

PUBLIC SERVICE COMMISSION
OF MARYLAND

The EmPOWER Maryland Energy Efficiency Act
REPORT OF 2022

With Data for Compliance Year 2021

In compliance with Section 7-211 of
the Public Utilities Article,
Annotated Code of Maryland

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Report Contents

This document constitutes the 2022 annual report of the Public Service Commission of Maryland regarding the EmPOWER Maryland Energy Efficiency Act (“EmPOWER Maryland”). This Report is submitted in compliance with §7-211 of the Public Utilities Article, *Annotated Code of Maryland* (“PUA”). PUA §7-211 requires that, on or before May 1 of each year, the Commission, in consultation with the Maryland Energy Administration (“MEA”), shall report to the General Assembly on the following:

1. the status of programs and services to encourage and promote the efficient use and conservation of energy, including an evaluation of the impacts of the programs and services that are directed to low-income communities, low-to moderate-income communities to the extent possible, and other particular classes of ratepayers;
2. a recommendation for the appropriate funding level to adequately fund these programs and services; and
3. in accordance with subsection (c) of this section, the per capita electricity consumption and the peak demand for the previous calendar year.

In compliance with PUA §7-211, topics addressed in this report include a summary of: the Energy Efficiency & Conservation (“EE&C”) and Demand Response (“DR”) program achievements; and information regarding forthcoming milestones.

Executive Summary

The Commission reviews the progress of EmPOWER programs on a semi-annual basis, typically in May to review the results of the third and fourth quarters of the previous year, and again in October to review the results of the first and second quarters of the current year. As part of these semi-annual hearings, parties may also request program modifications and budget adjustments. As needed, the Commission also holds *ad hoc* proceedings to address specific EmPOWER elements.

The Commission held a legislative-style hearing on May 6, 2021 to review the semi-annual EmPOWER reports filed by the EmPOWER Maryland Utilities¹ (hereinafter “Utilities”), Washington Gas Light Company (“WGL”), and the Maryland Department of Housing and Community Development (“DHCD”), with data from the third and fourth quarters of 2020. Following these hearings, on June 14, 2021, the Commission issued Order No. 89855 which addressed program design and evaluation issues. Specifically, the Commission approved several new programs and program pilots. Further, the Commission directed the Finance Work Group to provide additional information pertaining to any cost differential associated with lowering the

¹ The “EmPOWER Maryland Utilities” (electric) are: The Potomac Edison Company (“PE”); Baltimore Gas and Electric Company (“BGE”); Delmarva Power & Light Company (“Delmarva” or “DPL”); Potomac Electric Power Company (“Pepco”); and Southern Maryland Electric Cooperative, Inc. (“SMECO”).

credit score requirement for the CEA Pilot Program by March 1, 2022 and to file a final report on the CEA Pilot Program by July 15, 2023.

The Commission held its second legislative-style hearing on November 16, 2021, to consider the semi-annual EmPOWER reports filed by the Utilities, WGL, and DHCD for the first and second quarters of 2021. On December 14, 2021, the Commission issued Order No. 90003 which provided direction on programmatic improvements and modifications. Specifically, the Order directed the Cost Recovery Work Group and the Future Programming Work Group to coordinate on cost recovery and Performance Incentive Mechanism (“PIM”) proposals. The Order also directed several Work Groups, including the EmPOWER Reporting and Process Improvement (“ERPI”), Finance, Midstream, and Limited-Income Work Groups, to develop reports to be filed throughout 2022 for the Commission’s review.

Initiative Highlights

- Program-to-date, the Utilities’ EmPOWER Maryland programs have saved a total of 13,491,536 MWh and 2,663 MW. The expected savings associated with EmPOWER Maryland programs is over \$12.7 billion over the life of the installed measures for the EE&C programs.
- Across all Utilities, the lifecycle cost per kWh for the EE&C programs, in 2021, is \$0.030 per kWh² - significantly lower than the current cost of Standard Offer Service (“SOS”), which ranges from \$0.068 to \$0.083 per kWh.
- Program-to-date, the Utilities have spent over \$3.5 billion on the EmPOWER Maryland programs, including approximately \$2.3 billion on EE&C programs, and \$1.0 billion on DR programs.
- EmPOWER EE&C programs continue to be cost effective on a statewide basis in 2020, with a statewide Total Resource Cost (“TRC”) score of 1.29 verified for program year 2020. For every dollar of reported utility or participant cost, the EmPOWER EE&C programs generate approximately \$1.29 in benefits.
- Program-to-date, 47,476 limited-income customers participated in EmPOWER Maryland through the Residential Limited-Income Programs. Of the program-to-date participants, 1,809 limited-income households participated in 2021. The average savings per participant in 2021 was 1,784 kWh. Program-to-date spending on limited-income energy efficiency programs is approximately \$194.2 million.
- The average monthly residential surcharge bill impacts³ for 2021 were as follows:

² The lifecycle cost per kWh is calculated by dividing the total EE&C expenditures by the total lifecycle energy savings of the Utilities.

