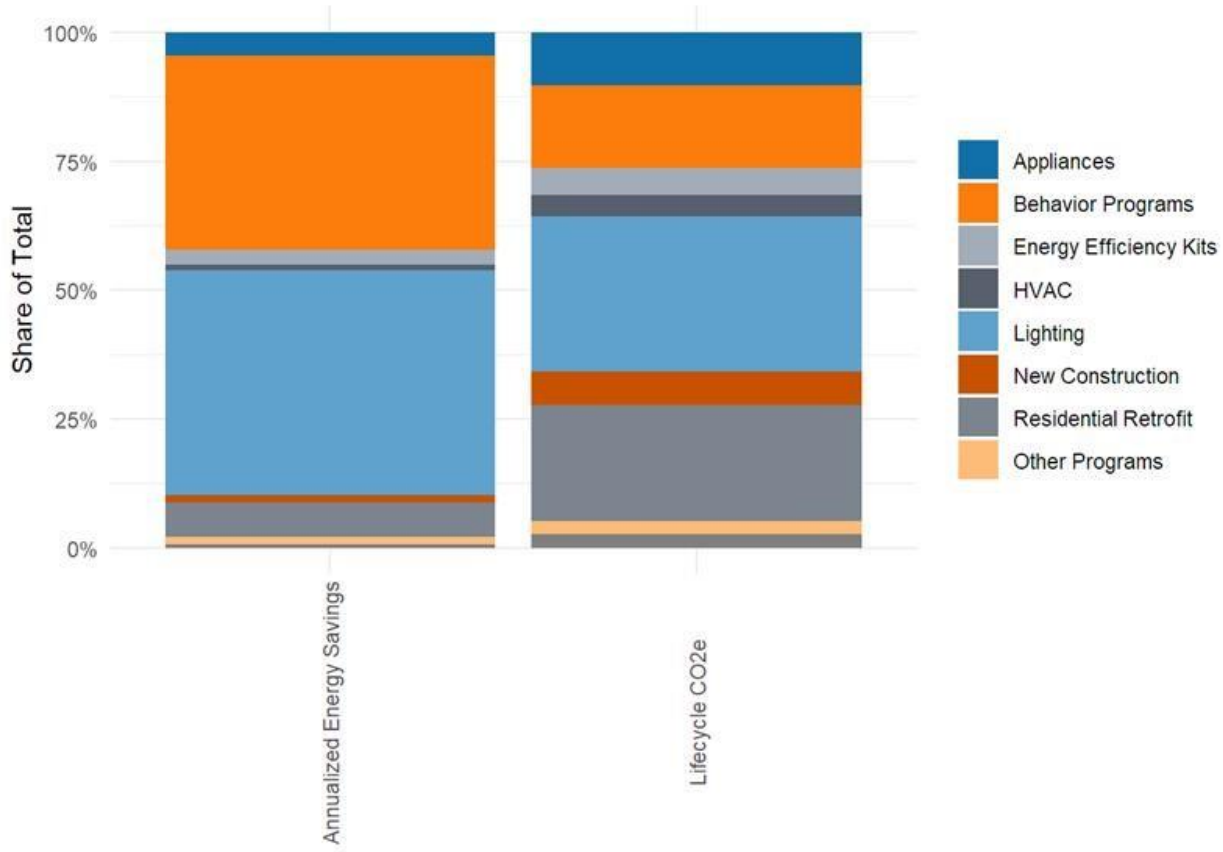


Figure 5 – Residential programs contribution to residential electric savings in 2022, measured as annual electricity savings and lifecycle GHG savings

Current Policy Context

As we have commented over the past two years, the policy context for EmPOWER is evolving rapidly and in the next cycle EmPOWER must continue to evolve to meet those policy expectations.

Greenhouse Gas Savings from Buildings

The Climate Solutions Now Act of 2022 (CSNA) establishes some of the most ambitious GHG reduction targets in the country, specifically a 60% reduction by 2031.[5] According to the Maryland Department of the Environment's (MDE) GHG Inventory, fuel use in buildings accounts for 21% of Maryland GHG emissions.[6] Electricity use accounts for an additional 28%, the majority of which supports residential and commercial buildings. Building decarbonization is therefore a critical element to meeting the State's statutory climate targets; a conclusion reflected in every aspect of climate modeling conducted by MDE. In the ongoing Climate Pathways analysis to support the CSNA Plan, direct fuel use in buildings undergoes a 35% reduction in GHG by 2031.[7] In 2022, the Maryland Commission on Climate Change adopted a Building Energy Transition Plan, with specific recommendations for building decarbonization, including for EmPOWER.

> There are only two full EmPOWER cycles remaining until 2031.

Equitable Outcomes

During the Future Programming Work Group, there was significant analysis and discussion of EmPOWER's impact on low-income households and other populations that face inequities and related barriers, such as renters. Historically EmPOWER has not included spending on low-income households in proportion to their share of the Maryland population, let alone achieved energy savings in proportion to their energy use or energy burden.[8] Low-income households face higher energy burdens, defined as the proportion of household income spent on energy, and some Maryland populations face some of the highest energy burdens in the country.[9] EmPOWER can play an important role in reducing energy burdens. However, the Commission must contend with the fact that programs for limited-income households are more expensive per unit of energy (or GHG) saved, in part because customers can pay little or no cost-share for

[5] Md. Code Ann., Environ. Art. § 2-1205(c).
[6] MDE 2020 GHG Inventory. Emission Inventory (maryland.gov)
[7] Climate Pathways presentation to MCCC MWG, June 15, 2023. 2023-06-15 MWG (maryland.gov)
[8] The 2012-2023 EmPOWER Maryland Program, *Future Programming Work Group Report*, ML No. 240203 (CN 9648, April 15, 2022).
[9] Ariel Drehobl, et al., American Council for an Energy-Efficient Economy, *How High Are Household Energy Burdens? An Assessment of National and Metropolitan Energy Burden across the United States*, at 16 (September 2020) https://www.aceee.org/sites/default/files/pdfs/u2006.pdf

improvements, and because programs must invest more heavily in outreach to engage hard-to-reach participants.

In 2023 the Maryland General Assembly passed HB 169, which establishes the first limited-income savings goals for DHCD, beginning in 2024. The law uses an annual electricity savings goal similar to that assigned to electric utilities, expressed as a percentage of electricity sales in a baseline year. In the case of DHCD, it is a percentage of sales to limited-income households: 0.53% in 2024, 0.75% in 2025, and 1.0% in 2026. Although the law will require a significant increase in savings (and spending) by DHCD and contribute to a more equitable EmPOWER, it is worth noting that achieving the new targets will still only require half the savings for low-income households that is required for households overall through the utility savings goals of 2.0 - 2.25%.

DHCD has been primarily responsible for achieving limited income savings in EmPOWER. In addition to generating potential leads for DHCD participation, many utility programs serve significant numbers of limited income households as well. Appropriate roles and coordination between DHCD and the utilities is an ongoing subject of attention at the Commission. New proposals by the utilities to launch limited-income targeted programs add complexity; this is addressed in the Limited Income program section.

Technology Standards and Markets

Technologies related to energy use are always evolving, but several major developments are worth noting. The presence of new technologies in the market can be driven by state or federal standards, natural consumer adoption, or technological breakthroughs. All three have contributed to the dramatic transition in lighting to LED, especially in residential consumer lighting. The widespread use of very efficient, reliable and cost-effective lighting is a win for consumers and reduces the need for incentive programs. Another key change is in the area of controls and information technology. Smart meters and smart thermostats are increasingly the norm, unlocking new capabilities for managing energy load and generating data that helps programs target and achieve savings. With the growth of electric vehicles (set to increase dramatically under Maryland laws), buildings increasingly have a critical new electrical appliance: the car charger.

Heat pump technology has been around for a long time; however, since 2015 there has been significant advancement in the availability of cost-effective and high-performing heat pump water heaters and "cold-climate" HVAC heat pumps. Efficient all-electric homes are now so practical and cost-effective that numerous jurisdictions are preparing to require them in new construction. The CSNA requires the Maryland Building Codes Administration to prepare analysis and recommendations for adoption of an all-electric building code by December 2023.

Initial modeling by MDE indicates that beginning such a code by 2027 would be a key component to reducing building emissions as required by the CSNA targets.[10]

Managing the Fossil Fuel Transition

Beyond the direct need for GHG reductions, Maryland faces opportunities and challenges related to the transition away from fossil fuels—and toward electricity that is produced more cleanly and used and delivered more efficiently. As the Commission is aware, this transition has many complexities, including managing ratepayer interests through significant reductions in use of pipeline gas, and ensuring that increased electrification load does not create avoidable increases in peak demand.

EmPOWER already plays a role in influencing how energy is used in buildings – from choice of space or water heating technology to what time of day electricity is used – and that role can and must increase. The influence of EmPOWER can smooth an equitable transition from fossil fuels, but it also has the potential to make the transition more difficult, costly, or inequitable. Most HVAC and water heating equipment installed in 2024 will still be in place in 2031; if that equipment relies on natural gas, that creates risk both for the customer and for the system or society as a whole. On the other hand, if fuel-switching from gas to electricity is done with little regard to demand management, it risks adding electric system costs.

Federal Funding

Sometime in 2024, Maryland should begin receiving funds for a pair of new home efficiency and electrification rebate programs, one providing supporting whole-home efficiency rebates (HOMES) and the other providing rebates for efficiency electrification appliances (HEEHRA). A significant portion of the funds must go to low- and moderate-income households. To receive and deploy these funds, the Maryland Energy Administration (MEA) must develop and submit plans to the U.S. Department of Energy. These plans must include community benefits and market transformation strategies. It is uncertain how MEA will implement these programs, but one option would be to hire a third-party implementer. It is critical that these federal funds be deployed in a coordinated way with EmPOWER, especially so that customers, contractors and others have a streamlined experience.

GHG Abatement Potential Study

The EmPOWER GHG Abatement Potential Study completed in January 2023 provides the most comprehensive information available about the cost-effective potential for reducing GHG in

[10] Presentation to the Maryland Commission on Climate Change Mitigation Working Group, "Pathway to Maryland GHG Reduction Goals" https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/MWG/CGS%20Pathways%20to%20GHG%20Reduction%20Goals%20UPDATE.pdf

buildings through EmPOWER-like programs. There are also important limitations from this study, as outlined in previous comments from OPC.[11]

As previously summarized by OPC, there are several key findings from the study:

1. "There is an enormous, cost-effective opportunity to reduce GHG emissions utilizing EmPOWER programs in the next three years. The net benefit from pursuing even a subset of the cost-effective opportunities exceeds $20 billion.
2. Maryland will need to maximize the opportunity from EmPOWER and pursue complementary policies, programs, and investments to achieve the GHG reductions in buildings that Maryland law calls for.
3. There is a large opportunity for cost-effective electrification from fossil fuel end-uses to efficient heat-pump technology. The electrification opportunity accounts for roughly one third of the total GHG potential identified in the study."[12]

The study estimated the opportunity to save gas through energy efficiency improvements to gas appliances and through non-appliance efficiency measures, such as insulating buildings or heating ducts. The study found that approximately 45% of the cost-effective gas-saving measures were from non-appliance improvements. As described in previous comments by OPC, continuing to provide incentives for gas appliances would result in *lower* GHG reductions than ceasing to do so in lieu of promoting efficient electrification, and it would lock-in avoidable future emissions, retrofit costs, and ratepayer impacts.[13]

Proposed Plans and Commission Decisions

The Commission ordered each EmPOWER utility to prepare its 2024-2026 Plans using three scenarios that describe different level of savings effort and spending. The Commission must now determine which scenario it should approve for each utility, either as is, or modified in specific ways. The Commission must also review the DHCD Plan, which has one scenario, designed to meet the new statutory goals.

Beyond approving any given plan or scenario, the Commission faces several structural or policy decisions that will affect the shape of EmPOWER over the next cycle. Each decision can be addressed explicitly, or, absent an explicit decision, may be determined through a default, as shown in Table 2.

Table 2 – Summary of Key Policy Decisions

Decision	Options *Default in italics*	OPC Recommendation

[11] The 2012-2023 EmPOWER Maryland Program, *Office of People's Counsel's Comments on the Greenhouse Gas Abatement Potential Study*, ML No. 300687 (CN 9648, December 30, 2022), at 63. 2
[12] Ibid, p. 2.
[13] The 2012-2023 EmPOWER Maryland Program, *Office of People's Counsel's Comments on EmPOWER Goals for the 2024-2026 Program Cycle* (CN 9648, January 27, 2023), at 15.

The type of goal the utilities[14] will be held accountable for during each year of the cycle	• *Annual electricity savings (MWh)* • *Annual gas savings (therms)* • Lifetime GHG savings • Demand reduction & management (MW)	**Phase in GHG goals in 2024 or 2025** **Add Demand goals in 2025**
Whether the gas utilities should continue to offer incentives for gas-burning equipment and appliances	• *Allow incentives for gas appliance in all relevant programs, programs* • Prohibit incentives for gas appliance in all programs or with narrow exceptions • Prohibit gas appliance incentives in some programs (i.e., new construction)	**Prohibit incentives for gas appliance in all residential market rate programs and in commercial & industrial programs with narrow exceptions (where there are no viable electrification alternatives)**
Whether electric utilities should be required to include electrification/fuel-switching incentives and programs under EmPOWER	• *Allow incentives for electrification measures* • Require electrification/fuel-switching incentives	**Allow incentives for heat pumps to continue but do not require utilities to offer incentives for fuel-switching pending decision on cost recovery**
How utilities should recover costs for any electrification/ fuel-switching programs	• Recover all approved electrification costs through the EmPOWER surcharge • Defer any cost recovery decisions	**Defer any cost recovery decisions for electrification pending additional information from MDE and MEA in 2024**
Whether to approve, deny, or modify utility proposals for Performance Incentive Mechanisms	• Approve PIMs as proposed • Deny PIMs while utilities earn on remaining amortization • Modify PIMs to better reflect utility risk	**Modify PIMS to better reflect the risk to utilities, as described below**
Whether to approve utility proposal to begin offering low-income programs,	• Approve • Deny	**Deny utility proposal to offer low-income**

[14] The Commission has already stated that DHCD will use annual electricity savings as its metric for the time-being, consistent with the new statute.

specifically LI multifamily program		**programs that overlap with DHCD offerings**
Whether to approve some utilities request to allow additional non-EmPOWER funded "front-of-meter" savings (beyond the level previously ordered by Commission) to count toward goals	• Approve • *Deny*	**Deny the counting of front-of-meter savings beyond that already allowed by Commission (20%)** **Ensure all non-EmPOWER funded savings are subject to strict application of evaluation standards.**

There are several external factors that may affect a Commission decision about electrification. In a separate proceeding, the Commission determined, at least with regard to BGE, that it prefers to make decisions about behind-the-meter electrification programs outside of a rate case, in a generic or other proceeding, or within EmPOWER, once the Maryland Department of the Environment has finished the statewide CSNA climate plan in December 2023.

Inclusion of electrification programs and measures is closely linked to the adoption of goals, such as GHG reduction, that reward fuel-switching to efficient electrical equipment. The current electricity savings goals do not provide any incentive for electric utilities to pursue fuel-switching, which increases electricity use slightly in order to reduce gas usage. This does not mean that GHG reduction goals could not be adopted now. Each utility has provided the amount of GHG associated with its electricity and gas savings forecasts, calculated using consensus methods from the Commission and Evaluation Advisory Group. As the Commission is aware, the current EmPOWER statute directs the Commission to adopt "a portfolio of mutually reinforcing goals"—beyond electricity savings—starting in 2025 (but does not prohibit their adoption earlier).[15] The Commission has broad authority to determine what programs should be approved and funded through EmPOWER (or in rates) and to assign targets to utilities beyond the statutory minimums.[16] Even if the Commission defers the question of electrification until 2024, it should continue to prepare for a GHG goal for 2025-2026, tracking GHG forecasts and achievement closely.

The development of plans for federal rebate programs that focus on electrification will also not be complete until well into 2024. Those plans must be prepared by the Maryland Energy Administration and submitted to the U.S. Department of Energy.

[15] Public Utilities Article § 7-211(g)(2)(v)

[16] The current EmPOWER statute mandates that the Commission shall require each electric company to obtain "at least" the energy savings referenced in the statute. PUA § 7-211(g)(2)(i).

Analysis of Proposed Plans at Portfolio Level

In its order directing the development of 2024-2026 plans, the Commission stated, "Because it is substantially easier to adjust plans downward than to order that programs be expanded beyond their original design, the utilities should develop and present *ambitious, creative, and forward-thinking plans* for the Commission's consideration."[17] Unfortunately, when taken as a whole the utilities have not risen to this challenge. The plans generally reflect a continuation of program strategies used in the 2021-2023 cycle, even those which failed to achieve savings targets (e.g., HVAC Program). There are a few commendable exceptions, described in the sections below.

With few exceptions—most significantly the inclusion of electrification in the Middle and Maximum scenarios—the scenarios do not vary in level of ambition nor in the program strategies proposed.

The review of the program plans by the Commission evaluation team led by Loper Associates found areas in which program plan assumptions and calculations need to be corrected or otherwise addressed as part of plan approval. These include, but are not limited to:

- Measure life assumptions consistent with Maryland Technical Resource Manual (TRM)
- Complete calculation of peak savings for certain measures
- Consistent and accurate DR cost and savings estimates
- Calculation of non-EmPOWER savings, especially Conservation Voltage Reduction, consistent with standards for attribution and measure lives

Electric Savings Portfolio

Figure 6 shows the residential electricity savings for each electric utility across the scenarios. DCHD has only one proposed scenario.[18]

[17] Order No. 90546, The 2021-2023 EmPOWER Maryland Program (CN 9648, March 20, 2023), at 15-16 (emphasis added).

[18] For simplicity, DHCD's proposed savings are labeled as "2023 BAU" scenario on our figures because their proposed plan would not change regardless of whether the utilities plans were approved at higher levels. However it in no way represents business-as-usual for the agency's programs, which would increase in size several times over.

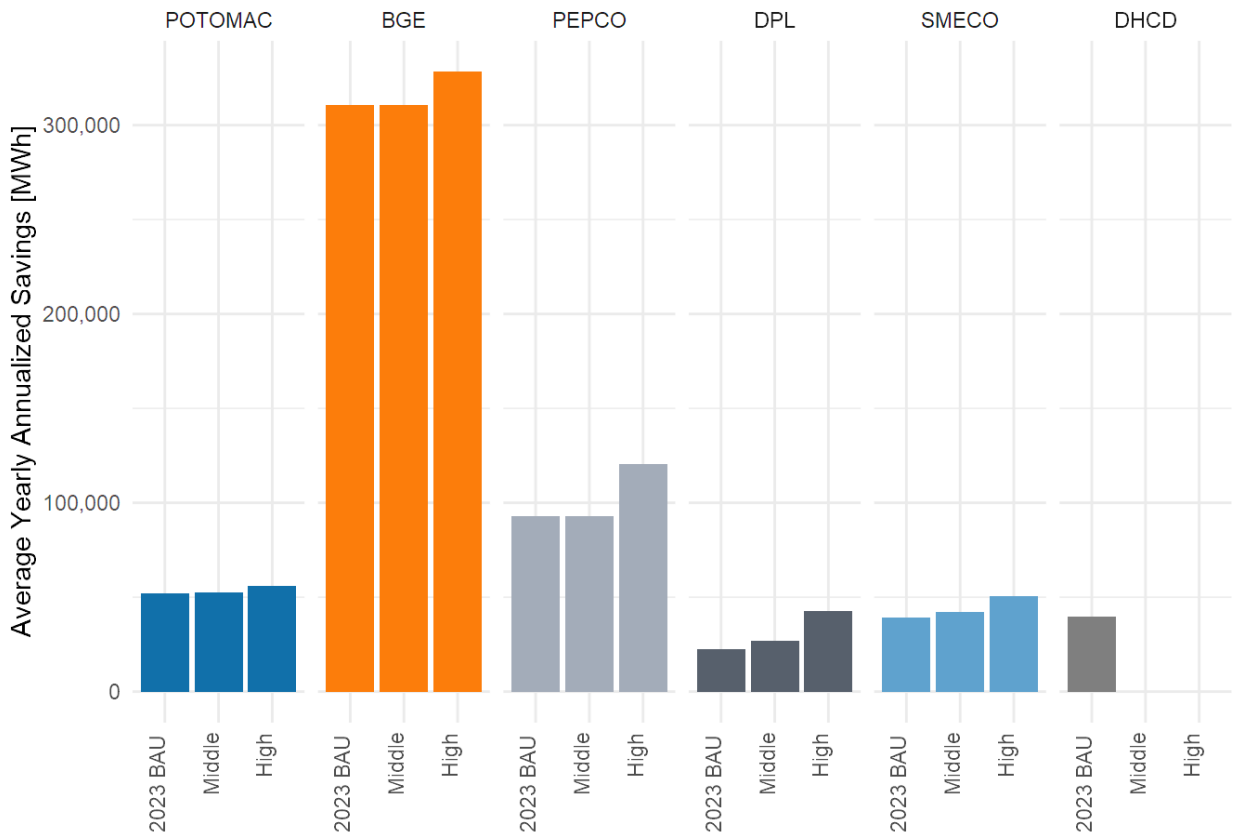


Figure 6 - Residential electrical savings for each scenario, by utility & DHCD

The CSNA targets are 2% of baseline sales in 2024 and 2.25% in 2025 and 2026.[19] To comply with these targets across the cycle, the utilities must achieve an average of 2.17% of baseline sales. Table 3 shows the proposed total electricity savings (residential and non-residential) across the scenarios for each utility as a percentage of baseline (2016) sales.

Table 3 – Total annual electricity savings for each scenario as a proportion of 2016 baseline sales, by utility

Utility	BAU	Middle	Maximum
BGE	2.20%	2.04%	2.15%
DPL	2.26%	2.41%	3.22%
PEPCO	2.19%	1.89%	2.43%
POTOMAC	2.23%	2.30%	2.44%
SMECO	2.25%	2.22%	2.77%

As directed by the Commission, the BAU scenario achieves and exceeds this target for all utilities. The Middle and Maximum scenarios include the same or higher amounts of electrical

[19] PUA § 7-211.

energy efficiency as BAU, but they also include electrification measures which *increase* electricity usage. The increased electricity usage is netted out in Table 3; however, assuming electrification usage is not counted against the savings goals, all scenarios comply with the energy efficiency targets in statute.

Gas Savings Portfolio

As noted above, there are no statutory targets to guide the level of savings ambition for gas savings. Figure 7 shows proposed average annual residential gas savings for each scenario compared to 2022. BGE's scenarios for residential gas savings do not vary at all, thwarting the Commission objective of identifying a choice of savings and cost strategies. Although less ambitious compared to 2022 reported savings, WGL's residential scenarios result varying degrees of savings. Both utilities propose much lower residential gas savings in every scenario than forecasted for 2022.

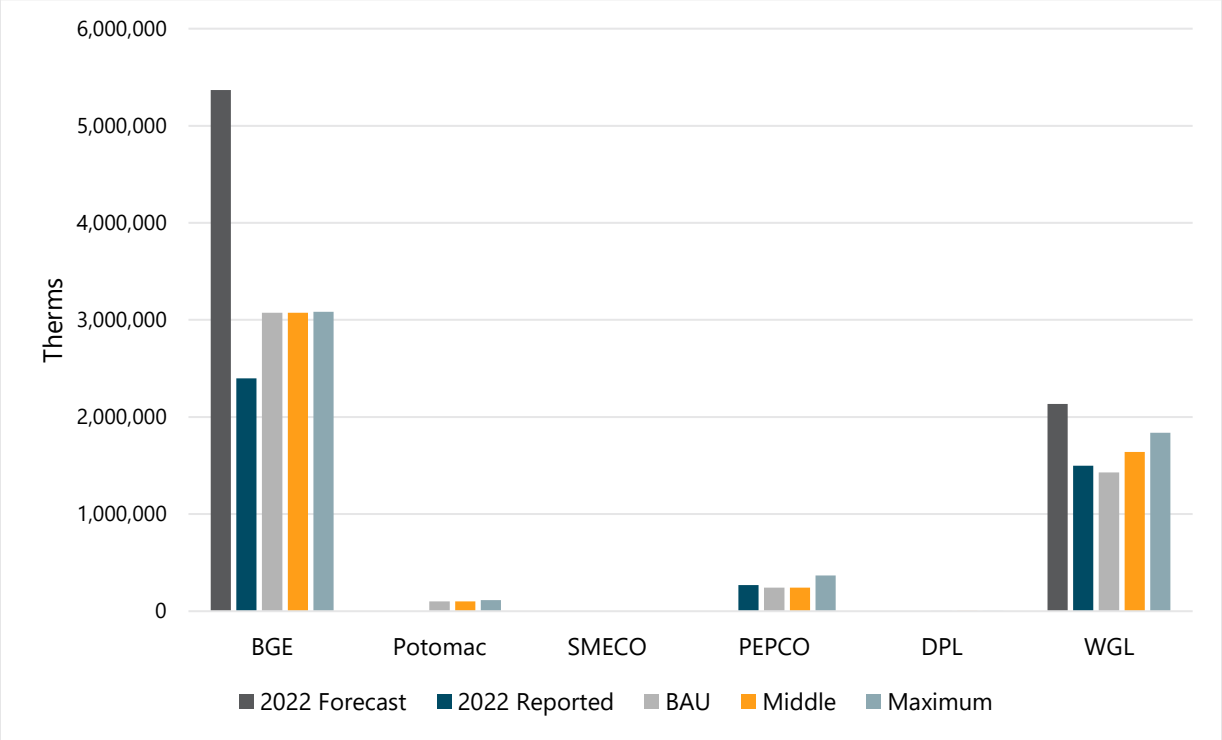


Figure 7 – Average annual residential gas savings for each scenario compared to 2022 Forecasted & Reported, by utility

Currently EmPOWER includes incentives for customers to purchase more efficient natural gas-burning furnaces, water heaters, and other appliances. This equipment effectively "locks in" a home's use of natural gas—with both the associated emissions and dependence on gas utility rates—for 10-20 years. New construction that is highly efficient but built around central gas heating (on top of an electric central air conditioner) makes a home unnecessarily dependent on gas for 30 or more years without costly retrofits. In 2022, Washington Gas states that its new

construction program was its "strongest performing" residential program, with record numbers of new homes receiving EmPOWER incentives to build in efficient use of natural gas.[20]

These program approaches are inconsistent with the need to dramatically reduce building emissions (consistent with 60% reductions across the economy) within the next eight years. While defensible in the past, by 2024 these incentives for gas appliances will also undercut the state's ability to leverage federal IRA funds to support market transformation. Maryland is not alone in struggling to transition from a focus on "more efficient" gas appliances to efficient electrification. Nor will it be alone in ending most gas appliance incentives.[21] The EmPOWER GHG Abatement Potential study, discussed above, also found large opportunities to use energy efficiency to reduce natural gas use through measures that do not require ratepayer subsidies for gas appliances.

Each year Maryland continues to use utility customer funding to provide incentives for installation of gas equipment makes it more difficult and more costly to achieve necessary GHG reductions.

Electrification

The inclusion of building electrification programs and measures in the Middle and Maximum scenarios means these scenarios would result in much higher GHG reductions. Figures 8 and 9 show the total and residential GHG savings under each scenario by utility, respectively.

[20] The 2012-2023 EmPOWER Maryland Program, *Washington Gas' Semi-Annual EmPOWER Maryland Report covering the period of July 1, 2022 through December 31, 2022*, ML No. 301347 (CN 9648, February 15, 2023), at 4 and 12.

[21] The District of Columbia ended all gas appliance incentives through the DC Sustainable Energy Utility in 2022. In 2023, the California Public Utilities Commission ordered a phase-out of gas appliance incentives, starting with new construction.

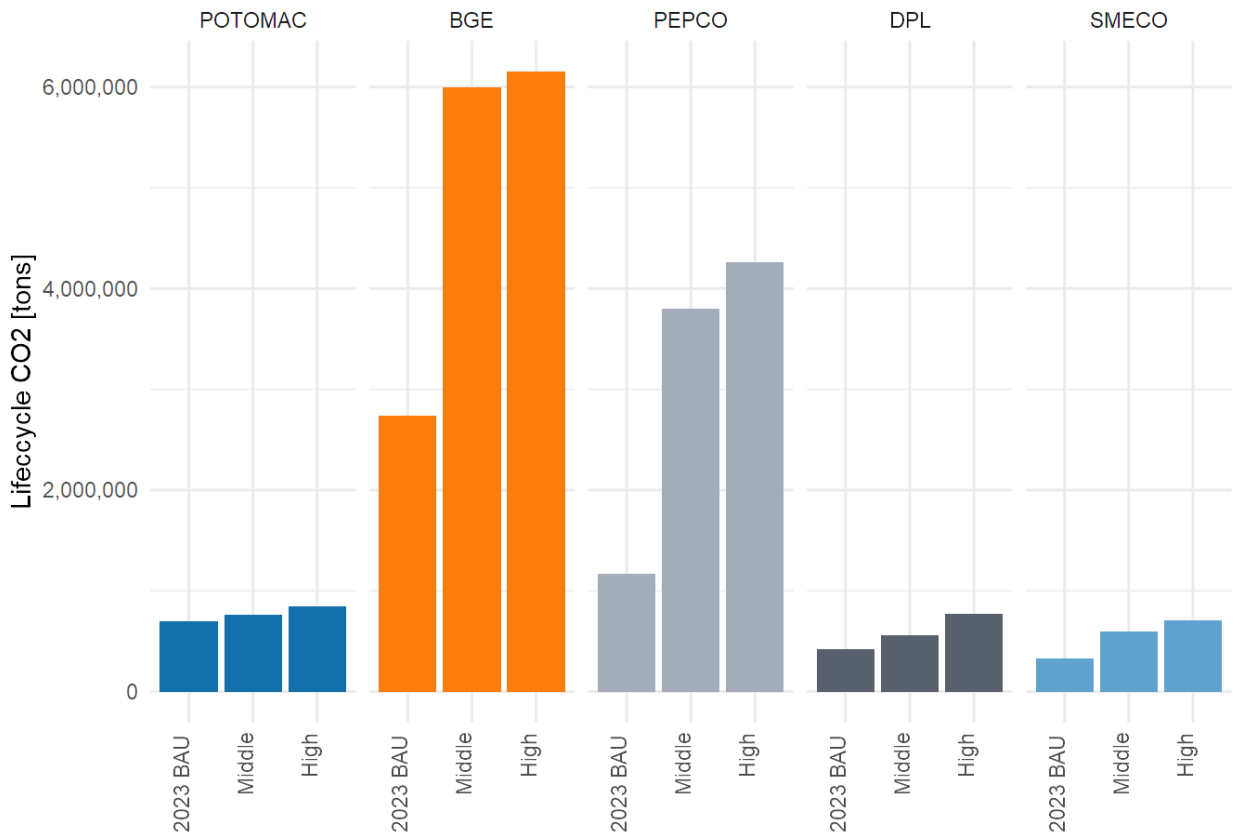


Figure 8 - Total GHG reductions for each scenario, by utility

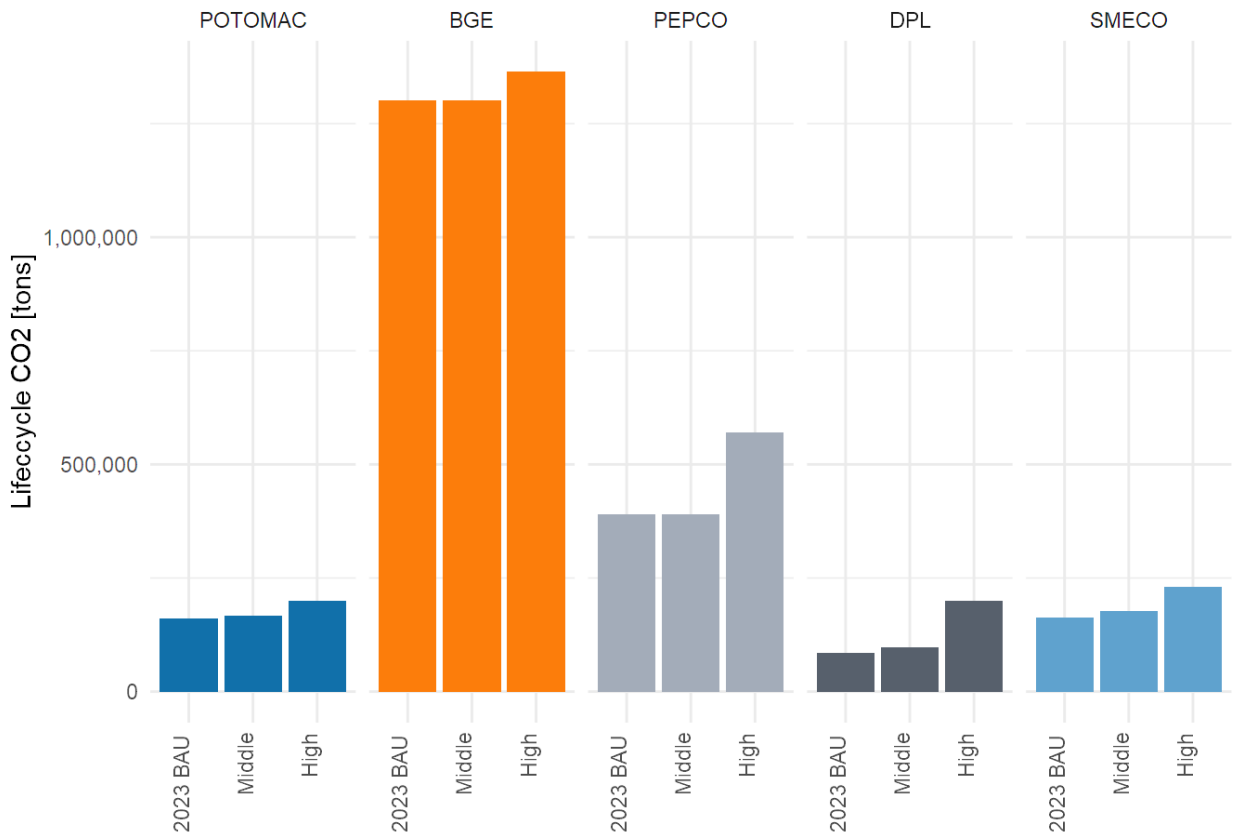


Figure 9 - Residential GHG reductions for each scenario, by utility

Described further in the program sections (namely HVAC and Home Retrofit), the electrification programs described by the utilities vary widely in approach and detail. The Exelon proposal to recover electrification costs through base rates has clouded an understanding of how the programs would actually operate in connection with EmPOWER. Furthermore, each utility has taken a different approach to showing electrification costs and savings in its EmPOWER plans. On one end of the spectrum, BGE has not included any cost information pertaining to electrification; on the other end, Potomac Edison has included separate electrification and energy efficiency data at the program level. The level of detail about program design approaches also varies, but it appears there is significant inconsistency across utilities.

Non-EmPOWER Savings

The electric utilities all continue the practice of including savings from non-EmPOWER funded programs in their proposed achievement of goals. The largest source of non-EmPOWER funded savings proposed is again from the utility side of the meter ("front-of-meter" or "FOM").[22] OPC has consistently stated its position that EmPOWER should be predominantly focused on behind-

[22] Some utilities also count savings from rates, such as dynamic or time-of-use pricing. We have not scrutinized these claims in detail because they do not amount to large savings claims.

the-meter (BTM) savings, which is the primary rationale for EmPOWER itself. Furthermore, because those savings and associated spending are approved or ordered in other cases, such as general rate cases, merely claiming the savings within EmPOWER does not affect real world outcomes—unless it is to displace BTM savings.

In its order directing planning goals for the 2024-2026 cycle, the Commission stated that BTM savings should account for at least 80% of EmPOWER savings (and therefore limited FOM savings to 20%). OPC had argued for 85% and 15% respectively but accepted this policy compromise. A primary concern about a higher degree of non-EmPOWER funded/FOM savings was the risk that those savings would displace needed and beneficial BTM savings for households and other consumers. Indeed, several utilities have proposed that they be allowed to count more FOM savings than the 20% because they deem their proposed BTM savings plans too costly.

Performance Incentives

During the Future Programing Work Group, OPC proposed several principles for a fair and effective performance incentive framework. Since that time the Commission has ordered the utilities to shift to an expensing model of cost-recovery over the course of the 2024-2026 cycle and directed the unamortized balance to be paid down by 2029. These principles should continue to guide the Commission as it considers a performance incentive mechanism (PIM).

The Exelon utilities and Potomac Edison ("electric IOUs") have proposed a similar PIM, which provides an earnings award for achievement at 2-3 levels of achievement of savings goals. Exelon proposes two levels: 95% of goal and 100%+ of goal; Potomac Edison proposes three: 85%, 95%, and 105%+ of goal. The electric IOUs propose the award amount be based on total or net benefits, as measured by the Maryland-specific cost-effectiveness test approved by the Commission. The electric IOUs propose an award be granted at the end of the three-year cycle and Potomac Edison proposes an award also be granted at the end of each year. The electric IOUs propose that they must meet budget targets to receive the full award amount.

Table 3 lists those principles, noting how well the proposals of the electric IOUs comports with each and how it should be modified. Additional analysis and explanation of recommended changes are below.

Table 3 – OPC Principles for performance-based earnings and application to electric IOU proposals

OPC Principles	Our Assessment	Recommended Modification
EmPOWER program administrator(s) earnings should be based on performance toward desired outcomes.	**Good**: earnings based on savings goal achievement and total or net benefits	All utility performance awards should be based on *net* benefits

There should be a limited number of clear metrics associated with EmPOWER earnings. Metrics should be transparent and correlate with the most important program outcomes. At least one metric should relate to maximizing overall benefits, and at least one metric should relate to equitable distribution of benefits.	**Good**: metrics are clear, but lack distributional element	Add a minimum requirement for share of goal from residential savings
Performance targets should be ambitious yet achievable. There should be a relationship between how ambitious the targets are and the level of earnings at stake, and program administrators should be subject to both positive and negative changes in earnings based on performance.	**Needs improvement**: Goal and budget targets are not ambitious; no penalty	Add a penalty for very low goal performance
Total program administrator earnings from EmPOWER should be in line with what peer program administrators in other states earn for running strong programs.	**Needs improvement**: Award + cost recovery earnings high compared to peer states	Award for 100% goal achievement should equivalent to about 3% of program costs
Maryland should build on its strong evaluation and verification structures so that calculations of actual performance for each metric is transparent.	**Very good**: Based on verified savings and existing cost-effectiveness test	None
Any performance-based earnings for utilities in EmPOWER should be consistent with (e.g., not overlap) utility-wide PIMs, should the latter be adopted.	**To be determined**: Depends on whether non-EmPOWER PIMs are adopted	

We agree with the utilities that EmPOWER PIMs can evolve along with changes to goals and policies, and that starting point should be simple, e.g., using electricity savings goals.

Recommendations on PIM Structure

We recommend that all utilities be eligible for a performance award based on *net* benefits. While total benefits is an important metric, it is preferable to incent utilities to maximize net benefits, which they can do by seeking higher total benefits while minimizing total costs, the largest of which is their own expenditures. (The utility proposal appears to use net benefits; this could be clearer, but it is our recommendation in any case.)

To ensure minimum distribution of benefits to residential and commercial/industrial consumers, we also recommend that the any reward by reduced by 50% if any utility does not achieve at least 80% of the forecasted savings for each sector. We view this as an unambitious target but

one that ensures the utilities have a minimal financial incentive to pursue savings in both sectors.

Consistent with OPC's principles, there should be a penalty for performing below a minimally acceptable level of savings, described below.

Appropriate Earnings

Performance targets and earnings should be commensurate with the risk the utilities face in operating programs and achieving results. As a general matter, utilities do not face substantial financial risk here, because costs are recovered on an annual basis (unless there is a finding of imprudence, which would be extremely exceptional).

The utilities all commented in their proposed plan that achieving savings will be more difficult and/or costly because of changes in policy or market conditions, such as the fact that most residential lighting has matured out of the program. Indeed, the utilities regularly emphasize the challenges they face in achieving savings targets. Nonetheless the utilities' track record is clear: electric utilities regularly exceed savings targets and do so below budget. (WGL has not meet savings targets in the last five years, although it does not exceed budgets.) Figure 10 shows the utilities achievement of savings forecasts since 2018, and figure 11 shows actual end-of-year costs compared to budgets.

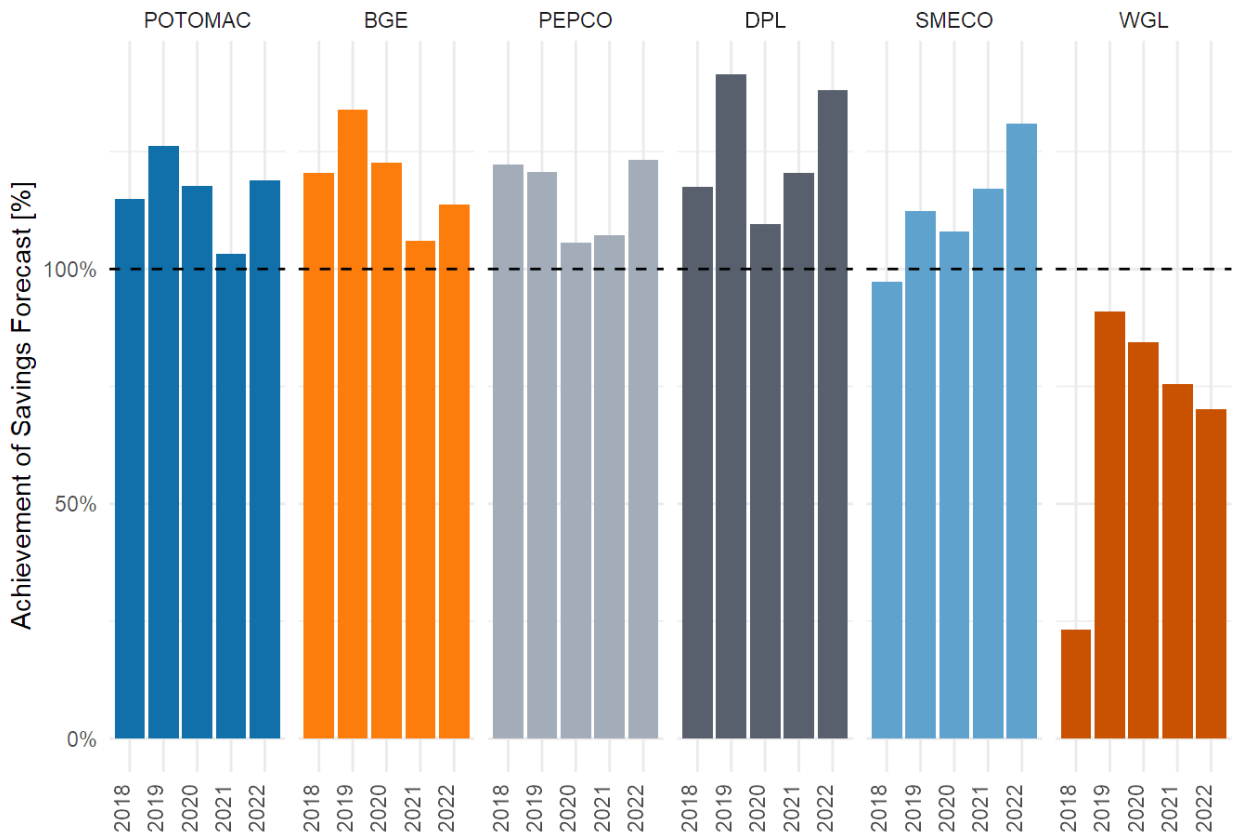


Figure 10 – Reported achievement of forecasted total savings by utility, 2018-2022

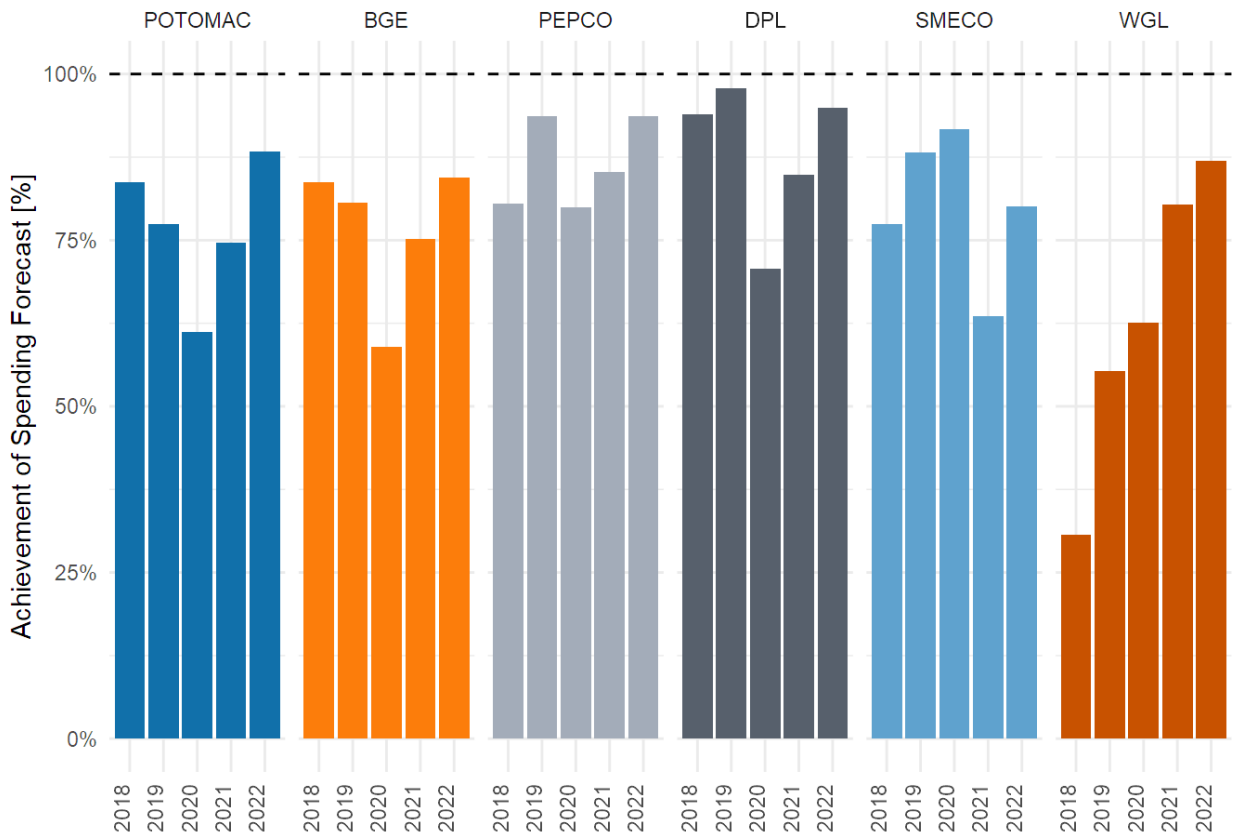


Figure 11 – Reported achievement of forecasted (budgeted) total spending by utility, 2018-2022

These data indicate that achieving 95% or 100% of savings goals has been well within reach historically; exceeding 105% of goal on an annual basis is not unusual. Furthermore, during this period the utilities have always fallen below forecasted budgets, sometimes by a healthy margin. We have no concern with reducing the utility PIM award if budgets are exceeded, but the Commission should not be under the illusion that this creates a significant risk to utilities.