³ Bill impacts are calculated assuming an average residential monthly usage of 1,000 kilowatt-hours (“kWh”). The calculated bill impact does not reflect savings produced by EmPOWER Maryland programs through reduced customer usage or energy rate reductions due to reduced system demand.

Table 1: Average Monthly Residential Bill Impacts from EmPOWER Maryland Surcharge in 2021

	EE&C	DR	Dynamic Pricing ⁴	Total
BGE	\$4.23	\$2.41	(\$0.22)	\$6.42
DPL	\$5.97	\$1.37	\$0.52	\$7.86
PE	\$6.19	N/A	N/A	\$6.19
Pepco	\$4.74	\$2.16	\$0.25	\$7.15
SMECO	\$5.92	\$2.70	N/A	\$8.62

- The reported energy savings for 2021 and program-to-date are as follows:

Table 2 EE&C Reported Achievements^{5,6}

	2021 Reported Energy Savings (MWh) ⁷	2021 Energy Savings as a % of 2016 Retail Sales Baseline	2021 Target Energy Savings %	Program-to-Date Reduction (MWh) ⁸
BGE	762,403	32,001,806	2.38%	7,267,011
DPL	104,349	4,205,544	2.48%	831,855
PE	127,374	7,412,446	1.72%	3,531,333
Pepco	421,894	14,546,641	2.90%	1,257,578
SMECO	69,323	3,388,854	2.05%	603,759

EmPOWER Maryland Portfolios

For the 2021-2023 program cycle, the Commission directed the Utilities to meet the EmPOWER Maryland goals through a diverse array of cost-effective solutions for Maryland ratepayers, which can include EE&C, DR, and Advanced Metering Infrastructure (“AMI”) or Smart Grid-enabled opportunities.⁹ While the EmPOWER Maryland Act mandates that the Commission require each gas and electric utility to establish energy efficiency programs, the directive is limited to those programs that the Commission deems appropriate and cost effective.

⁴ The difference between rebates paid to participants and revenues received from PJM markets are trued-up in the subsequent calendar year review of the EmPOWER Maryland surcharge. Therefore, the 2021 dynamic pricing bill impacts include trued-up costs associated with the Peak Time Rebate program offered by BGE, DPL, and Pepco in the summer of 2020. The dynamic pricing surcharge for BGE was negative in 2021 (*i.e.* resulted in a credit) because the PJM Capacity payments received by the Utility exceeded the rebate credits paid to customers.

⁵ “Reported” savings constitute unverified energy savings and demand reductions based on the Utilities’ quarterly programmatic reports. An independent, third-party verification of reported savings is conducted annually.

⁶ EmPOWER Maryland 2018 Annual Target was defined in the *2018-2020 Program Cycle EmPOWER Maryland Annual Electric Energy Efficiency Targets* in Order No. 87402 (Sept. 26, 2017) at 11.

⁷ Based on preliminary energy savings from semi-annual programmatic reports. These savings will be verified through an EM&V process.

⁸ Program-to-date reported reductions include savings contributions from Fast Track Programs, which were Lighting and Appliance Rebate programs that began before the EmPOWER Maryland Law was enacted.

⁹ Beginning in 2015, the Commission also directed WGL to implement natural gas energy efficiency and conservation programs. See Case No. 9362, *In the Matter of Washington Gas Light Company’s Energy Efficiency, Conservation and Demand Response Programs Pursuant to the EmPOWER Maryland Energy Efficiency Act of 2008*.

Furthermore, the Commission must consider the impact on rates of each ratepayer class in determining whether to approve an energy efficiency program. Other statutory factors that the Commission must consider in determining whether an energy efficiency program is appropriate include the impact on jobs and on the environment.¹⁰

In order to verify the Utilities' energy and peak demand savings resulting from individual EE&C and DR programs, the Commission has developed an independent, third-party Evaluation, Measurement & Verification ("EM&V") process for the EmPOWER programs, consistent with national best practices. See the "Evaluation, Measurement & Verification" section herein for further information. Beginning with the 2016 program year, the Utilities were evaluated against the post-2015 electric energy efficiency goals established by Order No. 87082,¹¹ which are designed to achieve an annual incremental gross energy savings equivalent to 2.0 percent of the individual utility's weather normalized gross retail sales baseline, with a ramp-up rate of 0.20 percent per year.