Within the Future Programming Work Group, we conducted a simple benchmarking comparison of annual utility earnings between EmPOWER utilities and peer energy efficiency jurisdictions.[23] We used earnings as a percentage of program costs to compare across jurisdictions of different sizes. In all other peer jurisdictions, non-governmental implementer earnings were tied to program performance. In most cases cost recovery is on an expense basis, combined with a PIM.[24] In such cases, PIM awards range from 3-6% of program costs.

[23] The 2012-2023 EmPOWER Maryland Program, *Future Programming Work Group Report*, ML No. 240203 (CN 9648, April 15, 2022), at 63.

[24] E.g., RI, VT, CT, DC, HI, NH. In a small number of other peer jurisdictions (e.g. NY), costs are amortized and utility PIMs are in the form of an adjustment to return on equity.

Table 5 shows the utilities' proposed awards if they were to achieve 100% of goal, using forecasted budgets and net costs from the utilities' plans. Note that, under its proposal, Potomac Edison would earn 50% more than these amounts if they achieved 105% of their savings goal, something they have done in four of the last five years.

Table 5 – Utility proposed PIM awards, expressed in dollars and as a proportion of proposed program costs and net benefits

	3-year PIM Award, $M (100% of Goal)			Award as % of Program Cost			Award as % of Net Benefits
	2023 BAU	Middle	Max	2023 BAU	Middle	Max	All Scenarios
BGE	$45	$53	$56	4%	4%	4%	10%
Pepco	$76	$79	$108	18%	16%	12%	10%
DPL	$22	$23	$35	16%	15%	11%	10%
Potomac	$16	$18	$9	6%	6%	2%	20%

(Even though Potomac Edison proposes higher earnings relative to net benefits, their proposed earnings is lower relative to their program costs because Potomac Edison has a much lower ration of net benefits to program costs than the other utilities.)

Each of the utilities will continue to earn a rate of return on the portion of 2024-2026 costs which are amortized, in addition to a rate of return on the large unamortized balance (none of which will be based on their performance). This fact should be taken into account when setting reward amounts. Therefore, the proposals from Pepco and DPL are substantially out of line with earnings in peer states by any measure, and the proposals from BGE and Potomac Edison are high when additional earnings are considered. With additional earnings in mind, we therefore recommend that on aggregate utility PIM earnings for achieving their goals should be equivalent to 2.5% of program costs, although we agree with the utilities that the actual award amounts be based on net benefits. Our recommended thresholds and amounts are shown in table 6.

Table 6 – OPC Recommendations for PIM thresholds and awards/penalties

OPC Recommendation for PIM Amounts by Goal Achievement Level				
<65%	**65-85%**	**86-95%**	**96-110%**	**>110%**
Penalty: 1% of program costs	NA	2% of net benefits	3.5% of net benefits	6% of net benefits
		Reward reduced by 50% if the proportion of savings from residential sector is less than 85% of the forecasted proportion		

This approach provides the utilities a fair opportunity for reasonable earnings, in addition to the earnings they will receive from amortization and aligns the utility and consumer interest around maximizing benefits while minimizing costs.

Overall Recommendations

This section summarizes overall recommendations for the EmPOWER program portfolio, including goals, budgets, policy, and administration. The remaining sections contain additional recommendations and analysis at the program level.

1. Approve the Middle scenario for each electric utility, with modifications.

At this time, the Middle scenario represents the right balance between achieving cost-effective savings and managing near-term surcharge costs. The Maximum scenario would provide the largest net benefits to Maryland; however, many of those benefits occur in future years and although the average benefits outweigh average costs, the impacts are not felt equally across ratepayers.

The Commission should make two overall modifications to its approval of the electric portfolios in the Middle scenario:

A. Defer cost-recovery for utility electrification programs pending additional planning from MDE and MEA.

The Commission ruled with regard to BGE that approval of significant new electrification spending should be deferred until MDE completes its CSNA plan. The same logic applies to other utilities. In the coming year, MEA will also need to prepare plans for implementation of electrification rebate programs funded by the IRA. Although the imperative to accelerate building electrification is critical, this creates an opportunity for much-needed co-planning and alignment. Finally, as explored below, the utilities' plans for electrification programs are, as a general matter, not well developed and are inconsistent with each other.

B. Approve Demand Response programs at the Maximum scenario level.

As described further in the Demand Response section, it is critical that Maryland manage peak load to the greatest extent possible, especially as electrification increases and non-dispatchable renewable energy becomes a greater share of generation. The Maximum scenario does not reflect overly ambitious plans, but it should be the starting point. As described in the DR section, the Commission should also direct the development of goals and pilots that will advance peak demand reduction and management.

2. Approve the Maximum Scenario for WGL while prohibiting both gas utilities from offering gas appliance incentives in most cases. Require an amendment to gas savings forecasts.

The achievement of gas savings is critical to Maryland's GHG policy objectives and EmPOWER should capture the greatest amount of cost-effective gas efficiency savings that do not perpetuate use of gas appliances. WGL does not have a history of achieving its savings goals—nor of spending its full approved budgets. The Commission should require WGL to be more aggressive in achieving savings.

The Commission should direct both gas utilities to not offer incentives for residential gas appliances, nor for commercial/industrial appliances unless it can show that no viable electrification alternative exists.[25] It should require both utilities to re-file savings forecasts after substituting gas appliance measures, with additional non-appliance gas measures, using the same budget (Middle for BGE and Maximum for WGL) as long as the portfolio remains cost-effective at the sector level.

3. Approve the DHCD budget and savings proposal.

As described further in the Limited Income program section, DHCD has done an admirable job of preparing plans to ramp-up savings and participation to meet new statutory goals. Although we have some specific recommendations, the overall budget and savings forecasts are reasonable and should be approved.

4. Deny the electric utilities' HVAC program and direct them to re-file a program that includes a single statewide implementer and certain program design changes.

As described further in the HVAC section, the utilities have failed to propose changes to the midstream strategies that are needed to achieve substantially greater penetrations of heat pumps and HPWH consistent with state decarbonization objectives. The Commission should direct the electric utilities to re-file a program plan by July 1, 2024, with improved program design and a single statewide implementer. The Commission should minimize market disruption by allowing the utilities to continue their HVAC program and HPHW measures under current conditions.

[25] The Commission may want to assign to a Work Group a process for determining what constitutes a viable electric alternative for commercial and industrial measures. The California Public Utilities Commission has done this in Rulemaking 13-11-005.

5. Deny the utilities' proposal to launch any program that primarily targets buildings served by DHCD, e.g., multifamily affordable housing program.

OPC has consistently recommended greater coordination between the utilities and DHCD and more recently recommended that the utilities have goals to drive participation in DHCD. We support the utilities proposals to increase promotion of DHCD programs. The utilities and DHCD have previously raised concerns about "competing" for limited income savings (which was in part the grounds for the Commission not adopting any new limited income goals for utilities). However, the utilities' proposal to launch new limited income programs is at odds with this concern. Even more concerning is the market confusion and inefficiency from having the same buildings eligible for largely the same service from two separate program administrators. As described further in the Limited Income section, programs offering broad building retrofit assistance to buildings primarily occupied by limited income households should remain the domain of DHCD, which the utilities can support through referrals and other augmentation.

6. Direct staff to propose electric demand reduction and management goals for EmPOWER programs.

As described further in the Demand Response section, the lack of peak demand management goals is resulting in haphazard and generally unambitious plans on the part of utilities. Peak demand management is needed to support a rapid and cost-effective transition to electrification and renewable generation. Even a transition to GHG goals would not provide sufficient; current limited DR program offerings do not generate direct GHG reductions. New goals are needed to address peak demand in summer and winter, and prompt utilities to evolve their efforts from occasional demand response actions to management of demand as a flexibility resource. Demand reduction and management goals could be EmPOWER-specific or inclusive of other initiatives (e.g., electric vehicle charging).

7. Modify the utilities' PIM proposals as described in the previous section.

See Performance Incentive Mechanism section above for specific recommendations.

8. Direct the utilities to file surcharge impact analysis with the unamortized balance is paid down by 2031.

There are several known or potential drivers for an increase in the surcharge during the next cycle compared to 2023. Those include higher savings targets (especially for low-income households), increased costs to achieve savings (i.e., fewer cheap savings remaining), a transition to expensing, and a pay down of the unamortized balance from previous years of EmPOWER. Some of these the Commission cannot change and others (i.e., transition to expensing) it should not. Although OPC has strongly supported the Commission decision to pay down the balance by 2029, it may want to consider modifying that if needed to manage surcharge increases. We

recommend the utilities be directed to re-file their surcharge impact analysis for a slightly longer pay down period. To the extent the Commission can narrow other parameters (e.g., selecting a specific scenario), we do not expect this to be a laborious or time-consuming update.

9. Deny utilities' request to count additional front-of-meter savings toward EmPOWER goals.

OPC previously recommended that front-of-meter savings be limited to 15% of total savings claims. The Commission decision to allow up to 20% represents an acceptable compromise at this time however it would not be appropriate to amend that decision. This is especially true because the utilities' specifically request that additional non-EmPOWER funded front-of-meter savings be allowed so that they can *reduce* the amount of behind-the-meter customer savings. Aside from this policy question, there are factual questions about whether the utilities proposed savings from Conservation Voltage Regulation (CVR) in the coming cycle can be reasonably and verifiably attributed to utility investments. The Commission's independent evaluator should review those claims closely, and the Commission and utilities should be aware that they will not be able to claim savings that cannot be reasonably and verifiably attributed to programs.

Program-Specific Observations and Recommendations

The following sections provide analysis and recommendations specific to each of the major EmPOWER program areas. Basic descriptions of each program are provided in Appendix ###; each section begins with a summary of the most important observations about the proposed program in the 2024-2026 cycle. The section entitled Limited Income is different—and lengthier—because it includes analysis and recommendations about a suite of related programs designed to serve these households. Because the utilities have proposed a program targeting Limited Income households for the first time (i.e., Multifamily Affordable Housing), that is included.

Appliance Rebate

Summary

Historically, the EmPOWER Appliance Rebate Program has achieved significant savings at reasonable costs. However, as this 2024-2026 triennial period is the first to reflect the absence of a residential lighting program due to increased federal standards, there is increased pressure to scale the Appliance Rebate program. The next cycle presents an opportunity to build on the strengths and improve the weaknesses of the program and better reflect the market needs and scale to achieve program goals.

The ESRPP is an example of a successful maturation of appliance program design and process efficiency, capturing all eligible efficient appliance sales, streamlined delivery of midstream incentives and robust collaborative partnership with retailers. However, it has become clear that EmPOWER utilities' fragmented program design and delivery of heat pump water heater incentives needs a significant reset to achieve the triennial goals and better align with the market. Instead of proposing needed improvements to processes for delivering instant, point of sale rebates for HPWHs with participating retailers and distributors, EmPOWER utilities are planning to revert backwards in the program design to offer alternative downstream rebates to contractors. Downstream rebates typically are utilized to address gaps in the market, notably to identify income eligibility or limitations for smaller retailers to process incentives and efficiently report program data – not as a crutch for what has proven to be an inefficient and ineffective midstream program design.

Scenarios & Level of Ambition:

EmPOWER utilities are generally planning for consistency in transitioning current programs to the next triennial period, though generally with an increase in incentives and marketing to achieve higher participation and savings, especially for the middle and maximum projection models. BGE is transitioning its separate smart thermostat program into the appliance program without any specific reasoning. A concern is that like HPWHs, BGE will shift from developing strategic and specific goals and objectives for increasing adoption of smart

thermostats, to simply treating them as another measure in a program dominated by the ESRPP. For example, approximately 40% of BGE's appliance rebate savings are now attributable to the forecasted 50,000 energy savings kits planned for in the 2023 BAU scenario.[26]

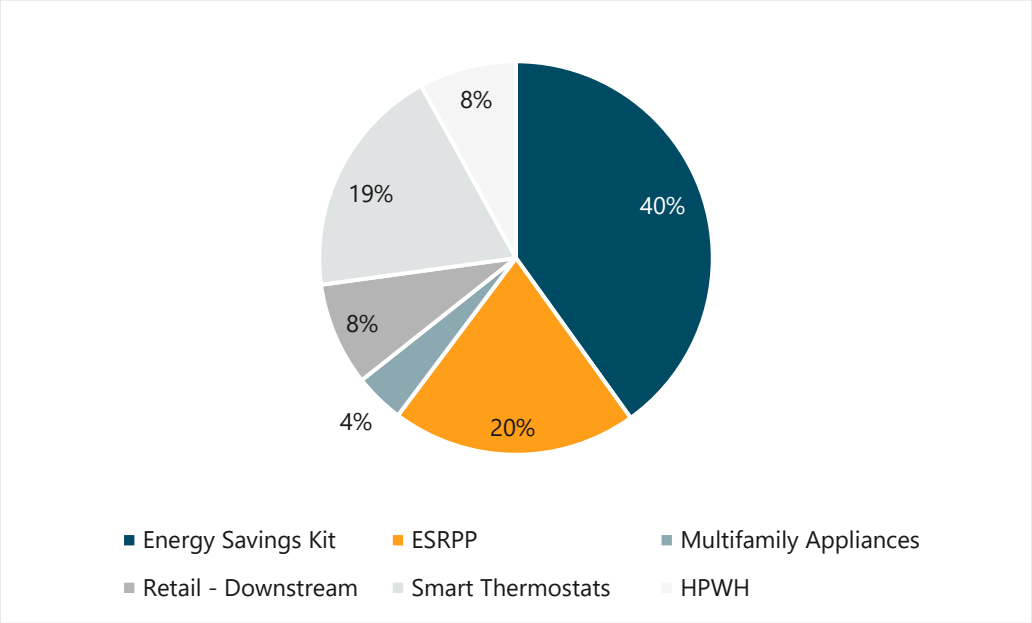


Figure 12 – Program and subprogram sources of appliance electricity savings

One notable innovation by BGE and other EmPOWER utilities is to offer downstream appliance rebates targeted at multifamily buildings. However, there is very little detail regarding this new opportunity area and the utilities' path to market. In regard to this new offering and others, EmPOWER utilities highlighted the need, especially for achieving Medium and Maximum scenario model participation, for additional flexibility to "augment delivery channels and measures" during the triennial period. Other changes include the proposal by Potomac Edison for adding downstream rebates for non-ESRPP retailers.

EmPOWER utilities' plans for expanding eligible appliance measures to include electrification rebates targeted at electric heat pump clothes dryers, induction cooktops and ranges, as well as wiring upgrades to address electric panel constraints and costs for electrification of appliances. Although this begins to align the program with the forthcoming IRA rebates, the absence of any related market strategy to overcome barriers to adoption raise some significant questions about the EmPOWER electrification plans moving forward.

As shown in figure 13, most EmPOWER utilities propose modest increases in annual program savings for the middle and maximum scenarios, but it is only SMECO that shows clear progression from the 2023 BAU (baseline), middle and high scenarios.

[26] This estimate assumes that the 7,500 midstream HPWHs forecasted in BGE's filed plan is an error and is more realistically assumed to be 75 units based on the 39 units reported in 2022.

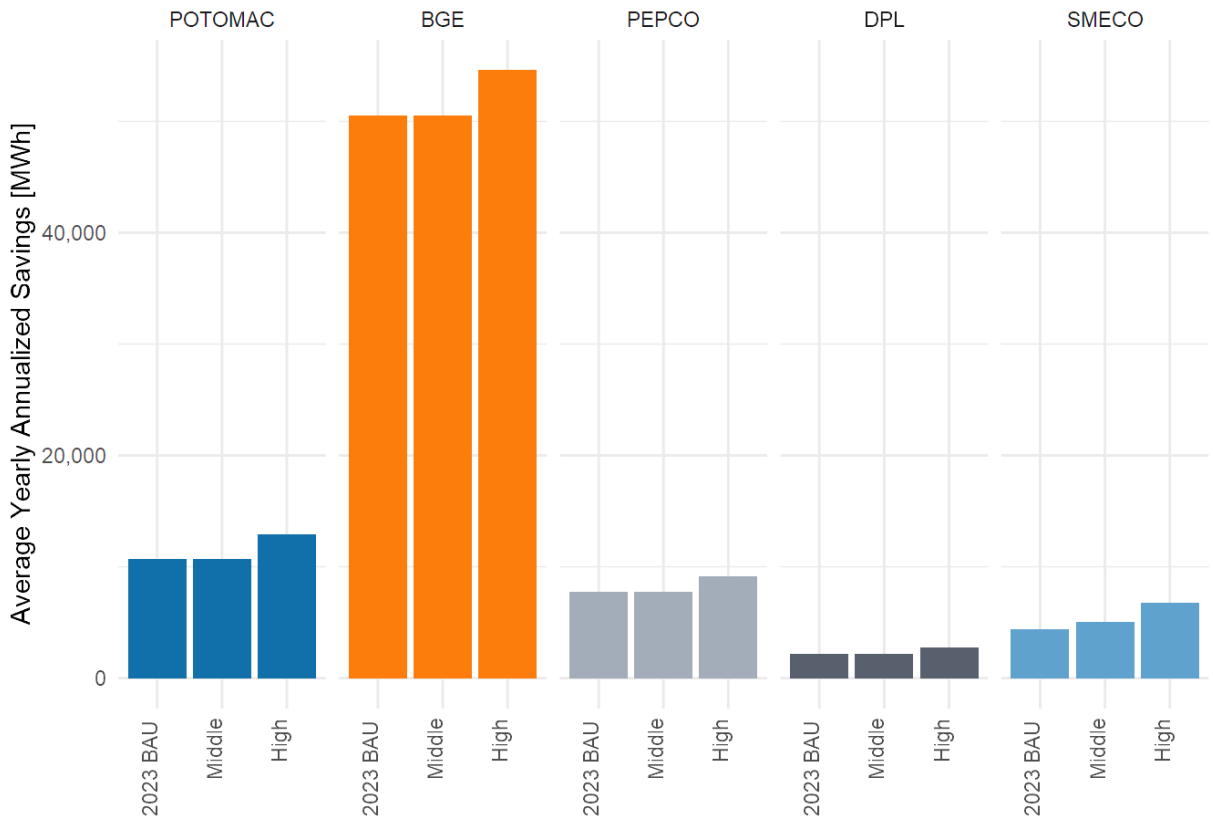


Figure 13 - Average annualized Appliance Rebate electricity savings for each scenario by utility

As noted in previous Semi-Annual comments, and above, the EmPOWER utilities' efforts with heat pump water heaters (HPWH) – a significant opportunity for savings – continues to be of particular concern in failing to capture any substantive market share of the Maryland water heater market. As part of the Midstream Work Group in 2022 and continued discussions in 2023, a benchmarking study was completed highlighting an inconsistent set of rebates and processes being offered between utilities, as well as identifying successful market strategies in other peer states. Specifically, EmPOWER utilities desperately need a HPWH strategy to dramatically increase participation as a percentage of electric water heater replacements – and with electrification – gas water heaters as well.

Based on a comparison of 2022 annual and PY1-Middle HPWH participation, the EmPOWER utilities have generally set more ambitious targets for downstream (retailer) rebates compared to midstream rebates. Assumed errors in BGE's midstream data (increase of nearly 20,000%) and missing measure level data from Potomac Edison, creates gaps in assessing planned growth. However, even these goals lag other states with more coordinated program delivery.

Table 7 - Appliance participation data in select programs for each year in the Middle scenario by utility

Utility	Program Name	Participation				
		2022 Q4 Reported	2024 Middle Forecast	% Increase	2025 Middle Forecast	2026 Middle Forecast
BGE	Appliance - Midstream	39	7,500	19,231%	10,000	10,000
	Appliance - Downstream	249	1,100	442%	1,250	1,250
	Efficiency for Affordable Housing		300		600	600
	Electrification		808		3,497	6,681
DPL	Appliance - Midstream	43	35	81%	10,000	10,000
	Appliance - Downstream	41	80	195%	1,250	1,250
	Efficiency for Affordable Housing		133		600	600
	Electrification		15		3,497	6,681
Pepco	Appliance - Midstream	0	400	286%	600	600
	Appliance - Downstream	140				
	Efficiency for Affordable Housing		233		700	700
	Electrification		364		1,576	3,011
Potomac	Appliance - Midstream	3	26	867%	30	30
	Appliance - Downstream	339	728	215%	835	835
	Efficiency for Affordable Housing					
	Electrification					
SMECO	Appliance - Midstream	24	60	250%	60	60
	Appliance - Downstream	44	77	175%	85	100
	Efficiency for Affordable Housing		75		80	90
	Electrification		26		98	173

Analysis of Best Practices:

Based on a 2022 report[27], nationally 45% of residential electric water heaters are purchased through distributors (e.g., by contractors who purchase them from the distributor to install for end-use customers) and 55% through retailers.[28] The continued underperformance of the HPWH midstream distributor program is highlighted by the fact that only Delmarva and SMECO reported midstream participation of more than 10 units in the second half of 2022. Notably BGE had a significant drop in participation in both retail and distributor promotions. Across the EmPOWER utilities, midstream distributor program participation was less than one-fifth of its retail program, despite distributor sales nearly doubling from the first half of the year. Figure 12 and Table 5 below shows the breakdown of HPWH participation by market channel, as well as estimated market share as a percentage of naturally occurring electric water heater replacements. (Market share of all water heater replacements would be far lower still.) Of the five EmPOWER electric utilities, only Potomac Edison (3.1%) exceeded 2% HPWH sales as a

[27] 2022-03 Preliminary Analysis Technical Support Document: Energy Efficiency Program For Consumer Products And Commercial And Industrial Equipment: Consumer Water Heaters, Department of Energy, March 2022. https://www.regulations.gov/document/EERE-2017-BT-STD-0019-0018

[28] The rest are purchased through retail stores (either by contractors or by the customers themselves).

percentage of naturally occurring electric water heater replacements. Other states - notably Vermont and Maine – have reported greater than 60% market share.[29,30]

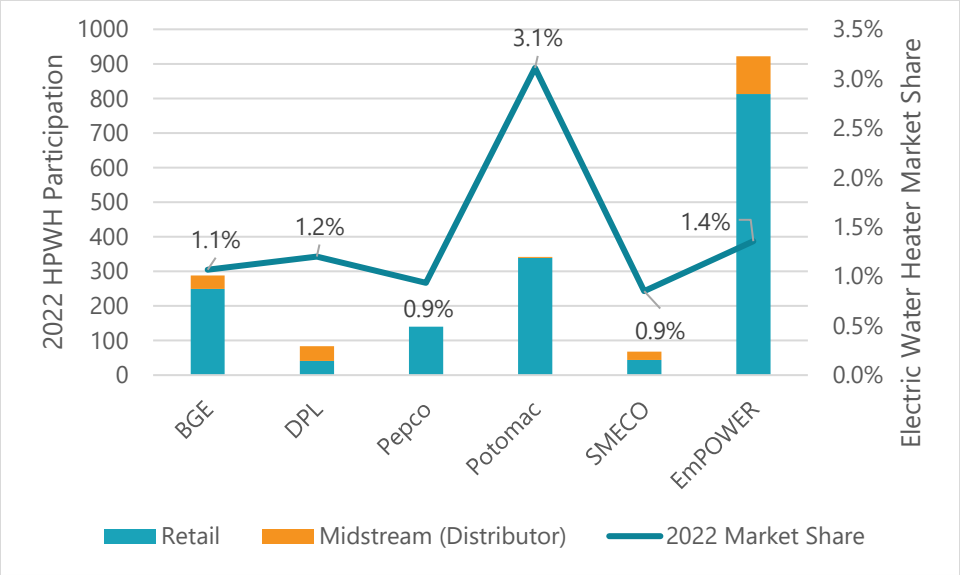


Figure #: HPWH participation by channel, and estimated HPWH market share

Assuming an average useful life of 13 years for a water heater, an estimated 68,000 electric water heaters and 106,000 gas water heaters are naturally replaced every year due to failure. The EmPOWER Residential Baseline Study estimates that 30% of all residential households have a water heater that is at least 13 years old, ideal candidates for either early replacement. In 2022, the EmPOWER program incentivized 922 HPWHs through retailer and distributor sales – reflecting approximately 1.4% of the electric water heaters or 0.5% of gas and electric. Low to moderate income households are likely underrepresented in program participation considering the higher incremental cost and increased complexity for the installation and conversion to a HPWH, it is likely that this program participation mainly captures proactive replacements (before failure).