Energy Efficiency & Conservation Programs

In Order No. 89679, issued on December 18, 2020, the Commission approved plans for the 2021-2023 program cycle. The Utilities' EmPOWER Maryland core EE&C program offerings are similarly designed with standardized customer incentives across the State, albeit with some variation in program implementation based on service territory demographics. Residential EE&C programs include discounted light-emitting diodes ("LEDs") and appliances; heating, ventilation, and air conditioning ("HVAC") rebates; home energy audits; weatherization; and limited-income programs.¹² Commercial and Industrial ("C&I") EE&C programs are designed to encourage businesses to upgrade to more efficient equipment, such as lighting or HVAC retrofits, or to improve overall building performance through weatherization or building shell upgrades. For larger commercial buildings or industrial facilities, a utility can customize its program offerings for cost-effective improvements.

¹⁰ PUA §7-211(i)(1). In its evaluation of a program or service, the Commission must consider the following four factors: cost effectiveness; impact on rates of each ratepayer class; impact on jobs; and impact on the environment.

¹¹ The electric energy efficiency goals are codified in statute for the duration of the 2018-2020 and 2021-2023 program cycles as a result of legislation enacted during the 2017 legislative session. *See* Md. Laws Ch. 014 (2017); PUA §7-211(g).

¹² Other than the volumetric surcharge collected from all ratepayers, limited-income programs are offered at no additional cost for those who qualify.

Baltimore Gas and Electric Company (“BGE”)

BGE EmPOWER Programs	
Residential Program	Commercial Programs
Appliance Rebates	Commercial Behavior Based
Appliance Recycling	Combined Heat and Power
Residential Behavior Based	Custom
Dynamic Pricing	Midstream Products
Home Performance with Energy Star	Prescriptive
HVAC	Retrocommissioning
Lighting	Small Business
Quick Home Energy Checkup	
Residential New Construction	
Smart Thermostats	

BGE realized 106 percent of its 2021 annual energy savings target (or 762,403 MWh) and 111 percent of its forecasted 2021 annual demand reduction target (or 540 MW). BGE’s programs reached nearly 7.5 million participants and installed over 7.8 million measures in homes and businesses in the BGE service territory for just over \$145.2 million.

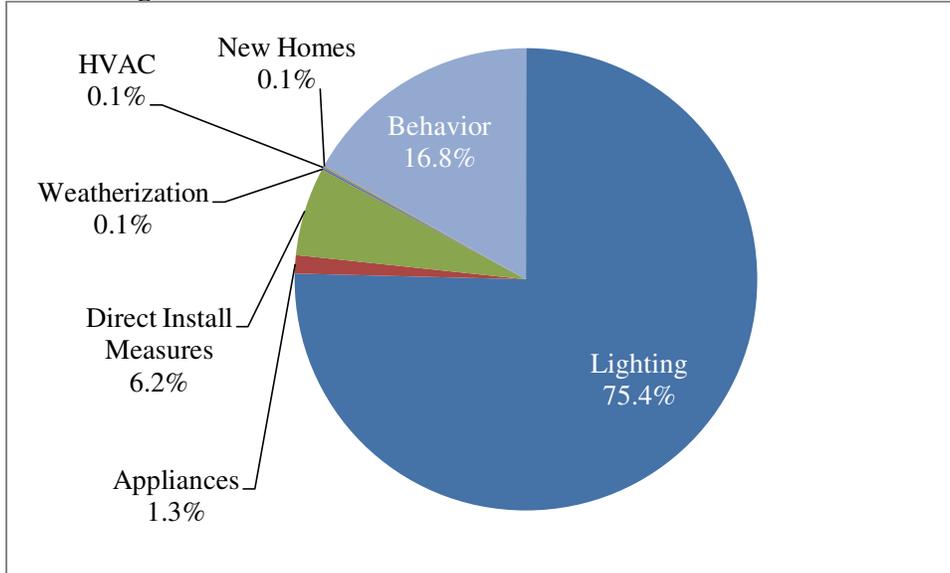
Table 3 BGE Reported Savings vs Targets for 2021

	2021 Reported Savings	2021 Target Savings ^{13,14}	% of Target Achieved
MWh	762,403	717,097	106%
MW	540	488	111%

¹³ EmPOWER Maryland reduction targets are based upon the individual EmPOWER Maryland filings of each Utility.

¹⁴ The demand reduction targets and reported achievements include peak demand reductions generated by both EE&C and DR programs, as both components are part of the total portfolio.