Other leading states, notably Maine and Vermont, offer an instant, point of sale rebate with participating distributors, eliminating the potential for breakage (lost sales) and increased reporting and rebate fulfillment delays, while still capturing robust datasets to support program evaluation. In addition, Efficiency Maine actively targets and reports the "best" customer pricing for HPWHs through participating retailer and distributors. This is in comparison to EmPOWER utilities' midstream distributor promotions which do not share rebate levels or pricing with

[29]https://www.energystar.gov/sites/default/files/asset/document/2019.09.11%20Booher%20ESPPM%20HPWH%20Market%20Mechanics%20Revealed_Final%20%28002%29.pdf, p.11.

30 https://www.energystar.gov/sites/default/files/asset/document/3.%20Andy%20Meyer%20-%20Efficiency%20Maine%20-%20Sucessful%20Strategies%20for%20Going%20Midstream-%20HPWH%20-%20508%20Compliant.pdf, p. 10.

customers and allow distributors – and contractors – relative discretion to determine how much of the program incentives are passed on to customers.

States with significantly higher saturation of gas water heaters, like California, have invested in innovation and piloting new strategies and technologies for achieving higher rates of electrification of residential households. The recent market introduction of a 120 volt plug-in HPWH is an important example for reducing the cost, time and complexity of converting gas water heaters to HPWHs. The EPA ENERGY STAR water heater specification[31] was recently updated to support 120V plug-in and split HPWHs and allows for greater design flexibility to match the diversity of water heater needs in Maryland homes.

New packaged window heat pumps are another new technology that offers a potential DIY installation that expands access to more affordable electrification solutions to single and multifamily buildings. Utilities should evaluate this and other new technology solutions that allow individual homeowners, renters and property managers to select the best and most affordable heat pump space conditioning solution for their building.

Recommendations

Several of the following recommendations have been previously recommended to the utilities either through previous Semi-Annual comments for program filings or during stakeholder meetings. However, to achieve not only the Middle scenario goals, but even the BAU scenario, significant changes are needed to minimize the complexity for customers and contractors to participate in EmPOWER programs. Recommendations for heat pump water heaters are found largely in the HVAC/Midstream section.

1. **The Commission should order the utilities to re-file its midstream program plan, as described in the HVAC section, including HPWH.**

[31] ENERGY STAR Version 5.0 Water Heaters Final Specification

Appliance Recycling

Summary

Permanently removing used, inefficient appliances provides immediate energy savings to residential households, but also has an additional GHG impact in the proper recapture of refrigerants and insulating foam. EmPOWER utilities are proposing several new program strategies in the 2024-2026 program period including reporting of GHG impacts, as well as expanding the program participants to include small businesses, partnerships with larger retailers and second-hand retailers, and enhanced incentives for lower income customers.

Scenarios & Level of Ambition

EmPOWER utilities forecasted significantly different increased rates of participation based on a comparison of 2022 reported participation against that of the three scenario models. Potomac Edison and SMECO forecasted the most significant gains in participation at both the Middle and Maximum scenarios. Although BGE forecasted a 36% higher level of participation for the BAU scenario over 2022 *reported* values, BGE was approximately 50% below the original forecasted participation for 2022. BGE is the only utility to propose nearly the same participation rates across all the scenarios.

The forecasts for BGE, Pepco and Delmarva are surprisingly low considering the various new various recycling channels and increased incentives proposed in the program filings. Absent any significant disruptions to the supply chain or economy, programs should strive for a minimum of 50% increase of participation over the 2022 program year for the Middle scenario.

Table 8: Forecasted Appliance Recycling program participation for each scenario vs. 2022 Reported by utility

	2022 Reported	BAU	Increase 2022 to BAU (%)	Middle	Increase 2022 to Middle (%)	Maximum	Increase 2022 to Maximum (%)
BGE	6272	8537	36%	8537	36%	8625	38%
Potomac	2690	3547	32%	4035	50%	4828	79%
SMECO	1612	2050	27%	2850	77%	2850	77%
PEPCO	2473	2904	17%	2904	17%	3194	29%
DPL	871	1012	16%	1054	21%	1165	34%

Analysis of Best Practices:

Appliance recycling is traditionally relatively consistent nationally, largely utilizing a single firm with recycling infrastructure to support programs. However, examples of innovation, including BGE's midstream recycling pilot and other utilities' planned expansion to include small

businesses and second-hand retailers, position EmPOWER to be a leader in recycling program design. However, the extended gap between the timing of a pilot and future scaled program adoption by EmPOWER utilities is a major barrier to maximizing the potential gains. To achieve the aggressive goals set out in the EmPOWER filings for Appliance Recycling, utilities must work with evaluators and program implementers to accelerate and support scaling of new program innovations and create greater alignment in program delivery.

Recommendations:

1. **Utilities should achieve a minimum of 50% increase of participation over the 2022 program year within the Middle scenario, requiring more ambitious targets for Pepco and DPL especially.** Increased diversity of targeted participants, partnerships and channels should make this a realistic, achievable goal for all EmPOWER utilities.

2. **Utilities should offer consistent enhanced EmPOWER incentives to limited income households, especially those customers who are eligible for no cost appliance upgrades through DCHD.** Leveraging cross-program promotions and incentives can increase the savings and financial impact of the DCHD and Appliance Recycling programs.

Home Retrofit

Summary

The basic program design and strategies proposed by the utilities for home retrofit are largely unchanged from the current cycle. However, several utilities propose to substantially increase energy savings compared to 2022 in the BAU scenario, with some additional savings in the Maximum scenario. This is accomplished in part with higher incentives and higher average savings per project in the Home Performance subprogram. Several utilities propose to add new higher incentives for moderate income customers, although questions remain about how incomes will be verified. Although some utilities state that any new electrification measures will be incorporated into existing retrofit programs, this is not clear or consistent across utilities.

Scenarios & Level of Ambition

Figure 14 shows the proposed electricity savings from home retrofit programs by utility for each of the three scenarios compared to 2022 reported results (which are tripled to be comparable to 2024-2026 totals.) Each utility proposes significant increases, led by BGE which proposes 80% higher savings under BAU and 95% higher savings under the Maximum scenario.

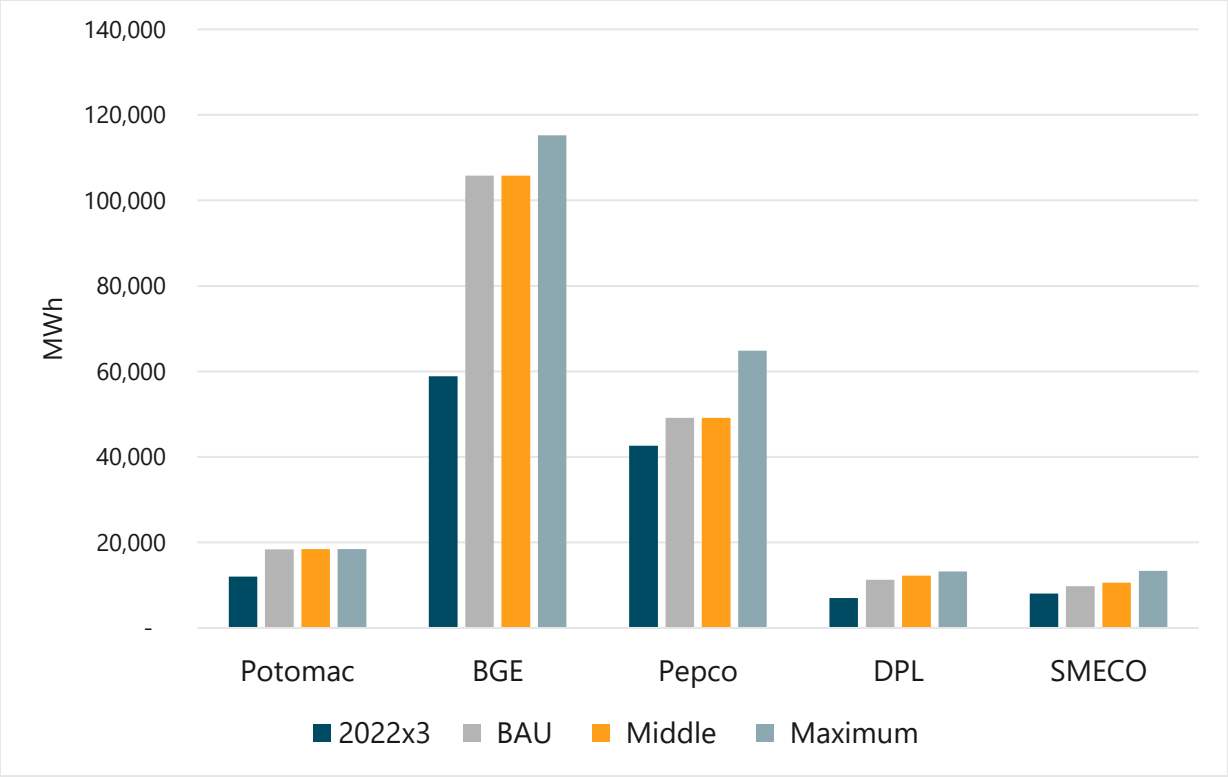


Figure 14 - Three-year electricity savings for home retrofit programs by utility and scenario, compared to 2022 reported savings (scaled for comparison).

There are few differences in electricity savings between BAU and Middle; DPL and SMECO propose 8-9% higher savings. Pepco proposes more incremental increases under BAU (15%) but a larger increase (32%) from the Middle scenario to Maximum. SMECO is the only utility to

propose meaningful increases across all scenarios. In contrast, Potomac Edison's three scenarios are nearly identical, although each is about 50% higher than 2022.

These differences reflect, in part, a utility-specific calculus about savings opportunities for the housing stock in each territory and the manner in which home retrofit programs are seen as a strategy to make up for missing lighting savings.

Looking to gas savings, BGE similarly proposes to approximately double the savings achieved in 2022 under the BAU scenario, with little remaining changes across the scenarios. In contrast, WGL proposes to achieve only nearly as much savings under BAU as the utility achieved in 2022; it proposes to increase gas savings substantially only under the Maximum scenario. Home Retrofit gas savings are show in figure 15.

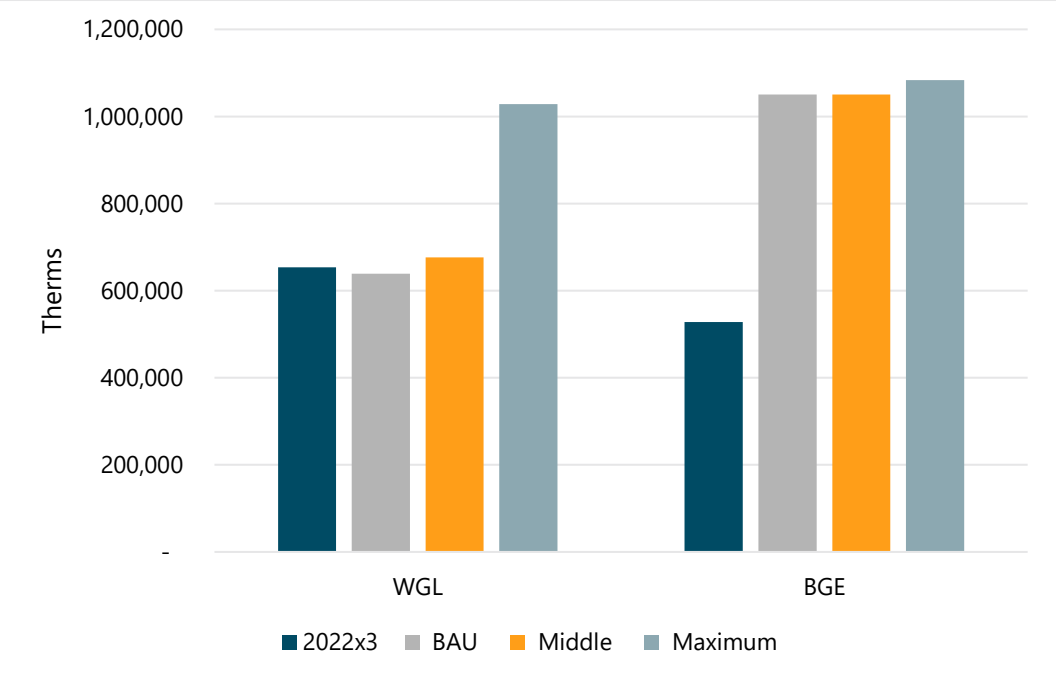


Figure 15: Three-year gas savings for home retrofit programs by utility and scenario, compared to 2022 reported savings (scaled for comparison).

The gas utilities propose to continue providing incentives for gas appliances and some of the annual savings they forecast would come from those appliances. If, as strongly recommended, the gas utilities are directed not to offer incentives for gas-burning appliances, both costs and savings would be less than forecasted. However, the EmPOWER GHG Abatement Study suggests there are substantial non-appliance gas savings opportunities (even beyond fuel-switching) and the gas utilities could be directed to make up some of the "shortfall" from removing gas appliances with greater non-appliance savings.

Analysis of Best Practices:

As a general matter, the design of QHEC, HEIP and Home Performance programs reflect good program practices. The basic design and strategies proposed for the home retrofit programs is largely unchanged from the current cycle, with the exception of the proposal to include a higher incentive tier for moderate income households.

In principle, providing higher incentives for moderate income households than upper income households is a natural extension of doing so for lower income households. However, it comes with a similar challenge: finding and qualifying households. Utilities do not currently seek or collect income information for EmPOWER programs, and doing so creates a barrier and administrative burden that can outweigh the incremental benefit of offering moderate-income incentives. In response to OPC Data Request No. 1, utilities recognize this option is least desirable.

Another option is referral from DHCD for households that do not qualify for limited-income programs. If moderate income incentives are available, then certainly DHCD should be prepared to refer households that do not meet their income thresholds back to the utilities. However it is unlikely that this strategy would result in substantial numbers of households unless DHCD was to expand its outreach to target moderate-income households, which we do not recommend.

The final option presented by utilities is to target census tracts that are likely to include moderate-income households and qualify all residents categorically. This option alleviates the need to verify income information from individual households. The utilities suggest that households could self-identify their income level, so that lower-income households could be referred to DHCD. (It is not clear if they propose that self-identifying upper income households would be ineligible for the higher incentives.) A primary challenge with this approach is fairness: presumably many moderate-income households would not live in a census tract targeted by utilities. Furthermore higher-income households may live in targeted LMI census tracts. Given the very generous incentives proposed, self-certification may not be sufficient to ensure that upper-income households do not receive them.

As described earlier in these comments, utilities should not provide incentives for customers to install new gas appliances, including as part of a Home Performance project. A comprehensive home retrofit project is the ideal time to promote efficient heat pumps because they can be paired with ancillary changes, such as duct-sealing or wiring, and bundled with other energy efficiency measures to minimize system capacity and improve bill savings. Some customers may still elect to install gas appliances, but OPC is opposed to using rate payer incentives to support that.

The most important strategies for home retrofit programs are ensuring ease of participation, providing multiple options for customers to achieve the home improvements that meet their needs at the time, and nudging them up the "chain" of comprehensiveness.

Increasing ease of participation is an ongoing process that involves streamlining procedures, expanding the contractor/technician network, and ensuring those contractors and technicians are well trained. The utilities likely recognize that these strategies will be essential for reaching more ambitious targets.

Providing multiple options should include a high degree of integration across programs. If a QHEC technician sees an appliance that might be suitable for recycling, they should cross promote that program, for example. QHEC visits are an excellent opportunity to promote participation in BYOD DR programs. (The reverse is true as well; customer enrollment in a DR program should prompt the utility to offer a QHEC visit, if appropriate.)

Advancing customers toward more comprehensive home improvements also requires multiple strategies. One key tactic is multi-pronged customer outreach; no single element of communication will work. The follow-up on a QHEC visit is critical, and we are generally supportive of utilities offering a second QHEC visit to a household after a certain number of years, because this increases the chance for the customer to elect additional efficiency improvements.

It is important that electrification programs or measures, whether funded under IRA or EmPOWER or otherwise, are sufficiently integrated for customers so they can pursue energy efficiency and electrification in a streamlined fashion. OPC and other stakeholders strongly recommended that the utilities include an electrification readiness assessment as part of QHEC visits. SMECO and Potomac Edison agreed with this approach. The Exelon utilities agreed that education about electrification was appropriate but cautioned that QHEC technicians might not be qualified to assess things like electrical panel capacity. This is not the correct response. If electrification is to be incorporated into EmPOWER in a seamless way, then pre-existing program infrastructure should be leveraged to the greatest extent possible. Basic information about panel capacity is a fundamental piece of data that informs how customers and utilities might approach electrification. Uncertainty about panel capacity creates a significant barrier, and it is needlessly more difficult, inefficient and expensive to rely on a separate visit to gather that data. QHEC technicians do not have to be licensed electricians to make note of basic data, and they should be trained to do so. The use of ratepayer funds should be maximized, and the process should be made as convenient as possible for customers. Multiple trips to customers' properties should be avoided, when possible.

Recommendations

1. **The Commission should approve the Middle scenario for each of the electric utilities and the Maximum scenario for WGL.**

2. **The Commission should direct all gas utilities to exclude gas appliance measures from home retrofit programs. They should file amended savings forecasts that exclude appliance measures and replace them with additional non-appliance measures, up to the budgets proposed for the approved scenario.**

3. **The Commission should direct the utilities to file supplemental information about how the moderate-income incentive offer would be implemented, addressing interaction with DHCD and specific approaches to manage fairness.**

HVAC

Summary

During the 2024-2026 program period EmPOWER utilities are proposing to maintain their existing underperforming midstream program delivery design, which fails to offer instant, point-of-sale incentives to contractors; requires a post-install contractor data submittal process; and does not require 100% pass-through or visibility of incentives to customers. Despite a multi-year Midstream Work Group focused on improving the EmPOWER midstream program alignment and performance and eliminating the market barriers imposed by utility-specific program requirements, processes and incentives, the EmPOWER utilities filed programs plans that will maintain business as usual in Maryland. This would fail to support homeowners in transitioning to higher efficiency heat pump HVAC systems—and to efficient heat pump water heaters also sold through distributors. It appears that most air source heat pumps sold by Maryland distributors do not even receive an EmPOWER incentive, because contractors or distributors are unable or unwilling to participate effectively in the program. Throughout the last two years we have been persistently frustrated by a lack of consensus and transparency across the five utilities and their multiple implementers. We therefore recommend that the Commission does not approve the HVAC program and directs the utilities to re-file a plan, as described below.

Scenarios & Level of Ambition:

A comparison of the filed HVAC program scenarios benchmarked against 2022 program results, highlights inconsistencies between utilities in the level of aggressiveness of participation and savings goals and corresponding scaling of program costs to achieve them. BGE noted in its filing a "significant" expansion of savings over historic participation with increased incentives and program activities, but a comparison of the 2022 results to 2024 forecasts in the Middle scenario (Table) highlights the disconnect of the growth of the program cost (220%) to the growth in participation and savings (~38%). Other EmPOWER utilities show different, but equally substantial disconnects between these key program performance metrics and warrant further explanation by the utilities of the proposed program changes and basis for the forecasts and costs.

Table 10 - Forecasted 2024 metrics under the Middle scenario and comparison to 2022 reported results, by utility

	Middle Scenario			Comparison to 2022 Reported		
	MWh Savings	Cost	Participants	Change in MWh savings	Change in Costs	Change in Participation
BGE	6,461	$11,895,947	10,092	38%	220%	37%
Potomac	1,848	$6,401,935	8,407	13%	424%	45%
SMECO	1,690	$1,764,210	1,484	15%	48%	15%

PEPCO	3,993	$1,475,875	12,615	103%	-24%	530%
DPL	2,590	$886,237	8,269	247%	10%	3093%

On the surface, the forecasts of increased savings from Pepco and DPL look impressive. However, these utilities achieved less than 75% and 50%, respectively, of forecasted savings in 2022. Potomac Edison and BGE performed no better compared to their own forecasts (although SMECO came close in 2022). The utilities' HVAC programs have failed to meet savings forecast for several years; we would be no more optimistic that they could meet them in the next cycle, except for the fact all utilities except SMECO have proposed lower savings in their scenarios than they forecast for 2021-2023, as shown in Figure 16. This trend is in the wrong direction considering the state's building decarbonization objectives and the importance of HVAC programs toward those goals. Instead of responding with more significant changes to program design, the utilities have responded by lowering the bar.

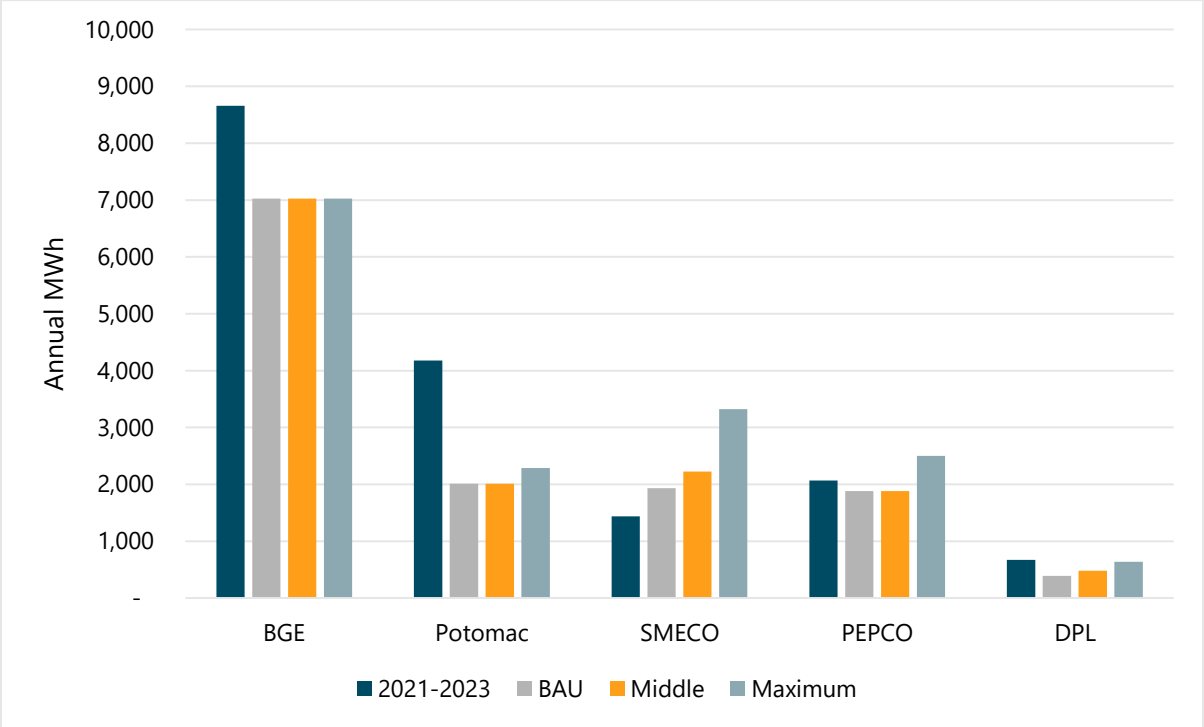


Figure 16 - Forecasted average annual HVAC program savings for each scenario compared to 2021-2023

Maryland must dramatically accelerate the installation of heat pumps for water heating and space heating and cooling in order to meet state climate policy objectives. Current programs appear to be reaching less than 1% of the market (i.e. sales of water heaters and HVAC systems). The recommended target in the Maryland Building Energy Transition Plan, based on comprehensive building decarbonization modeling, is for heat pumps to represent 50% of sales

by 2025 and 95% by 2030.[32] As described in previous comments, a limited number of other jurisdictions (e.g. Maine) are exceeding 60% penetrations with heat pump technology. As a general matter, the utilities have not shown interest or willingness to adopt or plan for the program strategies we have recommended based on that experience.

Analysis of Best Practices:

BGE and SMECO are planning to nearly double or triple ASHP incentives to drive a modest growth in participation in their HVAC programs, while PEPCO and DPL have made extremely limited increases in incentives yet anticipating massive growth in program participation. Despite ultimately achieving some level of alignment of incentives by the end of the last triennial period, the incentives filed for the 2024-2026 period highlight the continued inconsistencies, and anticipated market confusion of multiple, utility-specific program designs. Table # shows proposed incentives for ASHP and CAC.

Table 11 - Proposed HVAC incentives under the Middle scenario compared to 2022, by utility

	CAC Tier 1		ASHP Tier 1	
	2022 Incentive	Middle Incentive	2022 Incentive	Middle Incentive
BGE	$300	$500	$400	$1,300
Potomac[33]	$300	$1,000	$400	$2,000
SMECO	$300	$350	$400	$700
PEPCO	$300	$300	$400	$450
DPL	$300	$350	$400	$450

All the EmPOWER utilities proposed continuing to offer central air conditioner incentives through the entire 2024-2-26 program period, despite increased federal standards in 2023, declining savings from CAC, and the increased electrification priority of shifting to heat pumps. As an example, the average cost/MWh for heat pump savings for BGE ($1,061/MWh) is 24% less than the cost to achieve that same savings with CAC($1,397/MWh), which highlights the cost of perpetuating the support of the less efficient technology.

We strongly recommend the elimination of incentives for CAC, which compete with heat pump systems that are more efficient and provide cleaner, efficient heating as well as cooling. Customers replacing CAC represent a critical opportunity (or lost opportunity, depending on the policy that is established) for cost-effective adoption of heat pumps. (Heat pumps are less cost-effective if the customer has recently replaced a stand-alone CAC.) Multiple peer jurisdictions have already ended CAC incentives for these reasons.

[32] Maryland Building Energy Transition Plan, p. 21.
[33] The data filed by Potomac Energy did not include measure incentive levels for each scenario, so the value in the incentive table filed (MEEADR1-1_Attachement 3 "AttD-1 Res Rebate" was used.

According to information we provided to the Midstream Work Group, midstream programs are typically implemented on a statewide basis. Midstream programs primarily engage contractors and distributors, and sometimes manufacturers, not utility customers. Contractors and distributors are more likely to participate in a single, consistent program. The utilities have reported that they have "not heard concerns" about inconsistent practices, yet the sales data suggests most sales are not passing through the program. The utilities have been slow to even acknowledge this data (stating the data is not as detailed as they would like), much less explain what is happening.

A single implementer still requires the use of a more streamlined midstream program strategy, which in our view includes:

- Expanded contractor engagement that is focused primarily on helping contractors understand, sell, and install heat pump equipment (e.g. not engagement focused on "program requirements")
- Little to no administrative requirements on contractors, beyond ensuring contractors are sufficiently qualified and provide the minimal data necessary for satisfactory savings verification
- Incentive design using an instant rebate process at the point of sale that allows contractors to acquire eligible equipment with little to no incremental cost or administrative burden compared to standard equipment
- Streamlined administrative/data requirements and rebate processing for distributors,
- Modest distributor incentives that mitigate their real or perceived administrative or stocking costs.
- Metrics to track ongoing engagement with distributors to ensure their program needs are being met, along with informational or training resources that add value to distributors
- Direct, consistent communication to end-use customers so they understand exactly how they are benefiting from the program and midstream rebates.

Although the focus of the midstream program should be distributors, especially for HVAC, the midstream program also requires streamlined and proactive engagement with retail stores that sell eligible equipment to contractors and customers (e.g. home improvement stores). This engagement should also extend beyond administrative and financial functions with marketing and training support. Incentives should be aligned across retail and midstream channels.

Recommendations

1. **The Commission should deny the proposed HVAC program and require the utilities to re-file a program plan with a single implementer and modified program design consistent with the best practices described above.**

2. **The program implementation plan should incorporate HPWH—at a minimum those delivered through the midstream channel—along with HVAC equipment, and exclude CAC.**

3. **The filing should include a draft Request for Proposals so the Commission can ensure that the solicitation for an implementer is consistent with its objectives.**

4. **The Commission should allow the utilities to operate the HVAC program under current conditions until a single implementer is selected and begins operation.**

Residential New Construction

Summary

Residential new construction (RNC) is a critical time to ensure buildings are constructed to high standards and take advantage of technologies that support state and national decarbonization goals. All buildings constructed to 'business as usual' standards are lost opportunities that will be candidates for retrofit, efficient products, and other incentive programs down the line. For the upcoming program cycle, EmPOWER utilities continue to rely on the national ENERGY STAR for New Homes program, which represents the 'first tier' in above building codes. While the utilities plan to offer additional measures and the ENERGY STAR Next Generation (Next Gen) certification, both of which support electrification and decarbonization, the forecasted participation in these new offerings does not reflect ambitious goals. Additionally, all utilities have elected to stop offering DOE's Zero Energy Ready Homes (ZERH) and/or Passive House that were piloted in the current cycle. These programs provide a deeper level of energy efficiency savings and prepare the home for the addition of renewable energy. While the additive measures and NextGen certification are important additions to the RNC program, without more ambitious participation goals, there will be significant lost opportunities in residential new construction. None of the utilities offer provisions for solar-readiness, batteries, or electric vehicle (EV) charging.

Scenarios & Level of Ambition

Overall, the utilities are on the right track in offering the (Next Gen certification. Next Gen homes are required to meet the latest ENERGY STAR for New Homes version and require heat pumps for primary space and water heating, induction cooking and EV charging capabilities. Additionally, the certification requires that heat pump equipment meet EPA's connected criteria. However, fossil fuels are still allowable under the certification. There are no explicit 'all-electric' incentives for EmPOWER's RNC program. While it might be reasonable to assume Next Gen homes will be all electric, it is not explicit in the utility filings or incentive structure.

For builders that don't participate in the Next Gen program, stand-alone or "additive" incentives are available for high efficiency electric heating, cooling, and hot water. The proposed incentives are significantly higher than last cycle. Where the utilities fall short is in their forecasted participation - overall and in penetration of additive measures and the Next Gen certification for forecasted program participants. Additionally, a specific incentive for 'all-electric' homes is lacking. As stated above, new construction is the optimal and most cost-effective time to construct homes to a high level of efficiency and integrate electric heating and cooling technologies. No fuel-switching retrofits are required. The figures below detail participation, savings and spending as compared to the 2021-2023 program cycle forecasted and reported (as of Q4 2022).

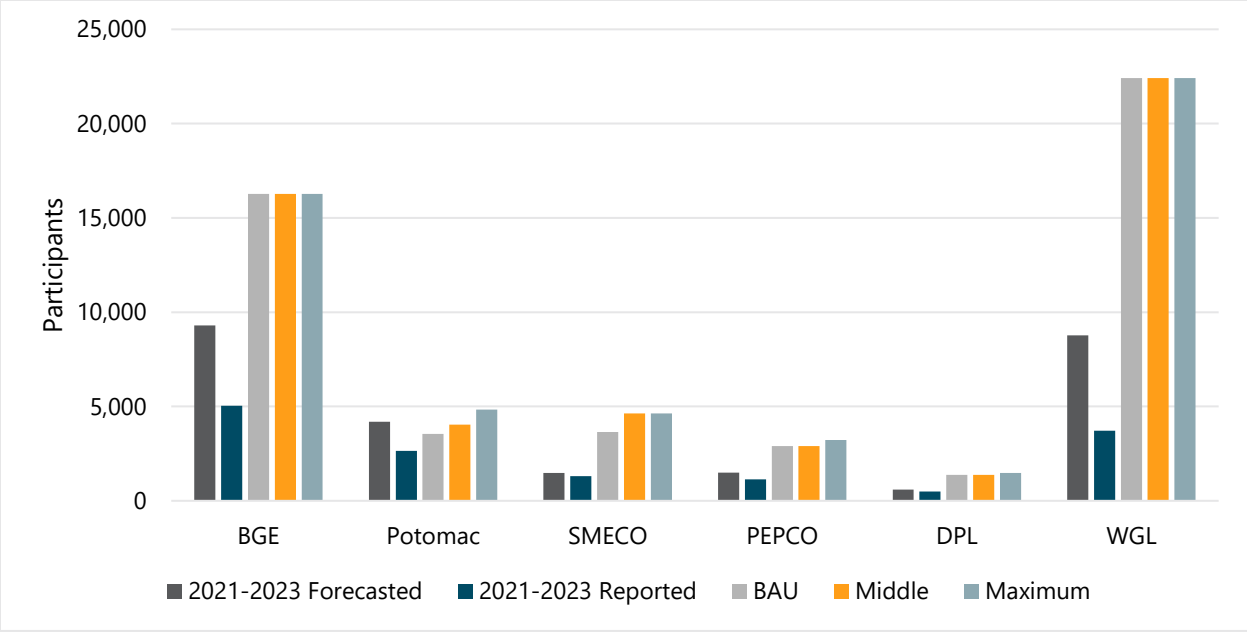


Figure 17 - Forecasted Residential New Construction Participants vs Current Program Cycle (Forecasted and Reported)

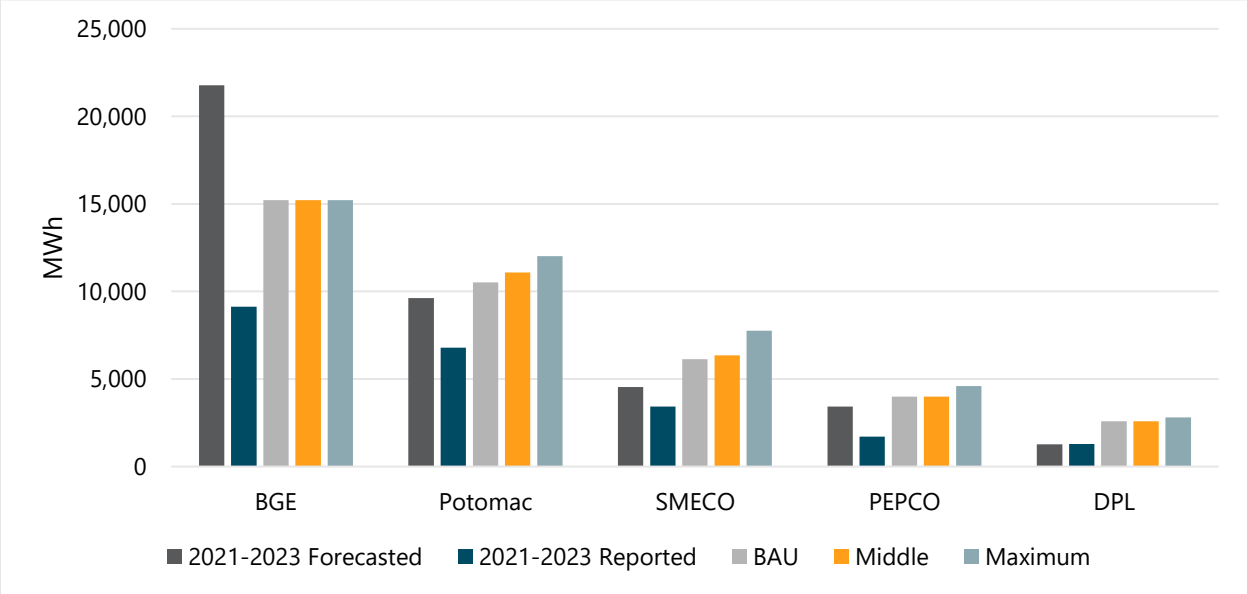


Figure 18 - Forecasted Residential New Construction Savings vs Current Program Cycle (Forecasted and Reported)

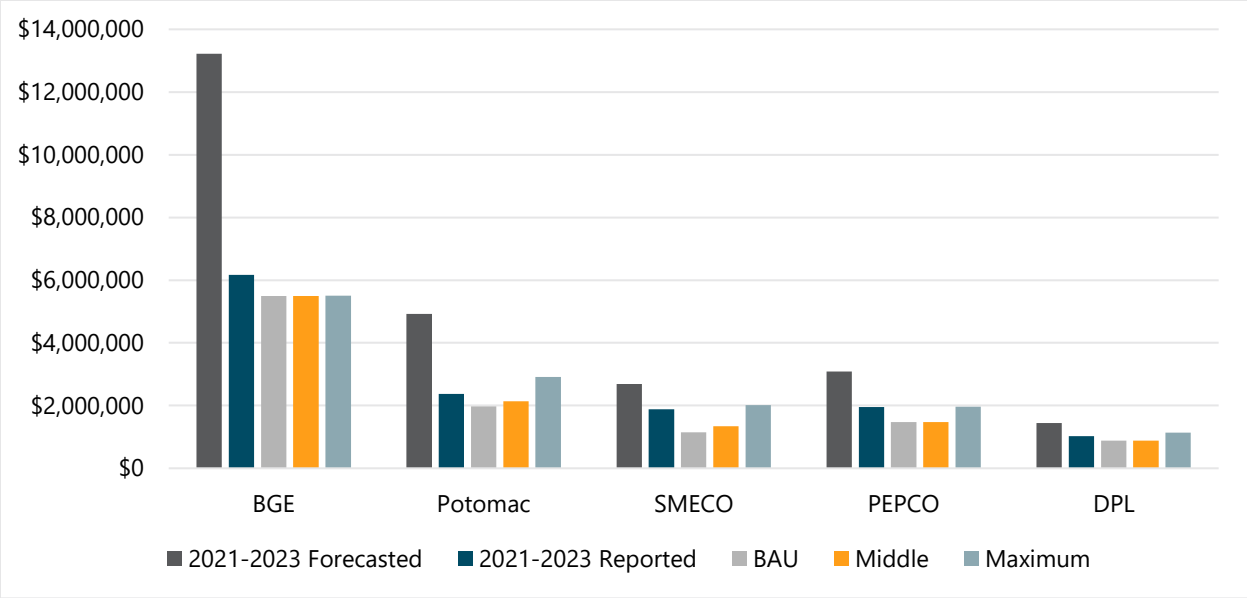


Figure 19 - Forecasted Residential New Construction Costs vs Current Program Cycle (Forecasted and Reported)

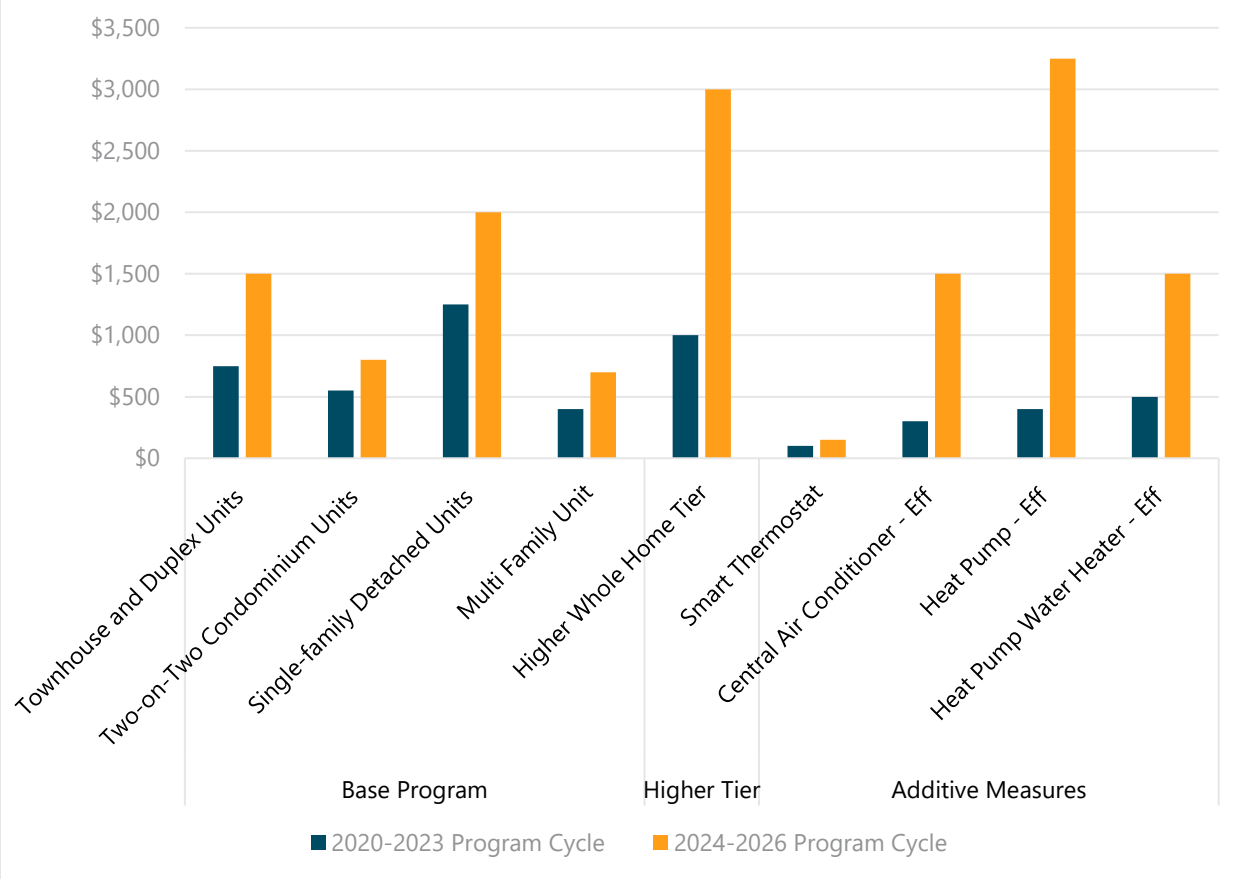


Figure 20 – Proposed RNC incentives for 2024-2026 compared to 2021-2023

Regarding penetration of the ENERGY STAR Next Gen certification and additive measures, it is difficult to calculate precise percentages across the utilities for each scenario due to inconsistences in reporting. However, all utilities propose relatively low participation in these measures. The lowest forecast for participation in ENERGY STAR's Next Gen certification was a total of three participants, in the mid and max scenario's, amounting to less than 1% of all participants in the RNC program. The highest forecast was 15% in the third year of the max scenario, accounting for only 55 homes out of over 350 total participants. Across utilities, the middle scenario is forecasted to enroll 10% or less of builders in the Next Gen program. Penetration of heat pump technologies within forecasted participants are generally forecasted to be 5% or less for the middle scenario.

The charts above show that for the middle scenario, most utilities forecast a ramp up in overall participants, with the exception of Potomac Edison, but forecast a less significant increase in savings. Overall, total spending is forecasted to be about one-half that of what was forecast for the current cycle. Measure level incentives, however, are significantly higher than the current cycle.

In response to OPC Data Request 1, the utilities stated that they do not track market data but reference ENERGY STAR's Market Penetration reported data, which includes any type of program level participation. For Maryland this is 35-45%. Maryland has held this level of market penetration since the inception of the program. The next program cycle should seek to increase the number and share of builders and homes that participate in the program.

Analysis of Best Practices

Arguably, ENERGY STAR is a household name and a great starting point for achieving whole home performance above code. The national program has and continues to serve utility-based programs well. However, there are well-established programs that achieve a deeper level of savings and prepare the built environment to be grid-responsive and powered by distributed renewable technologies. More and more utility programs across the nation are adopting Zero Energy and all-electric residential new construction programs. The *Getting To Zero Forum* provides a list of utility RNC programs[34] providing all electric and net zero construction. The Sacramento Municipal Utility District's All-Electric Smart Home and Energy Trust of Oregon's Net Zero Homes programs are additional examples not included in the Getting To Zero list.

EmPOWER Utilities have an opportunity to provide deeper level of savings and achieve net zero, or net zero ready, construction with existing market ready technologies and program standards. Additionally, state level above-code programs ideally prepare builders for, and be ahead of, the next code cycle. The Maryland Commission on Climate Change calls for an all-electric building

[34] https://gettingtozeroforum.org/zero-energy-buildings-utility-programs/

code in the Maryland Building Energy Transition Plan[35]. Utility programs should be paving the way to train and incentivize builders to prepare for this next level of code.

Recommendations

1. **The Commission should direct the utilities to establish and report on targets for market penetration for RNC Program as a whole, key tiers, and all-electric homes. The overall target should be set above the long-standing status quo of 35-45%.**

The utilities will need to increase goals for participation in ENERGY STAR Next Gen certification and additive measures within forecasted participants, through greater marketing and incentives.

2. **The Commission should direct the utilities to adjust incentive levels to reflect higher tiers of energy efficiency and include an explicit incentive for all-electric homes. Rather than increasing incentive for the base level ENERGY STAR version, they should offer the greater incentive levels for the highest version of ENERGY STAR (currently v3.2), and not waiting to incent that level until the new code is adopted.**

3. **The Commission should direct the utilities to offering a whole home tier geared toward higher efficiency higher than ENERGY STAR such as DOE's ZERH or Passive House, as they did in the 2021-2023 cycle.**

[35] https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/Documents/2021%20Annual%20Report%20Appendices%20FINAL.pdf

Limited Income Programs

Summary

Limited income households make up between a quarter and a third of all Maryland households, and face significant additional barriers to energy efficiency adoption and program participation. For these reasons we continue to believe that limited income programs deserve not only a proportionate, but a disproportionate amount of attention and resources within EmPOWER. Consistent with that idea, this section contains a lengthier analysis of proposed programs and explanations of challenges and best practices. Because there are multiple programs and proposals, our analysis and recommendations are grouped into four areas:

1. Utilities' proposals to promote DHCD programs
2. DHCD multi-family program
3. Utilities' proposals to administer LI programs
4. DHCD single-family programs

To summarize at the highest level, DHCD has proposed a solid plan that has a reasonable chance of achieving their more ambitious (legislatively-mandated) savings targets if it is implemented successfully. Making the picture more complex, there are additional proposals for the utilities to support DHCD program participation—some of which are positive and others more fraught—and new proposals for the utilities to target the same buildings with similar services, which is not recommended.