Figure 1 Residential Measures Installed in BGE in 2021



Potomac Electric Power Company (“Pepco”)

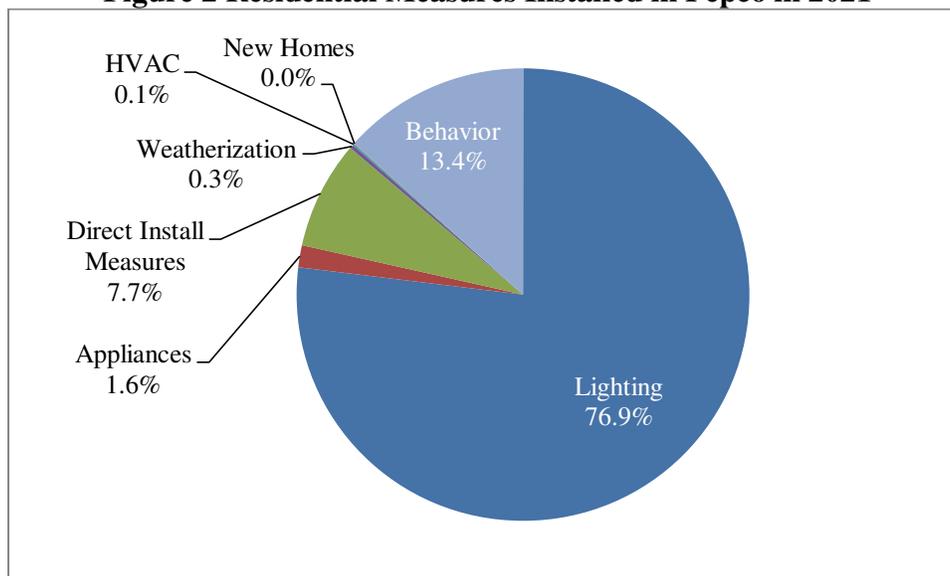
Pepco EmPOWER Programs	
Residential Program	Commercial Programs
Appliance Rebates	Combined Heat and Power
Appliance Recycling	Custom
Behavior Based	Energy Efficient Communities
Home Performance with Energy Star	Midstream Products
HVAC	Prescriptive
Lighting	Retrocommissioning
Quick Home Energy Checkup	Small Business
Residential New Construction	
Schools	
Smart Thermostats	

Pepco realized 105 percent of its 2021 annual energy savings target (or 401,056 MWh) and 117 percent of its forecasted 2021 annual demand reduction target (or 396 MW). Pepco’s programs reached over 793,000 participants and installed over 3.6 million measures in homes and businesses in the Pepco service territory for approximately \$88.7 million.

Table 4 Pepco Reported Savings vs Targets for 2021

	2021 Reported Savings	2021 Target Savings ^{15,16}	% of Target Achieved
MWh	421,894	401,056	105%
MW	462	396	117%

Figure 2 Residential Measures Installed in Pepco in 2021



The Potomac Edison Company (“PE”)

PE EmPOWER Programs	
Residential Program	Commercial Programs
Appliance Rebates	Custom
Appliance Recycling	Prescriptive
Behavior Based	Retrocommissioning
Energy Efficiency Kits	Small Business
Home Performance with Energy Star	
HVAC	
Lighting	
Quick Home Energy Checkup	
Residential New Construction	
Schools	

PE realized 85 percent of its 2021 annual energy savings target (or 127,374 MWh) and 98 percent of its forecasted 2021 annual demand reduction target (or 21 MW). PE’s programs

¹⁵ EmPOWER Maryland reduction targets are based upon the individual EmPOWER Maryland filings of each Utility.

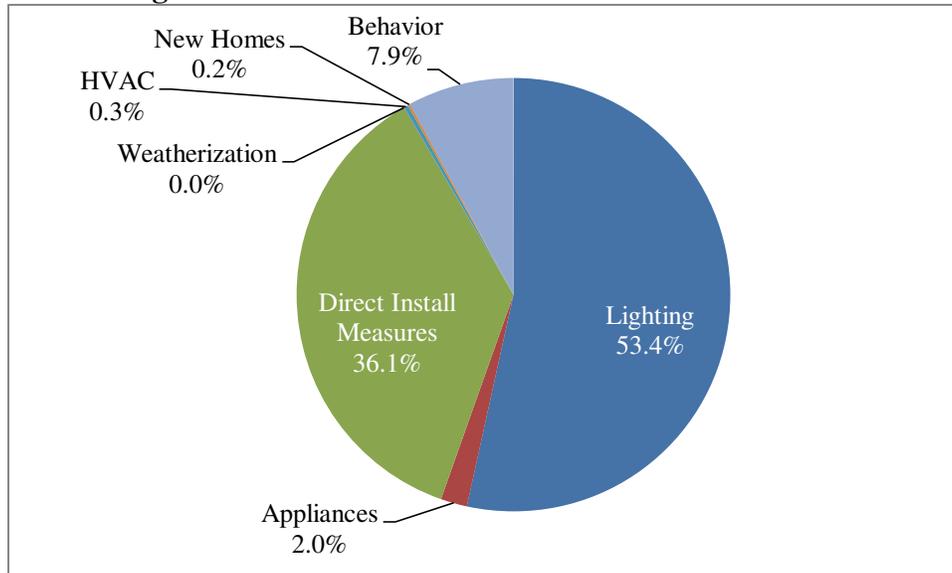
¹⁶ The demand reduction targets and reported achievements include peak demand reductions generated by both EE&C and DR programs, as both components are part of the total portfolio.

reached over 421,000 participants and installed over 1.7 million measures in homes and businesses in the PE service territory for approximately \$28.0 million.

Table 5 PE Reported Savings vs Targets for 2021

	2021 Reported Savings	2021 Target Savings ¹⁷	% of Target Achieved
MWh	127,374	149,925	85%
MW	21	21	98%

Figure 3 Residential Measures Installed in PE in 2021



Delmarva Power & Light Company (“DPL”)

DPL EmPOWER Programs	
Residential Program	Commercial Programs
Appliance Rebates	Combined Heat and Power
Appliance Recycling	Custom
Behavior Based	Energy Efficient Communities
Home Performance with Energy Star	Midstream Products
HVAC	Prescriptive
Lighting	Retrocommissioning
Quick Home Energy Checkup	Small Business
Residential New Construction	
Schools	
Smart Thermostats	

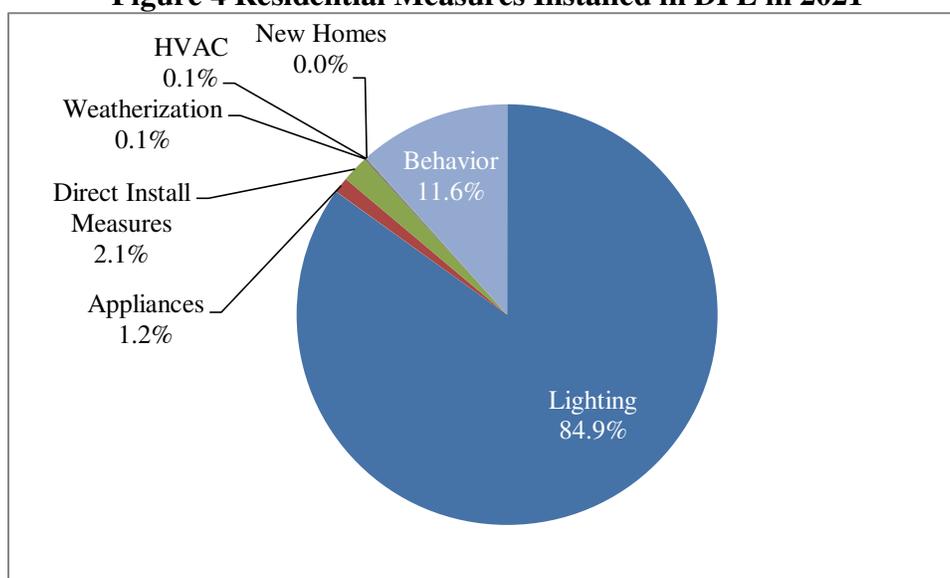
¹⁷ EmPOWER Maryland reduction targets are based upon the individual EmPOWER Maryland filings of each Utility.

DPL realized 103 percent of its 2021 annual energy savings target (or 104,349 MWh) and 107 percent of its forecasted 2021 annual demand reduction target (or 121 MW). DPL’s programs reached over 302,000 participants and installed nearly 1.0 million measures in homes and businesses in the DPL service territory for approximately \$30.1 million.

Table 6 DPL Reported Savings vs Targets for 2021

	2021 Reported Savings	2021 Target Savings ^{18,19}	% of Target Achieved
MWh	104,349	101,171	103%
MW	121	114	107%

Figure 4 Residential Measures Installed in DPL in 2021



¹⁸ EmPOWER Maryland reduction targets are based upon the individual EmPOWER Maryland filings of each Utility.

¹⁹ The demand reduction targets and reported achievements include peak demand reductions generated by both EE&C and DR programs, as both components are part of the total portfolio.

Southern Maryland Electric Cooperative, Inc. (“SMECO”)

SMECO EmPOWER Programs	
Residential Program	Commercial Programs
Appliance Rebates	Combined Heat and Power
Appliance Recycling	Custom
Behavior Based	Midstream Products
Energy Efficiency Kits	Prescriptive
Home Energy Improvement	Retrocommissioning
HVAC	Small Business
Lighting	
My Energy Target	
Residential New Construction	
Schools	
Smart Thermostats	

SMECO realized 113 percent of its 2021 annual energy savings target (or 69,323 MWh) and 91 percent of its forecasted 2021 annual demand reduction target (or 63 MW). SMECO’s programs reached over 387,000 participants and installed almost 1.0 million measures in homes and businesses in the SMECO service territory for approximately \$23.1 million.