Context and Principles for Equity Programs

Not all barriers are financial

Non-financial barriers to program participation are critical to assess and address. It is inefficient and unduly cumbersome to require customers to engage in redundant processes or face additional barriers to access programs designed for their specific circumstances because of multiple program administrators. Additional complexity in program design impact income-eligible customers exponentially and further increase already observed inequities.

As an example, "Residential Nonparticipant Market Characterization and Barriers Study"[36] conducted by ILLUME for the Massachusetts Program Administrators and Energy Efficiency Advisory Council fund the following barriers:

- Lack of trust and fear of scams
- Lack of understanding by nonparticipants that they were paying into the program as opposed to the program being "government funded".
- Prioritizing time and resources on needs nonparticipants considered more fundamental to living (food, shelter)

[36] https://illumeadvising.com/files/Residential-Nonparticipant-Market-Characterization-and-Barriers-Study.pdf

- Needing more information or understanding of offerings, participation processes, and benefits
- Perceiving energy efficiency as irrelevant or not applicable

Equity program logic

We encourage the Commission to envision the following program logic pathway for the single-family market:

1. Energy Kit / Outreach / Education / Customer targeting / Utilities' behavior change program
2. Energy audit
3. Repairs, health, safety
4. Weatherization and energy efficiency
5. Electrification readiness
6. Electrification
7. Follow-up: behavior change, tune, etc.

There is a different program logic pathway for the multifamily market:

1. Energy efficiency and decarbonization are a priority for building owners (through persuasion and benchmarking and energy performance requirements)
2. Building owners know and understand what needs to be done for their property or portfolio of properties (technical assistance)
3. Make project economics work (incentives and access to financing solutions)
4. Support and guide building owners through planning and scope implementation (technical assistance); ensure energy efficiency done before or simultaneously to electrification.

One-stop-shop approach and streamlined process

This approach is critical for creating one customer experience. While there are several program administrators there is one EmPOWER program. EmPOWER must focus on reaching policy objectives and creating customer value collectively. Removing and avoiding unnecessary redundancy and confusion is critical to ensure seamless experience for contractors and customers, but also to optimize spending. Uncertainty and confusion in the market tend to be compounded when there are multiple program administrators, multiple incentives and rebate programs, as well as adjustments and variations based on income level.

DHCD is uniquely positioned to combine multiple funding sources, operate consistently across the State and coordinate with other entities delivering income-specific programs. Utilities can leverage insights and data to identify and prioritize customers and use existing lines of communication with income-eligible Marylanders to facilitate enrollment into DHCD run programs. EmPOWER may require further Commission oversight over how collaboration between DHCD and utilities is taking place, and to assess strengths and weaknesses of program administrators. The Limited-Income Work Group (LIWG) has an important role to play. The Commission could task the LIWG to produce a clear strategy articulating how DHCD-run programs and utility-run programs interact and complement each other from a customer

perspective. This work should be coordinated with recommendations being formulated by the Building Energy Transition Task Force through the end of the year.

Under a one-stop-shop approach, there should also be no "wrong door" for a potential participant to enter the program space. Income verification processes, for example resulting from the utilities' proposed income-eligible retrofit program or upcoming federal rebates, must lead to a customer enrolling in the right program for them. This means breaking down silos between program implementers, within EmPOWER Maryland but also beyond.

While low-and-moderate income customers should not be excluded from participating in non-income specific programs, it is critical for these households to be guided toward programs that can deliver the greatest benefit, in the easiest way and with the lowest financial participation as possible. Deployment of IRA funding will require an entity in Maryland to undertake income verification. It is unclear whether the utilities will propose a new income verification pathway, although it appears unlikely. In principle, a clearing house approach would have one single entity overseeing income verification and directing customers to the program(s) best suited to their specific need(s) and circumstances.

Multifamily considerations

Program implementers across the nation have sought to find an equilibrium between a whole building approach that might result in less building owners participating, but delivering greater outcomes per home, and a "non-comprehensive" approach that delivers less benefits by units but increases participation in multifamily programs. It is important to not move too far away from the whole building approach which DHCD has historically pursued. It is objectively clear that this approach delivers greater benefits to vulnerable households. It is also more likely to move LI homes toward electrification in a responsible way and to address environmental hazards in the home, all of which are additional benefits for residents.

To support comprehensive energy efficiency and electrification projects, building owners require streamlined and useful technical assistance. It is important to appreciate the diversity of this segment in terms of composition, ownership and building characteristics, as well as unit affordability.

EmPOWER will be critical to support the new Maryland Building Energy Performance Standards as covered building include multifamily buildings of 35,000 square feet and larger. These building will be required:

- By 2030, to achieve a 20% reduction in net direct greenhouse gas emissions standards as compared to 2025 levels for average buildings of similar construction. (60% by 2035 and net-zero by 2040).
- By 2030, achieve progress on a straight-line trajectory to the final site energy use intensity standards.

Navigating equity definitions

Defining and understanding the specific target population is a critical part of any program design, including those designed for equity purposes. Equity policies and programs in Maryland and more broadly use a wide range of terms and definitions to help define target populations. These can include:

- Disadvantaged Community
- Low or limited-income, is often defined in relation to the Area Median Income (AMI) or the Federal Poverty Limit (FPL), which do not relate to each other directly
- Low- *and* moderate income (LMI)
- Justice40, the new federal framework encompassing multiple specific populations

DHCD has set its income eligibility threshold at 80% of the Area Median Income (AMI) or 250% Federal Poverty Line, whichever is higher. It is worth noting though that AMI and FPL are adjusted based on the number of households and set annually. For a 4-person household in Maryland in 2023, 80% AMI is approximately equivalent to 300% FPL. For comparison the income threshold for participation in the Electric Universal Service Program (EUSP) is set at 175% FPL.

In their 3-year plans, the utilities are proposing a "moderate income" program—or at least moderate-income incentives within the Home Retrofit program. (See that program section above.) They propose to define "Moderate income" as households with income between 250% FPL and 400% FPL, which is intended to minimize overlap with DHCD offerings.

For the purpose of the federal High-Efficiency Electric Home Rebate Act (HEEHRA) rebates, low-income is defined as households below 80% AMI (parallel to DHCD) and moderate-income is defined as households with income between 80% AMI and 150% AMI.

Income definition	Annual Income for a 4-person household[37]	Used for
80% AMI	$89,400	DHCD and HEEHRA max for low-income
250% FPL	$75,000	Alternative DHCD max; utilities proposed min for moderate income incentives
300% FPL	$90,000	
400% FPL	$120,000	Utilities max for moderate income
150% AMI	$177,450	HEEHRA max for moderate income
600% FPL	$180,000	

With modification 4.2 B, DHCD proposes that "individual participants located in certain areas that are considered disadvantaged communities can self-attest their income" defined by "MDE

[37] FPL: https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines; AMI: https://dhcd.maryland.gov/HousingDevelopment/Documents/prhp/2023-MD-Income-Limits.pdf

Underserved Socioeconomic / Demographic Populations - Socioeconomic Demographic Poverty 2020 Score (Percentile Score) on the MDE EJ Map"[38]. We support this recommendation and the focus on "disadvantaged communities."

In general we recommend ensuring greater coordination and simplification of the definition of "low-income", "moderate income" and "disadvantaged communities" across energy programs. This will help ensure efficient and impactful stacking of incentives and make it easier for providers and households to understand which programs a household may be eligible for. Aligning the utility definition of moderate income with HEERHA could be an example, however that would be a significant expansion in eligibility for the utilities proposal to cover 100% of retrofit costs.

Utilities' proposals to promote DHCD programs

The utilities propose additional specific funding to promote DHCD programs, labeled in plans as "DHCD coordinated marketing". The description of what this entails remains vague (e.g., Pepco simply says, "the Company will refer low-income customers that are eligible for DHCD programs to DHCD"[39]).

Table 12 - Utility proposals and budgets for promotion of DHCD programs

BGE	• DHCD cross promotion budget to support marketing and outreach efforts, data sharing and bill inserts
	  ○ Utility administrative budget ($55,000 per year)
	  ○ Coordinated marketing budget ($300,000 per year)

Delmarva	• DHCD cross promotion budget to support marketing and outreach efforts and data sharing
	  ○ "Utility administrative budget ($15,000 per year)
	  ○ Coordinated marketing budget ($40,000 per year)

Pepco	• DHCD cross promotion budget to support marketing and outreach efforts and data sharing
	  ○ "Utility administrative budget ($40,000 per year)
	  ○ Coordinated marketing budget ($120,000 per year)

Potomac Edison	• Dedicated marketing and outreach efforts, data sharing, and bill inserts ○ Budgets not stated • Leverage programs to promote participation: appliance recycling, residential – behavioral based program

SMECO	• Dedicated strategy for "hard to reach communities" to include:
	  ○ "Dedicated funds to DHCD coordination"
	  ○ "a marketing and outreach effort specifically to connect low-income members to DHCD programs".

[38] At p. 33
[39] Pepco Plan, p. 80

	• Leverage Home Energy Report to specifically market DHCD programs to LMI.

In the absence of participation goals, approval of the utilities request for dedicated DHCD coordination/marketing and outreach budget should be contingent on:

- A clearly articulated marketing and outreach plan, publicly shared and co-designed with the input of stakeholders, for example via the LIWG.
- Reporting on key metrics to assess effective use of these dedicated budget. DHCD should be required to track and report number of participants who were connected to its program via the utilities.
- Clarification of how proposed activities would be in addition to any existing utility functions.
- Clarification and details on how non-income specific programs in the utilities' portfolio and untapped utilities' strengths will be leveraged.
    - For example, all utilities providing a home energy report should deploy a version tailored to the specific need of low-and-moderate income customers with clear promotion of DHCD run programs.
    - Whether any customer targeting capabilities will be leveraged
    - If approved by the Commission, leverage any income verification that might result from the deployment of the utilities "moderate income" home retrofit program.

Recommendations

1. **The Commission should condition approval of utility spending to promote DHCD programs on filing of additional plans and details, as described above.**

2. **The Commission should direct DHCD to track and report on referrals from utility programs and other activities.**

DHCD multifamily program (MEEHA)

This program must ensure building owners receive critically needed technical assistance, either directly from DHCD's EmPOWER program or through partnerships with other programs as part of a one-stop-shop approach. Based on best practices observed in other jurisdictions successful technical assistance program should include:

- Assistance in navigating any building performance requirements
- Assistance in navigating and applying to financial incentives and financing options
- Studies that provide list of recommended upgrades and comprehensive cost-benefit analysis
- Studies that produce implementation plans or "road maps" to provide high-level timeline allowing to incorporate energy efficiency and electrification upgrades step-by-step rather than all at once

- Assistance in integrating electrification and energy efficiency upgrades in rehabilitation scope of work
- Assistance with connecting with service providers and guidance on soliciting proposals

Technical assistance should be designed with input from building owners and meet the needs of a variety of types of building owners (e.g. large and small).

DHCD proposes a variety of modifications to its multifamily program, summarized in Table 13 along with our response.

Table 13 - Proposed changes to MEEHA and responses

Modification	Response
Modification 5.3.3.A Define measure incentives using a Measure Funding List. Seek to use a measure funding list to determine funding instead of Saving to Investment Ratio (SIR).	Support with clarification DHCD should clarify that the list of measures proposed by the Energy Auditor would still cover a set of mandatory measures to ensure MEEHA remains focused on promoting comprehensive retrofits, similarly to the priority list developed by DOE[40] for which measures pertaining to health and safety, insulation and air sealing would remain mandatory.
Modification 5.3.3. B High performance building design for new construction projects **Fund "design and achievement of nationally recognized certifications" for new construction projects. Propose to "stack" incentive amounts when pursuing multiple certifications.**	Support with addition DHCD should offer a similar benefit for rehabilitation projects that pursue certification such as EnerPHit (Passive House certificate for retrofits), Enterprise green community plus, LEED v4.1 for existing buildings.
Modification 5.3.3.C Active solar systems (solar thermal). **Add active solar heating systems as defined by the U.S DOE to the list of eligible measures to be funded under the MEEHA program[41]**	Support
Reduce a building owners' contribution toward the established scope of work ("Reduce the percentage of contribution	Support Consider the implication of setting different level of building owner's contribution based on equity criteria such as:

[40] https://www.energy.gov/scep/wap/articles/low-rise-multifamily-priority-list-checklists

[41] https://www.energy.gov/energysaver/active-solar-heating#:~:text=Active%20solar%20heating%20systems%20use,system%20provides%20the%20additional%20heat.

from the owner from approximately 35% to approximately 15%" at p. 68)	• Higher percentage of households at 80% AMI or a dedicated percentage of households with income within lower income brackets • Properties located in environmental justice areas (as defined by MDE) Once new federal funding is available, ensure that no more than 100% of project costs are covered by public funding.
End incentive for Qualified Project Managers (p.67)	Support, but DHCD should consider how to ensure building owners receive critically needed technical assistance

Utilities' proposals to offer LI program

BGE, Pepco and Delmarva propose to establish "a dedicated program for low and moderate-income multifamily properties to receive additional energy saving measures and services that complement DHCD's Multifamily Energy Efficiency and Housing Affordability Program (MEEHA)" (BGE Plan p. 45)[42]. Potomac Edison proposes a multifamily sub-program under its home retrofit programming. Potomac Edison does not clarify which multifamily properties would be eligible and does not discuss potential overlaps with MEEHA. SMECO does not propose any new multifamily offering.

The proposed measures, listed in table 14, overlap extensively with those measures offered by DHCD.

Table 14 - Proposed measures for utility LMI Multifamily Program, for BGE, Pepco and DPL

Heat Pump Water Heater
Heat Pump Replacement
PTHP Replacement
Refrigerator Replacement
Smart Thermostat
Dishwasher
Clothes Dryer
Clothes Washer
Lighting Fixtures
Lighting Exterior
Lighting Controls
VFD Retrofit - Pump
VFD Retrofit - Fan
Common Area Heat Pump Replacement
Window Film (per sqft)

[42] For Pepco "Efficiency for affordable housing program" on page 33. Delmarva same name on page 34.

Audit Fee

OPC has consistently recommended greater coordination between the utilities and DHCD and more recently recommended that the utilities have goals to drive participation in DHCD. We support the utilities' proposals to increase promotion of DHCD programs. The utilities and DHCD have previously raised concerns about "competing" for limited income savings (which was in part the grounds for the Commission not adopting any new limited income goals for utilities). However, the utilities' proposal to launch new limited income programs is at odds with this concern. Even more concerning is the market confusion and inefficiency from having the same buildings eligible for largely the same service from two separate program administrators. Programs offering broad building retrofit assistance to buildings primarily occupied by limited income households should remain the domain of DHCD, which the utilities can support through referrals and other augmentation.

Most proposals reference DPL's Efficiency for Affordable Housing (EAH) as an example. However, the need for co-existence between DPL's EAH program and MEEHA was due to the opportunity to leverage funding coming from the Exelon merger. The situation here is different since the utilities' proposal would result in DHCD and the utilities using the same source of funding for implementing two overlapping multifamily programs to serve the same customer segment.

EmPOWER resources must be focused on strengthening the MEEHA program. Any program to serve the multifamily affordable housing market segment via EmPOWER should be run by DHCD. As described above, one-stop-shop models are best practices across jurisdictions. It is important to avoid unnecessary added layer of complexity for building owners, and avoid unnecessary duplication of administrative and evaluation, measurement and verification costs.

DHCD will be able to leverage existing and forthcoming funding to address the fact that some building owners do not have the resources to undertake a more comprehensive retrofit through the MEEHA program alone.

Should the Commission and stakeholders still be interested in an alternative path to the whole home approach, this should be developed by DHCD with the input of the LIWG. These utility proposals were not described at the stakeholder workshop last spring, nor discussed with the LIWG.

The utilities could expand efforts on multifamily properties not eligible for the MEEHA program and assess potential gaps in multifamily offerings. It may be necessary to conduct a market study to understand the extent of that remaining market segment. Any offering by the utilities should also promote a whole home approach.

Recommendations

1. **The Commission should deny the utilities' proposal to launch a multifamily program offering similar services to buildings eligible for DHCD programs.**

2. **The Commission should direct the utilities to conduct a market study to identify housing segments not served by DHCD if they wish to propose an alternative program.**

DHCD Overview

There would be a significant evolution of EmPOWER DHCD MWh savings goals under the proposed plan, primarily to meet new legislative targets, as shown in figure 21.

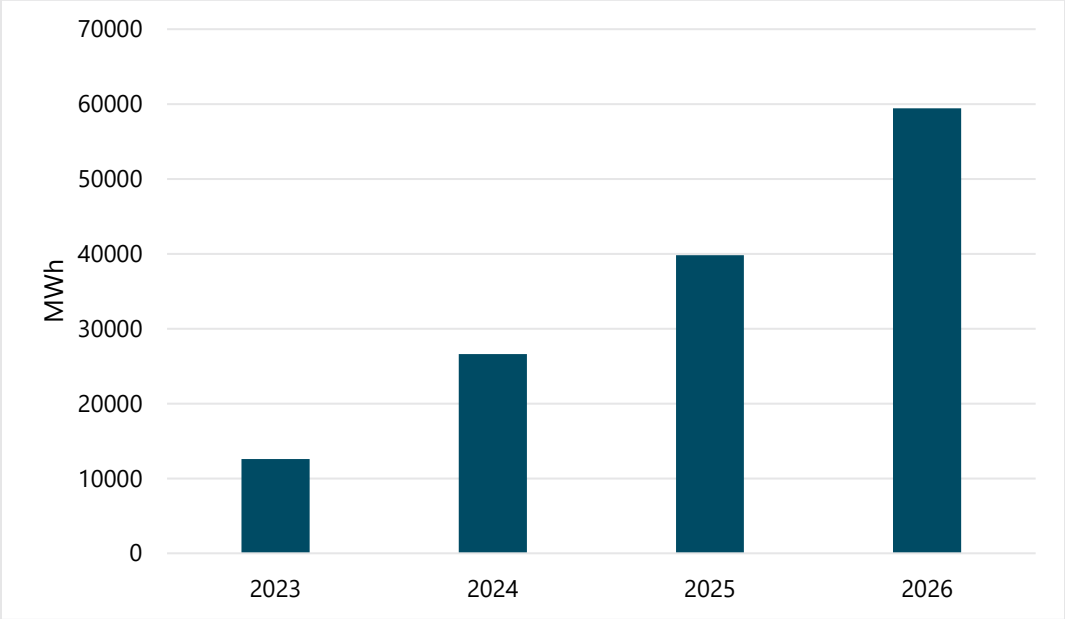


Figure 21 - Proposed annual electricity savings from DHCD EmPOWER programs

DHCD proposes to include the following programs as contributing to its legislative target:

- DHCD EmPOWER programs
- DHCD non-EmPOWER programs
- Utility run EmPOWER programs
- MEA LMI Energy Efficiency Grant

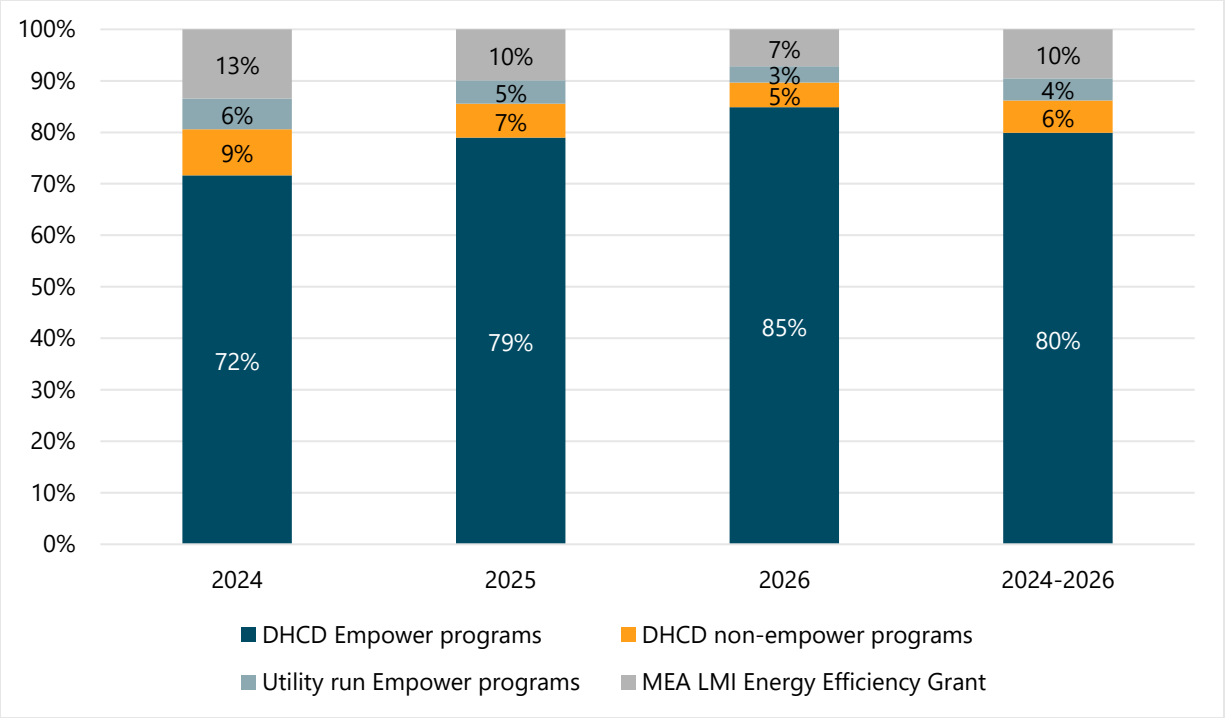


Figure 22 - DHCD's proposed contribution toward limited income savings goals from different program sources

There was no consensus from the LIWG over DHCD counting savings utility run programs. While the law "allows DHCD to count energy savings from all funding sources"[43] it still requires DHCD to "procure or provide"[44] these programs, which is not consistent with DHCD's current proposal for calculating savings. EmPOWER programs run by the utilities that are duplicative of DHCD programs (QHEC, Home Performance, HVAC, etc.) and for which participation in DHCD offerings should be prioritized over the utilities' offering, should not be counted toward the legislative target.

Fundamentally, counting utility savings toward their own goals and the legislative goal is an exercise in double counting. In practice, we recognize that DHCD must accomplish significant increases in savings even while counting utility savings. This issue should be considered further and it is likely we would object to the DHCD proposal as a permanent approach.

[43] As noted by DHCD on page 17
[44] PUA § 7-211.1(b)(1).