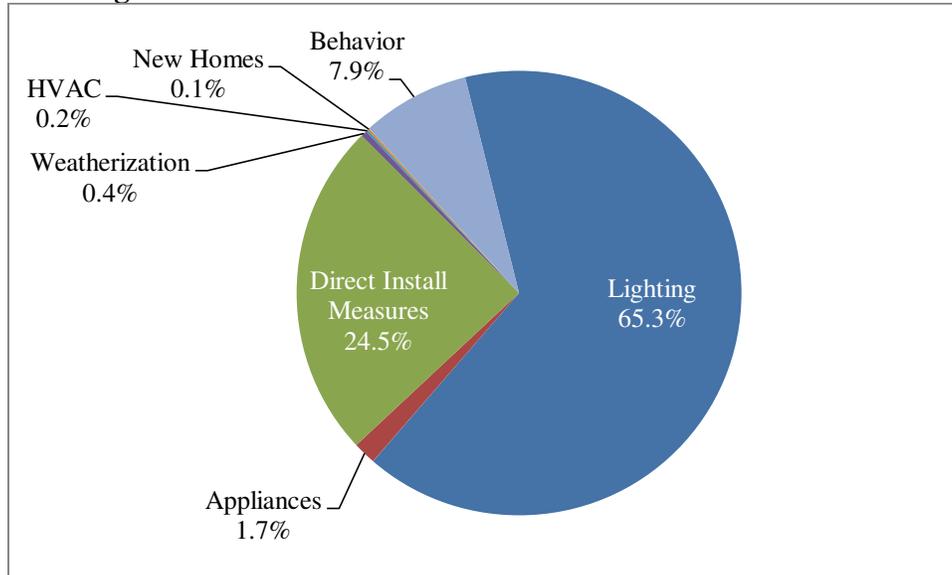
Table 7 SMECO Reported Savings vs Targets for 2021

	2021 Reported Savings	2021 Target Savings ^{20,21}	% of Target Achieved
MWh	69,323	61,459	113%
MW	63	70	91%

²⁰ EmPOWER Maryland reduction targets are based upon the individual EmPOWER Maryland filings of each Utility.

²¹ The demand reduction targets and reported achievements include peak demand reductions generated by both EE&C and DR programs, as both components are part of the total portfolio.

Figure 5 Residential Measures Installed in SMECO in 2021



Washington Gas Light Company (“WGL”)

WGL EmPOWER Programs	
Residential Program	Commercial Programs
Residential Existing Home	C&I Prescriptive
Residential New Construction	Custom
Behavior Based	
Residential Coordinated	

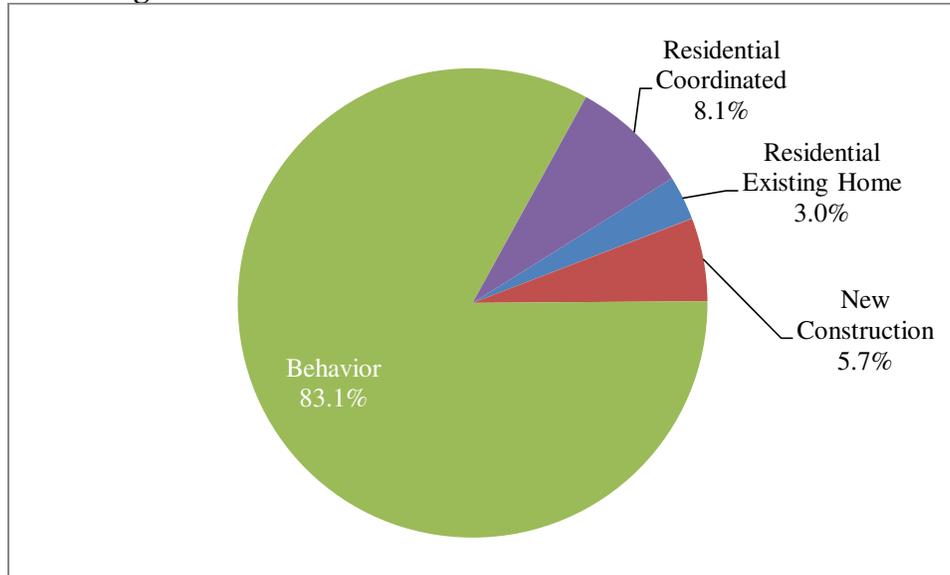
WGL realized 73 percent of its 2021 annual energy savings target (or 1,793,677 Therms). WGL’s programs reached over 129,000 participants and installed over 140,531 measures in homes and businesses in the WGL service territory for approximately \$11.7 million.

Table 8 WGL Reported Savings vs Targets for 2021

	2021 Reported Savings	2021 Target Savings ²²	% of Target Achieved
Therms	1,793,677	2,458,542	73%

²² EmPOWER Maryland reduction targets are based upon the individual EmPOWER Maryland filings of each Utility.

Figure 6 Residential Measures Installed in WGL in 2021



Limited-Income Programs

On December 22, 2011, the Commission, in Order No. 84569, designated DHCD as the sole implementer of Limited-Income programs for the EmPOWER Maryland Utilities. In April 2012, DHCD accepted control of the residential limited-income programs of BGE, PE, and SMECO. In July 2012, the transition was completed with DHCD accepting control of the Pepco and DPL limited-income programs.

In Order No. 86785, issued on December 23, 2014, the Commission authorized DHCD to continue its implementation of the Limited-Income programs in Maryland during calendar year 2015, subject to certain specified structural enhancements such as spending guidelines per household. DHCD was approved as the implementer of the Limited-Income programs for the remainder of the 2015-2017 program cycle in Order No. 86995. In Order No. 89679, DHCD's 2021-2023 program cycle plan was approved.²³

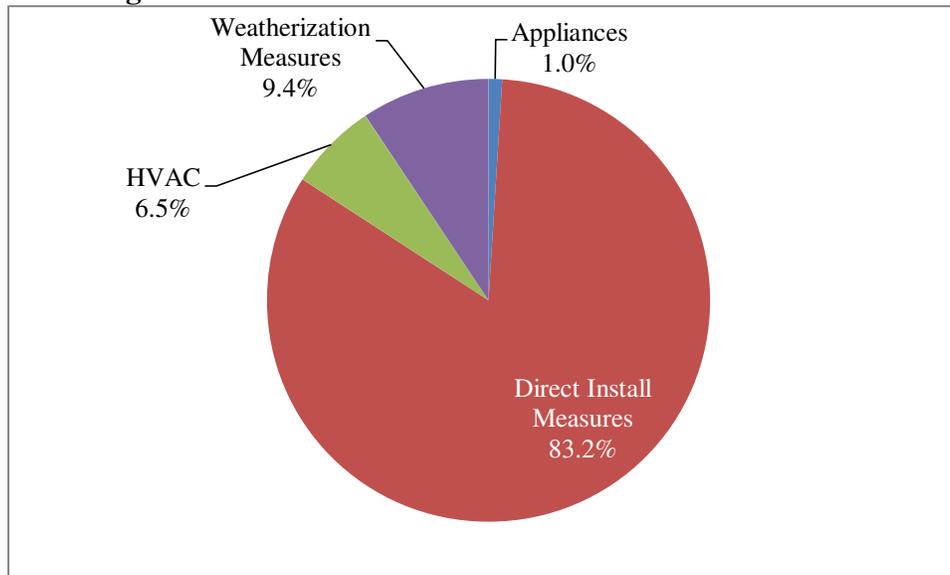
DHCD offers two programs, one for single family homes and another for multifamily properties. In 2021, DHCD weatherized approximately 1,500 limited-income homes and 152 multifamily properties at a total cost of \$10.8 million. The average savings per participant in 2021 was 1,784 kWh.

²³ DHCD also partners with WGL to implement limited-income programs in WGL's service territory.

Table 9 DHCD Reported Savings vs Targets for 2021

Program	Energy/Demand Savings	2021 Reported Savings	2021 Target Savings ²⁴	% of Target Achieved
Single Family	MWh	2,963	4,212	70%
	MW	0.826	1.177	70%
Multifamily	MWh	232	2,542	9%
	MW	0.069	0.398	17%

Figure 7 Residential Measures Installed in DHCD in 2021



Demand Response

The EmPOWER Maryland Act requires the Utilities to implement cost-effective demand response programs; although, there are not currently goals established for the magnitude of demand reduction that each Utility must target (following the realization of the legislatively-mandated 15 percent by 2015 targets). The Commission approved four residential demand response programs in late 2007 and early 2008,²⁵ all of which were operational by the end of 2009.²⁶

Customers who have chosen to participate in the direct load control (“DLC”) programs included in the Utilities’ demand response portfolios have a switch or thermostat installed at their properties to briefly curtail usage of central air conditioning or an electric heat pump in instances of system reliability issues or high electricity prices during critical peak hours. Each direct load control DR program includes the following common components: (1) customer participation in DR programs is voluntary; (2) upon receiving a customer request, the utility installs either a

²⁴ EmPOWER Maryland reduction targets are based upon the individual EmPOWER Maryland filings of DHCD.

²⁵ See Commission Letter Order (Nov. 30, 2007).

²⁶ The Commission did not approve a DR program for PE similar to those implemented for BGE, Pepco, DPL, and SMECO because PE’s proposed program was not cost effective due to lower zonal capacity prices.

programmable thermostat or a direct load control switch for a central air conditioning system or for an electric heat pump on a customer’s premise; (3) the Utilities provide a one-time installation incentive and annual bill credits to the participants during the specified summer peak months; and (4) with the exception of the SMECO DR program, customers can select one of three cycling choices (50 percent, 75 percent, or 100 percent).²⁷ Utilities will invoke the cycling process when PJM calls for an emergency event or if the Utilities individually determine that an event is necessary during summer peak season. Table 10 summarizes the incentives offered by the Utilities to the residential program participants.