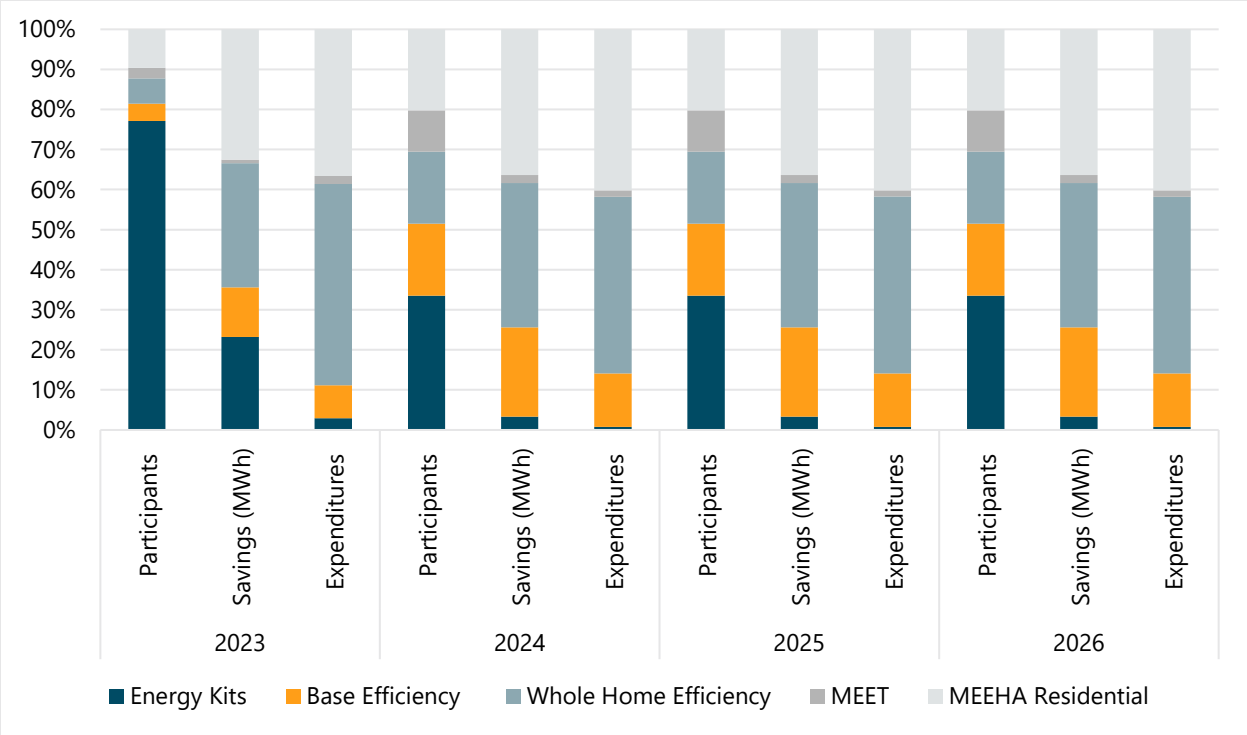


Figure 23 - Relative contribution to participation, savings and expenditures for each DHCD program, by program year

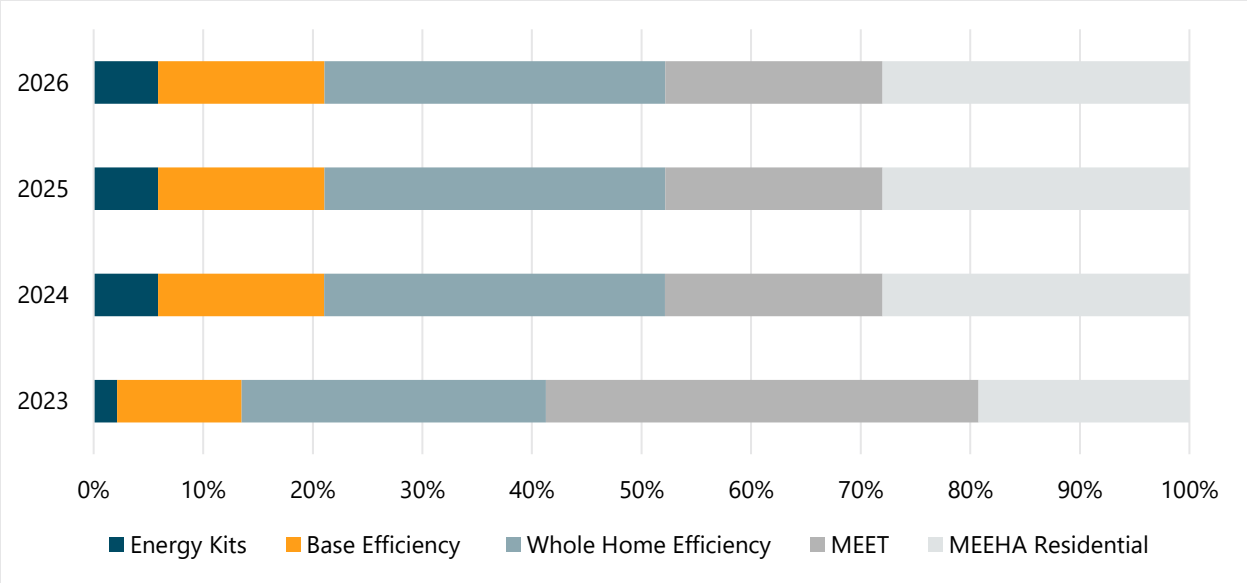


Figure 24 - Relative Cost/MWh for each DHCD program for each DHCD program, by program year

DHCD approach to electrification and fuel switching

DHCD states that electrification would not take place until "supported by program target" as stated in modification 3.A (DHCD Plan, p. 24). DHCD plans on reducing funding for gas

appliances and notes that it "will record the households that contain unreplaced gas appliances, pre-assess for electrification potential, and electrify these households in the future when electrification becomes supported by program targets, or refer them to electrification programs". Per modification 3.B DHCD would allow fuel switching on a case-by-case basis: "For Whole Home Efficiency projects, DHCD will consider fuel switching in cases when the electrification is cost effective based on a modeled SIR, and if it can be performed within the existing incentive structure. For MEEHA projects, DHCD will consider funding electrification measures at a reduced incentive". (DHCD Plan, p. 25.)

As the leading whole home retrofit program administrator for low-income Marylanders, it is critical for DHCD to ensure low-income Marylanders are not left out of the electrification transition, especially given utilities' building electrification and "LMI" retrofit proposals.

The Commission should strongly encourage DHCD to develop an electrification pilot that could test the ability to offer fuel-switching to customers in a way that creates positive outcomes for the customers.

DHCD outreach and client engagement

DHCD proposes a variety of modifications to increase outreach and participation, summarized in Table 15 along with our response.

Table 15 - Proposed changes to support outreach and responses

Modification	Response
4.2.A Remove the 5-year wait period for applicants to re-participate in DHCD's EmPOWER program	Support Recommend DHCD track and report on income level of income-eligible Marylanders participating in its program to ensure lower-income bracket participation
4.2. B Individual participants located in certain areas that are considered disadvantaged communities can self-attest their income	Support Leverage efforts to "strategically target" these communities to build partnerships with local community-based organizations and increase understanding of hard-to-reach community members and nonparticipants
4.4.A Allow contractors to certify customer's eligibility. **Allow contractors to use participation in programs granting "categorical eligibility"**	Support Recommend monitoring for customer satisfaction in first months of program change

Analysis of Customer Experience

To increase program participation and engage "hard-to-reach" customers DHCD will need to strengthen its efforts to build partnerships with community-based organizations such as faith-

based organizations, local nonprofits governed by community members, and municipalities. These partnerships are critical to:

- Understand barriers faced by hard-to-reach communities.
- Find the right tone and the right message for engagement.
- Reach community members where they are.

These organizations are time and resource constrained and should be compensated for their time and expertise. DHCD should explore ways of funding these organizations as part of its marketing budget, for example in conjunction with efforts to target residents in disadvantaged communities identified as part of modification 4.2.B. Examples from other jurisdictions include:

- In New York, NYSERDA has established a Disadvantaged Communities (DAC) stakeholder service pool via a Request for Proposal process.[45]
- In Massachusetts, Mass Save 3-year plan includes a "Community First Partnership" grant program. This initiative was first scaled statewide by the program administrators in 2019 to work with local partner communities to increase participation among renters, moderate-income residents, English-isolated families, and small businesses, with an emphasis on environmental justice communities[46].
    - Community partner teams are eligible for up to $60,000 per year, during 3-year

DHCD has elected to not market the Base Efficiency Program to the public in order to prioritize participation in the whole home energy retrofit program. We agree with the importance of prioritizing a whole home approach. At the same time, it is worth considering whether this decision might be driving income-eligible customers toward the utilities' QHEC offering while they could still receive more benefits in the long run from entering the DHCD pipeline. There might be value in DHCD looking into SMECO's approach for marketing its HEIP offering, and focusing marketing and outreach efforts on the critical importance of customers going through an energy audit as a first step.

DHCD Whole Home Efficiency

DHCD proposes a variety of modifications to its Whole Home Efficiency program, summarized in Table 16 along with our response.

Table 16 - Proposed changes to Whole Home Efficiency Program and responses

Modification	Response
Modification 5.2.3.A Adjust cost caps to match inflation **Set hard cap at $16,000 per job.**	Support Consider applying "health and safety" and "incidental repairs" caps at the portfolio level instead of as a per project cap or plan for making it possible in the future.

[45] https://portal.nyserda.ny.gov/servlet/servlet.FileDownload?file=00P8z000000jo17EAA
[46] https://www.masssave.com/trade-partners/community-partnership

	• DHCD notes that the average job cost in 2022 was $6,900 (p. 57). • Will allow for more projects to qualify for the whole home energy programs. • Waiver for EmPOWER to cover additional costs could be given after considering all other sources of funding meant to make a project "weatherization ready".
Modification 5.2.3.B Issue funds directly to individual projects as grant or loans	Support
Modification 5.2.3.C Increase the installation rate of HVAC equipment Remove landlord requirement to provide 50% of funding for HVAC. Increase contribution of EmPOWER Maryland to up to 85% of project costs for renter-occupied units.	Support Consider strengthening requirements that will address risk of displacement and rent increase. DHCD has an important role to play with phasing out natural gas. Program should allow fuel switching from natural gas to heat pumps after a thorough bill analysis is performed.

DHCD should make it possible for more households to be eligible to whole home program. Their plan describes "one-stop-shop for limited income whole home energy and rehabilitation". (p. 12.) We strongly support this integration as it will be critical to increase number of participants and depth of savings via the whole home efficiency program. We note that in addition to integrating DHCD's affordable housing programs via a one-stop-shop it will also have to prepare for a full integration with rebates and other programs that will result from the deployment of IRA/BILL funding. This will require strong coordination with MEA.

Maryland Energy Efficiency Tune-up (MEET) program

DCHD's proposed changes to the MEET program and responses are found in table 17.

Table 17 - Proposed changes to MEET and responses

Modification	Response
Modification 5.5.1.A Refocus MEET on the maintenance of installed measures	Support
Modification 5.5.1.A Restrict participation in MEET program to "electric households"	Do not support at this stage. We recommend DHCD wait until mid-cycle to make this change.

	DHCD meeting its legislative electric saving goals still needs to be balanced with the State of Maryland's GHG reduction goals. If DHCD will continue to include non-electric HVAC in some homes, there is no reason to exclude them from MEET. MEET is also an opportunity for following up with households who participated in EmPOWER. It can be leveraged to pave the way toward electrification. For base efficiency program participants, it provides an opportunity to reassess readiness to participating in whole home program
Modification 5.5.1.B Reduce frequency to one site visit every 3 years	Support

Behavior-based Programs

Summary

In large part, Behavior programs do not functionally change across scenarios for any utility. Except for BGE and Washington Gas, all utilities reported identical plans, savings, and participation for the Middle and Maximum Achievable scenarios. Plans filed by the utilities are sparse in details supporting what changes would be implemented compared to BAU and how they can be achieved. The forecasted program data tables provided by utilities were inconsistent and often not reflective of one another, particularly with how costs are ascribed. While the plans incorporate some of the goals directed by the Commission for this EmPOWER cycle, the utilities fall far short of proposing meaningful improvements in any scenario.

Scenarios & Level of Ambition

Amongst the utilities, DPL forecasts the largest increase in savings (18%) between the BAU and Maximum scenarios for the 2024 program year, with higher savings noted by the utility as coming from "increased delivery of home energy reports and additional customer engagement". Participation, however, does not change across scenarios, nor does the utility describe changes to engagement strategies that drive these savings. Washington Gas forecasts savings to increase by 7% in the Maximum scenario relative to BAU, driven by a 91% increase in participants. WGL does not explain why savings and participants do not scale accordingly or how it plans to achieve such an ambitious increase in participation. Similarly, SMECO forecasts participation in the Maximum scenario to increase by 13% from the BAU, but savings by only 3%.

BGE notes in their filing that the Maximum scenario forecasts slightly higher savings (4%) due to "an aggressive average savings per participant". It is unclear what this means. The electric savings are forecasted at a rate of 200 kWh saved per participant which is identical to the BAU. In 2022, the utility achieved savings at a rate of 194 kWh per participant. Potomac Edison and Pepco forecast no changes to savings or participation across scenarios.

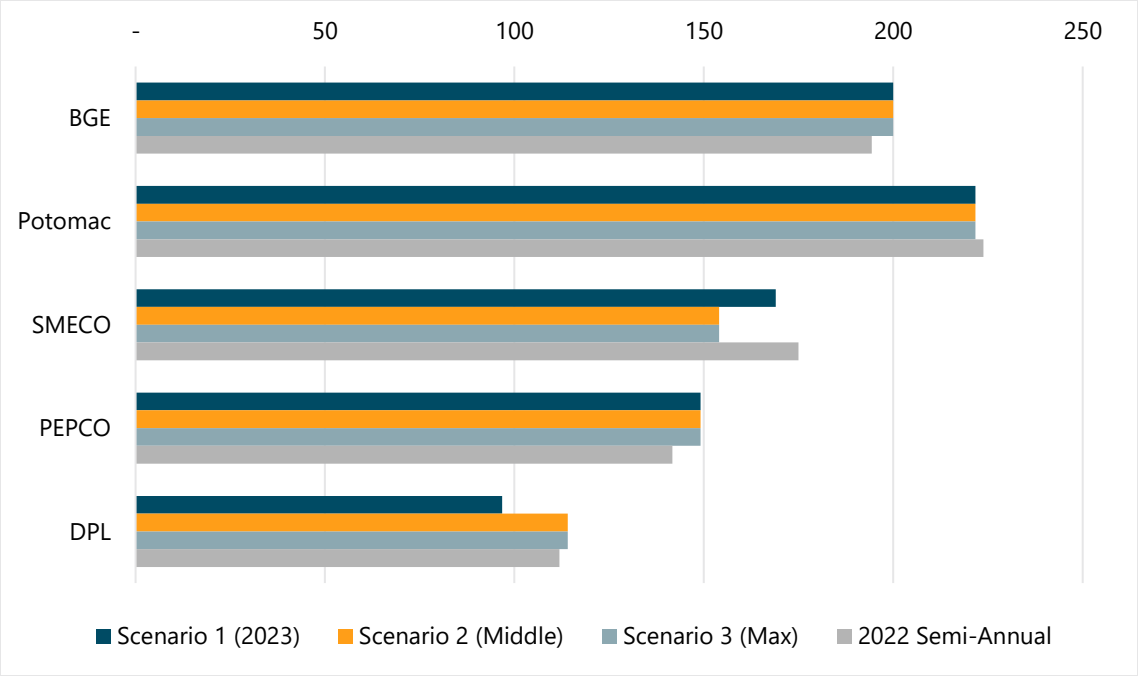


Figure 25 - Behavioral electricity savings (kwh) per participant

Potomac Edison is the only utility that acknowledged a programmatic change in the Middle and Maximum scenarios by using the Behavioral Program as a means to uplift customers into other efficiency programs that result in greater GHG reductions, including electrification. The utility did not provide further details on the programs that would be supported by this, but those savings appear to accrue to the other programs and are not reflected as additional Behavioral savings.

Notably, all utilities except BGE and Pepco set savings in the BAU scenario for the 2024 program year below what was achieved in 2022. Additionally, Potomac Edison, Pepco, and Washington Gas forecast participation to be lower compared to the last filing. These comparisons are shown in Table 18.

Table 18 – Behavior program forecasts for BAU scenario compared to 2022 reported results

	Change in Costs	Change in MWh Savings	Change in Participants
BGE	20%	9%	5.7%
Potomac	16%	-5.7%	-4.9%
SMECO	-6%	-3%	0.1%
Pepco	41%	0.6%	-4.5%
DPL	17%	-11%	3.%
WGL	19%	-16%	-2.3%

The Potential Study lists "program participation" as the measure definition of Home Energy Reports. BGE, SMECO, and Washington Gas are the only utilities that forecast increased

participation in the Middle and Maximum scenario. SMECO set an appropriately ambitious but achievable increase of 13%. Washington Gas estimates participation in the Maximum scenario to be 91% higher than the BAU without explanation of how would be met. BGE sets a modest target of 4% more participants in the upper scenarios compared to BAU scenario, though the utility may be accounting for the high saturation of customers already enrolled in their behavioral program. If this were the case, the utility should explore and describe program design improvements beyond participation to meet the expectations of the Middle and Maximum scenarios. The changes for the Maximum scenario are shown in Table 19.

Table 19 – Behavior program forecasts for Max compared to BAU scenarios

	Change in Costs	Change in MWh Savings	Change in Participants
BGE	14%	3.8%	3.8%
Potomac	2.3%	0.0%	0.0%
SMECO	39%	3.3%	13%
Pepco	18%	0.0%	0.0%
DPL	20%	18%	0.0%
WGL	18%	6.8%	910%

Despite the lackluster proposal for programmatic improvements, utilities forecast significantly higher costs for all scenarios, shown in Figure 26. In aggregate the utilities' BAU scenario savings are forecasted at -4.5% relative to 2022, while implementation costs increase by 18%. Likewise, average savings forecasted by utilities in the Maximum scenario only improve by 0.3% compared to 2022 while costs increase by 39%. It is reasonable to assume increased costs alongside more aggressive savings or higher participation rates. However, this was not a consistent driver of costs. Changes in costs were sporadic across utilities, scenarios, and categorical expenses provided by utilities, which would indicate that programmatic changes are not the main driver of costs, either.

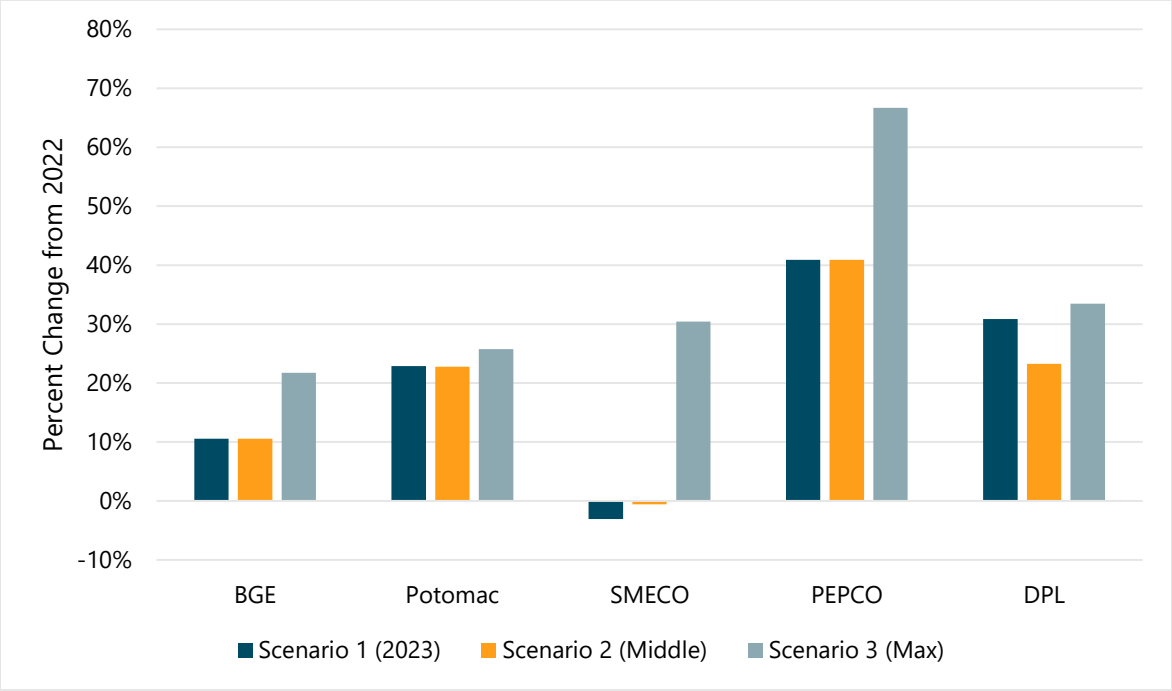


Figure 26 - Behavior program cost per kWh saved for 2024 relative to reported 2022

Analysis of Best Practices

Unless otherwise noted, the best practices below apply to all scenarios filed by the utilities.

Greater use of AMI data to segment energy uses and target home energy reports was listed as a priority from OPC for the 2024-2026 EmPOWER cycle. BGE plans to use AMI for customer data analysis and will integrate artificial intelligence to test new program designs and customer engagement strategies. DPL and Pepco note they will employ AMI data to include time-of-use insights on HERs but do not make note of specific energy uses. All utilities except BGE specifically mention targeted messages for low-income customers through AMI data and HERs in their plans, though BGE has already incorporated this into their program in the past cycles. Behavioral programs targeted at low-income customers must not simply provide energy saving tips and comparisons, however. Understanding why customers have adopted specific behaviors is critical to generating savings and supporting those most susceptible to energy insecurity. Further customer segmentation to provide personalized insights is another effective method to enhance savings per participant and has been adopted by multiple utilities.

DPL, Pepco, Potomac Edison, and SMECO plan to integrate DHCD program opportunities for low-income customers through HERs. Potomac Edison will include an annual marketing module on DHCD. DPL and Pepco will include DHCD information with LMI targeted messaging on HERs. SMECO will connect low-income customers with DHCD programs, along with using behavior programs to address barriers to participation and connect with hard-to-reach communities through their "Affordability Solutions". This program will provide information on financial

assistance programs from the utility and state. BGE acknowledges DHCD coordination in their filing, but it is not mentioned in their Smart Energy Manager implementation.

BGE and Potomac Edison will include GHG messaging in HERs. Potomac Edison will use HERs to promote energy efficiency measures with larger GHG reductions and electrification measures under the Middle and Maximum Achievable scenarios, but it is not clear what these measures would be.

There is acknowledgement in the filings on the role behavioral programs can play in supporting other programs, and it is encouraging to see the support for low-income customers and inclusion of DHCD in the behavior program filings. Behavioral programs can facilitate more goals directed by the Commission, however, such as assisting customers with IRA funding and incentive stacking, market transformation efforts, fuel-switching and electrification initiatives, and demand reduction during peak events. Though not stated in the filings on behavioral programs, BGE and Potomac Edison increase forecasts of peak reductions across all scenarios compared to the last semi-annual period. While BGE dedicates a module of their Smart Energy Manager to peak times, the utilities do not comment on new program changes that will result in the improvements of peak demand reduction. No utility comments on how behavioral programs can facilitate peak demand management while more households electrify.

At minimum, all behavioral programs in the Middle and Maximum scenarios should include messaging incorporating GHGs, electrification, and targeted campaigns to support low-income households.

Recommendations

Few aspects of the utilities' plans for behavioral programs consider ambitious, creative, or forward-thinking approaches to scale savings across scenarios.

1. **The Commission ask utilities to explain why the Middle and Maximum scenarios do not reflect increased savings or effort, as requested in its previous order.**
2. **The Commission should direct utilities to provide additional information, including:**
    a. **justification for why costs increase so dramatically despite relatively few changes to the program designs and attainable savings from 2022.**
    b. **explanation of why GHG reductions do not change across scenarios. For those that do change, how those savings were calculated should be provided as there does not appear to be consistent methods employed by utilities.**

Demand Response

Summary

The lack of MW savings goals creates a vacuum in which most utilities have proposed arbitrary targets. Only SMECO has shown meaningful ambition in its residential Demand Response plan and given the Commission a meaningful choice across scenarios. It is positive that Potomac Edison is proposing a Demand Response program for the first time (in the Middle and Maximum scenarios), which it has not had previously due in large part from lack of AMI. In most cases utilities describe incremental changes to DR programs, at best. Only SMECO has proposed a pilot in the area of DR, which should be a priority area for innovation. Given the importance of demand management to controlling grid costs, especially in the context of greater electrification, the Commission should approve Demand Response programs at least at the Maximum level, which is still only 5% greater MW savings than the BAU scenario.

Scenarios & Level of Ambition

With the exception of SMECO, the scenarios do not reflect substantial increases in DR savings, either compared to one another or compared to results achieved in 2022.

Across utilities the Middle scenario is nearly indistinguishable from the BAU scenario. The Maximum scenario does not represent a major step up from the Middle scenario either, but would entail a 10% increase in MW savings for DPL and SMECO.

Even more striking is the fact that the Exelon utilities propose demand savings targets for 2024-2026 that barely exceed amounts for 2022. BGE's proposed target for BAU and Middle scenarios is less than their reported DR savings in 2022 (and only equal to 2022 savings in the Maximum scenario.) Pepco and DPL feel somewhat short of their targets in 2022; in response they propose lower targets for 2024-2026. For DPL, only their Maximum scenario target is higher than reported results for 2022, and only barely. For Pepco, all three scenarios are identical and only 2% higher than their 2022 targets.

In contrast, SMECO proposes to achieve 62-70 MW of demand reduction capacity across the scenarios, compared to a 2022 forecast of 44 MW (and actual result of 39 MW). Therefore, the Maximum scenario would represent nearly a doubling of their DR peak reductions in 2022.

Potomac Edison's lack of AMI has made it the only EmPOWER utility to lack a DR program to-date. It proposes to launch a DR program in the Middle scenario, but only to achieve 2 MW of savings by the end of the cycle. This goes to 6 MW in the Maximum scenario. Although it would remain 5-10 times smaller than DPL and SMECO, Potomac Edison's Maximum scenario is a meaningful starting point.

Figure 27 shows the proposed peak MW savings for each scenario by utility, compared to forecasts and reported MW reductions in 2022.

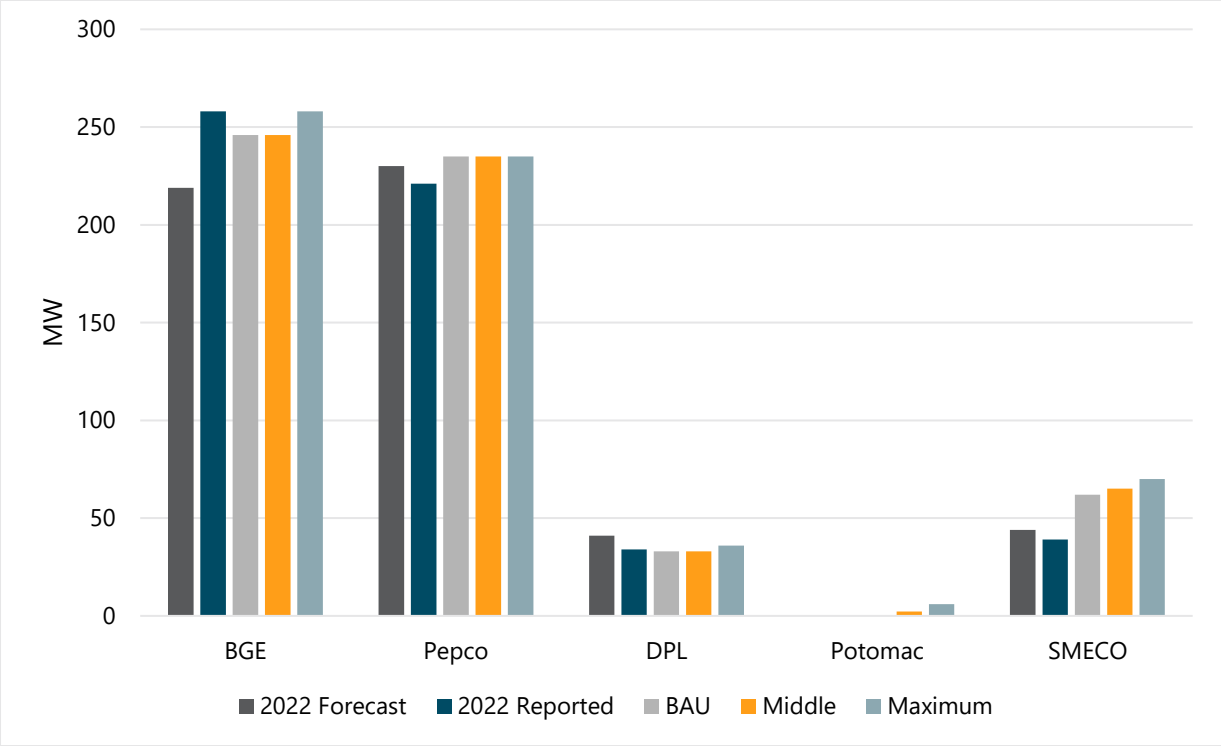


Figure 27 - Residential DR peak demand reductions for each scenario by utility, compared to forecasts and reported peak demand reductions in 2022

The lack of MW savings goals likely contributes to the lack of ambition in the DR plans and the inconsistency across utilities. Even between sister utilities DPL and Pepco, Pepco proposes twice the residential DR savings as a fraction of peak load compared to DPL. SMECO proposes twice again as much DR savings as Pepco, again relative to each utilities' peak load.

Demand Response as historically practiced by the EmPOWER utilities—i.e. a limited number of called demand events each year—does not result in large GHG reductions in themselves. Even as EmPOWER shifts toward a focus on GHG goals, separate and ambitious demand management goals are needed to ensure that the increased electrification and non-dispatchable renewable energy generation are managed to the lowest costs possible.

Analysis of Best Practices

SMECO proposes to transition all its SmartTemp DR participants to a SmartTemp BYOD program, retaining a focus on smart thermostats. By their own admission, their BYOD pilot had poor results, and SMECO is focused on additional changes to improve cost-effectiveness. SMECO also proposes to introduce a FlexTemp program, which would make smaller temperature changes in shorter time increments. This is a positive development because it creates opportunities and experience with managing load on a more frequent basis—likely without most customers noticing—to optimize the electricity system.

Although Potomac Edison should be commended for including a new DR program (even with modest savings targets), the plan does not include much detail.

Pepco proposes to add direct load control switches for residential AC as part of its DR program. These devices have a similar functionality to smart thermostats; they allow the utility to remotely cycle down AC units for a short period. Like all residential DR programs, this option is purely voluntary and customers can opt-out anytime (forgoing their DR bill credit).

None of the utilities propose any demand management programs that go beyond HVAC controls, either through a smart thermostat or through direct load control (i.e., of AC units). There is no incorporation of EV charging management, although most utilities are pursuing this approach separately. There are no program proposals to include other appliances or end-uses (or whole house savings) in residential DR programs. Nor are there specific program proposals to expand beyond event-based seasonal demand reduction to more regular flexible load management.

A partial exception to the above limitations is SMECO's proposal for a Smart Home pilot (phase 3) which incorporates some of the above features, including grid-enabled water heaters. Grid-enabled water heating was the DR measure with the highest GHG in the EmPOWER GHG Abatement Potential Study.

None of the other utilities propose any DR pilots.

The language in Pepco's DR proposal (mirrored by DPL) appears to be less of a program plan and more of a list of intended investigations:

"The Company, acknowledging the realities around increased electrification as well as responding to recommendations made by EmPOWER MD Stakeholders, such as OPC, will seek out opportunities to enhance and expand demand response offerings, including program enhancements to provide customers with options which expand the control season and participating devices during the 2024-2026 cycle. The Company will explore operational changes to demand response offerings such as winter demand response events or impacts of different event calling strategies. For instance, the Company may explore a Flexible Load Management (FLM) component to its existing BYOD offering, whereby the cycling of customer thermostats is designed to make the customer impact subtler, with events more frequent but shorter in duration. Additionally, the Company may explore additional technologies for demand response such as grid connected water heating devices."[47]

In response to numerous stakeholder recommendations about DR, BGE says it "may explore winter demand response programs."[48] Winter is the annual peak season in some parts of Maryland already and will become more prevalent in coming years, however EmPOWER DR

[47] Pepco Plan, p. 63, emphasis added
[48] BGE Plan, p. 106, emphasis added

programs are primarily if not exclusively focused on summer peak. BGE proposes to increase incentives and target customers with electric heating in its Maximum scenario, so that it may potentially achieve winter peak savings. SMECO is again the exception, and already typically experiences its annual peak in the winter.

Recommendations

1. **The Commission should direct all utilities to implement Demand Response programs at their Maximum level.**
2. **The Commission should require each investor-owned utility to file supplementary program plans by July 1, 2024 with proposals for including winter peak reductions by winter of 2024/2025 on at least a pilot basis.**
3. **The Commission should direct staff to propose MW savings goals for the EmPOWER utilities that could be adopted for 2025-2026. The staff proposal should put each utility on a more ambitious course for demand management within EmPOWER, and could also include recommendations for including any non-EmPOWER demand reduction. This proposal could be considered by the Commission during spring Semi-Annual hearings.**
4. **The Commission should direct each investor-owned utility to develop and submit by July 1, 2024 a pilot that tests flexible load management strategies aimed at optimizing load on a daily, weekly or monthly basis – not only on a periodic seasonal basis.**

Program Investigation, Design, and Development (PIDD)

Summary

The proposed pilots do not generally reflect ambitious ideas for innovation. Some utilities have proposed budgets that are too small and/or largely unallocated to any specific idea. An exception is SMECO's Smart Home Phase 3, and potentially Pepco/DPL proposal for a Summer Energy Challenge. The Commission should direct the utilities to be more specific and ambitious in piloting innovation.

Analysis

The utilities have proposed an eclectic mix of pilots, with the exception of Potomac Edison, which proposed a completely unallocated budget. Table 28 lists the pilots proposed by each utility, along with unallocated budget amounts and proportions. A number of pilots do not have direct benefits to residential customers and were not reviewed by VEIC (e.g. tree planting and indoor agriculture).

In general, the pilot proposals are somewhat uninspiring, and the electric IOUs only made specific proposals to spend a fraction of their proposed budgets. While there is some merit to leaving some pilot budget unallocated, it appears these utilities did not invest heavily in innovation planning for this filing. It is also the case that EmPOWER pilots are typically multi-year initiatives; to be completed during the cycle so that lessons can be applied in the next, pilot proposals should be developed and filed by the middle of 2024.

As mentioned in the Demand Response section, SMECO was the only utility to propose a DR pilot, and it is one of the only pilots that could be said to advance a larger strategic direction for EmPOWER.

One of the Pepco/DPL pilots, the Summer Energy Challenge, also merits the label of innovation, proposing to blend customer-specific AMI data with behavioral elements. The other of their customer-oriented pilots, Energy Engineers, is as much a customer service offering and seems unlikely to lead to lessons with broader application.

OPC has expressed significant concern elsewhere about WGL's promotion of gas hybrid heat pumps.

Table 28 - Utility Pilots Proposed and Unallocated Pilot Budgets

	Pilots Proposed	Unallocated Budget, Middle scenario
BGE	Composting	$2.5M (80%)
Pepco	Energy Engineers Summer Energy Challenge Controlled Environment Agriculture	$1.8M (50%)
DPL	Energy Engineers Summer Energy Challenge	$1.3M (67%)

	Controlled Environment Agriculture	
Potomac	*none*	$1M (100%)
SMECO	Smart Home Phase 3 Afforestation/Tree Planting (Middle & Max only)	$557k (17%)
WGL	Hybrid Heat Pump (Middle & Max only) Tree Planting (Middle & Max only) RunWise	$526k (18%)

Not only did Potomac Edison not propose any specific pilots, they also propose a PIDD budget that is only about 1% of their proposed EmPOWER budget. BGE also proposed 1% PIDD budget. Although proposals to invest pilot budgets should be considered primarily on their individual merits, 1% represents an underinvestment in innovation. This is especially true in such a dynamic period for EmPOWER and building decarbonization in Maryland. As shown in Table 29, the other utilities propose pilot budgets ranging from roughly 2.5% to 7%.

Table 29 - Utility Pilots Proposed and Unallocated Pilot Budgets

	BAU	Middle	Maximum
BGE	1.0%	1.0%	0.9%
Potomac	1.2%	1.0%	0.7%
SMECO	6.7%	7.7%	5.3%
PEPCO	2.7%	2.7%	1.5%
DPL	5.3%	4.7%	2.7%
WGL	5.7%	5.4%	5.4%

Recommendations

1. **The Commission should direct BGE and Potomac Edison to allocate PIDD budgets of at least 2% of total budgets.**

2. **The Commission should reject the WGL gas hybrid heat pump pilot based on concerns and findings raised by OPC about the value of gas heat pumps.**

3. **The Commission should direct utilities to file pilot proposals which spend at least 80% of approved PIDD budgets, by July 1, 2024. Each utility should be directed to include at least one Demand Response pilot and to coordinate proposals to avoid unnecessary duplication. (SMECO has already fulfilled both of these.)**

Appendix A. EmPOWER Program Descriptions

Each EmPOWER program is designed to target specific technologies, customers, or both. Effective programs focus on specific decision-points related to energy use and equipment purchase. For example, some programs target customers who are shopping in a store (or online) for a new appliance and others seek to engage and motivate them when they are at home reviewing their energy bills. Other programs target the contractors and suppliers who influence customer choices about equipment installed for them (e.g. a new heating system). The following program descriptions reflect utility and DHCD proposals for the next cycle (excluding the utility Affordable Multifamily program). At a high level these are very similar to the current cycle.

Appliance Rebate

The Appliance Rebate programs offer instant, online, and paper rebates for select ENERGY STAR products, including room air conditioners, dehumidifiers, room air purifiers, heat pump water heaters, refrigerators, freezers, clothes washers, clothes dryers, pool pumps, advanced power strips, and smart thermostats.

The EmPOWER electric utilities deliver Appliance program rebates through separate "downstream" and "midstream" channels, which seek to influence equipment purchases in different ways. The suite of eligible measures varies from utility to utility except for those offerings delivered through the ENERGY STAR® Retail Products Platform (ESRPP), which is a midstream channel. The traditional downstream offerings involve individual customer applications, whereas the midstream point-of-sale offerings are delivered through instant coupon rebates, instant markdown, or a midstream retailer incentive (i.e., the ESRPP) with participating retailers. All five electric utilities also offer a midstream heat pump water heater initiative offering incentives through participating distributors, which typically sell equipment to contractors not end-use customers.

Appliance Recycling

The Appliance Recycling program encourages the early retirement and recycling of inefficient operating appliances by offering customers a rebate and free appliance pick-up. The program primarily targets recycling of refrigerators and freezers, but also offers ancillary pick-ups for room air conditioners and dehumidifiers in addition to local community turn-in events.

HVAC

The HVAC program promotes efficient heating and cooling technology for homes, including efficient air conditioners, heat pumps, and furnace technology, along with smart thermostats installed with HVAC measures. For most HVAC equipment, contractors and distributors are highly influential about the choice of equipment that customers have effective access to, whether due to stocking, installer knowledge, or other factors. Starting in 2018, HVAC programs largely transitioned to a midstream channel model, which targets incentives and engagement at equipment distributors and installation contractors. Although some residential retrofit projects

include HVAC measures, the HVAC Program is the primary EmPOWER program for influencing replacement of heating and cooling equipment.

Residential Retrofit

The Residential Retrofit program group includes Quick Home Energy Check-up (QHEC), Home Performance with Energy Star (HPwES) and SMECO's Home Energy Improvement Program (HEIP) which combines elements of the two other programs offered by the other electric utilities. Washington Gas supports residential retrofits through its Coordinated Program, through which WGL and electric utilities share costs and savings in homes with electric and gas savings. The residential retrofit programs are distinct from most other EmPOWER programs in that they employ a "whole home" (vs. technology specific) approach.

QHEC

QHEC (and HEIP) include an initial walk-through where a certified technician inspects the condition of a home, identifies opportunities for savings, and offers the direct installation of smaller measures that provide immediate savings, such as smart power strips or efficient flow showerheads. QHEC is free to EmPOWER ratepayers.

HPwES & HEIP

HPwES begins with a more comprehensive energy audit – including a blower door test, for example - to identify energy savings opportunities. Direct installation measures are also offered. Audit results point participants to performance-based rebates for air sealing and insulation, heating and cooling equipment, and other weatherization measures.

New Construction

The EmPOWER incentive program for residential new construction is based on the national ENERGY STAR® program and is referred to by the utilities as ENERGY STAR for New Homes. The basic program and incentive structure target whole home energy performance. Homes that earn the ENERGY STAR label are estimated to be at least 10% more energy efficient than the prevailing energy code and are backed by established national quality standards. Utilities also offer specific incentives for additional measures (high efficiency heating, cooling, and water heating equipment).

Behavior

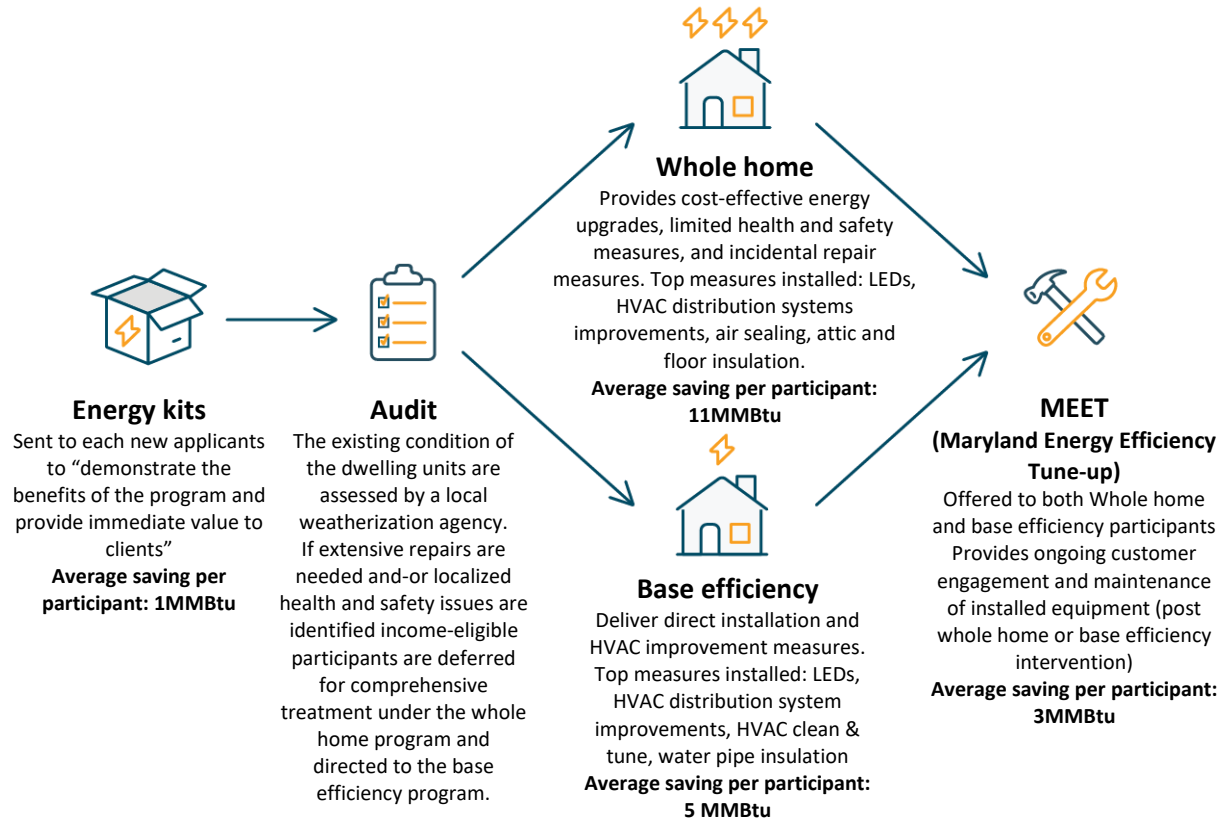
The EmPOWER Behavior programs save energy by providing insights to customers through printed and emailed home energy reports (HERs), digital tools, and messaging to customers. These tools leverage advanced meter infrastructure (AMI) data to influence energy saving behavioral changes by customers (compared statistically to non-targeted customers). Energy savings accrue as end-users adopt behaviors recommended in the reports based on usage patterns and historical trends. In EmPOWER, savings from behavior programs are assumed to last for a single year.

Behavioral programs utilize social norms and feedback to achieve energy reductions through behavior modifications. Many programs offer advice to improve energy consumption, though programs continue to evolve to target specific behaviors relevant to the end user such as no- or low-cost actions, seasonal tips, cross-promotional messaging, or disaggregated insights. Generally, behavioral programs result in habitual curtailment or small efficiency upgrades (such as lightbulbs). Savings tend to be largest in the summer and winter when space conditioning appliances are most heavily relied on. Behavioral programs may also recommend participation in other utility programs, though this spillover represents a small fraction of overall program savings and are not accrued in behavioral program totals.[49]

Limited Income

The Maryland Department of Housing and Community Development (DHCD) programs serve both single family and multifamily markets. Eligible customers have household incomes less than 250% of the Federal Poverty Level. Although participation in DHCD programs has no direct cost to participants, identifying eligible customers and engaging and supporting them to participate in programs is an enormous and complex task. For the single-family segment, a comprehensive suite of programs targets customers at different stages of their journey toward energy efficiency, based on specific barriers to participation.

[49] Allcott, Hunt, and Todd Rogers. 2014. "The Short-Run and Long-Run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation." American Economic Review, 104 (10): 3003-37.



Marylanders in the multifamily market are eligible to receive an energy kit. DHCD also runs the Multifamily Energy Efficiency and Housing Affordability Program (MEEHA) to generate deep energy savings in building that are home to a minimum of 20% of households at 80% of the average median income (AMI) or less[50].

Demand Response

With the exception of Potomac Edison, the EmPOWER electric utilities have offered customers and members a variety of options to encourage participation in Demand Response (DR), or "demand flexibility" programs. These programs use a variety of technologies, equipment, and behavioral/economic incentive strategies to encourage changes in residential load at critical or strategic peak moments on the grid to offset costs. They help demand follow supply rather than the other way around, which can be highly cost-effective. Some programs rely on specific equipment (e.g. smart thermostats) incented by the utilities, and others allow customers to "Bring Your Own Device" (BYOD), allowing more flexibility for customers with existing equipment.

[50] https://dhcd.maryland.gov/HousingDevelopment/Pages/EnergyEfficiencyWeatherization.aspx