Table 10 Utilities’ Incentive Levels for Residential Demand Response Program Participants

Utility	50% Cycling		75% Cycling		100% Cycling		Bill Credit Months
	Installation Incentive	Annual Bill Credit	Installation Incentive	Annual Bill Credit	Installation Incentive	Annual Bill Credit	
BGE	\$50	\$50	\$75	\$75	\$100	\$100	Jun.–Sept.
Pepco	\$40	\$40	\$60	\$60	\$80	\$80	Jun.– Oct.
DPL	\$40	\$40	\$60	\$60	\$80	\$80	Jun.– Oct.
SMECO	***	\$50	***	\$75	N/A	N/A	Jun.– Oct.

*** A participant in SMECO’s CoolSentry program can keep the installed thermostat at no additional cost following 12 months of program participation; otherwise, the thermostat will be removed if the participant terminates participation less than 12 months after installation.

Table 11 summarizes the number of active devices installed for each of the Utilities’ direct load control program on a program-to-date basis through December 31, 2021.

Table 11 Utilities’ Residential Direct Load Program Device Installation

Utility	Residential	Commercial	Total
BGE	370,311	N/A	370,311
DPL	38,668	2,797	41,465
Pepco	232,564	5,943	238,507
SMECO	38,432	94	38,526
Total	679,975	8,834	688,809

Table 12 summarizes the demand reduction capability for the Utilities’ DLC programs as of December 31, 2021.

²⁷ The three cycling choices represent the air conditioner compressor working cycled reduced by 50 percent, 75 percent, and 100 percent under PJM- or utility-invoked emergency events during summer peak season. SMECO only offers a 50 percent and 75 percent cycling level with corresponding bill credits of \$50 and \$75 during the summer months.

Table 12 DLC Program Coincident Peak Demand Reduction (MW)

Utility	Program-to-Date Reported
BGE	246.693
DPL	39.796
Pepco	242.404
SMECO	51.988
Total	580.881

Additional demand reductions are expected to stem from smart grid-enabled dynamic pricing programs, as well as from other non-EmPOWER funded programs such as conservation voltage reduction (“CVR”). Table 13 summarizes the reported demand reductions from the dynamic pricing programs for 2013-2021. BGE, Pepco, and DPL are currently the only Utilities that operate dynamic pricing programs. Demand reductions from dynamic pricing programs represent a snapshot for a particular time period and are dependent upon customer engagement and participation; therefore, demand reductions attributable to dynamic pricing programs could change year-to-year.

Table 13 Dynamic Pricing Demand Reduction (MW)

Utility	2013	2014	2015	2016	2017	2018	2019	2020	2021
BGE	0	209	309	336	330	140	111	110	125
DPL	0	0	143	39	31	47	0	54	64
Pepco	309	125	47	126	135	124	91	55	140
Total	309	334	499	501	496	311	202	219	329

PJM Reliability Pricing Model Capacity Market

PJM conducted the Base Residual Auction (“BRA”) for Delivery Years (“DY”) 2022/2023 in June of 2021 after the auctions was postponed in 2019 due to the complexities arisen from the Federal Energy Regulatory Commission’s (“FERC”) orders stating the PJM auction was non-competitive and adding a Minimum Offer Price Rule (“MOPR”) that was applicable to any capacity resource that was deemed to receive a state subsidy. After receiving FERC orders on October 15 and November 12, 2021, approving PJM’s proposal for fixing the capacity market rules by imposing a MOPR, PJM released a schedule for the capacity auctions. The BRA for the 2022/2023 DY was held in December of 2021 and the BRA for the 2023/2024 DY will be held in June 2022.

EmPOWER Maryland programs are eligible to participate in the capacity auctions and can receive payments from PJM that are used to offset the costs in the EmPOWER programs and lower the surcharge.

The following tables illustrate the cleared capacity and PJM capacity payments for the DLC, EE&C and DP programs.

Table 14 Demand Response Program BRA Results

	Cleared Capacity (MW)	PJM Capacity Payment (Million \$)
DY 2009/2010	217	\$18.8
DY 2010/2011	415	\$26.4
DY 2011/2012	662	\$26.6
DY 2012/2013	953	\$46.5
DY 2013/2014	803	\$67.7
DY 2014/2015	772	\$33.9
DY 2015/2016	625	\$36.0
DY 2016/2017	554	\$24.1
DY 2017/2018	536	\$23.5
DY 2018/2019	522	\$11.5
DY 2019/2020	230	\$1.6
DY 2020/2021	265	\$9.2
DY 2021/2022 ²⁸	N/A	N/A
DY 2022/2023 ²⁹	N/A	N/A
Total	6,554	\$325.8

The Utilities also bid capacity reductions from their EE&C programs and AMI-enabled dynamic pricing programs. Similar to the DLC programs, the Utilities earn capacity payments from PJM for these commitments; the payments are used to offset EE&C program costs and to fund the rebates earned by customers in the dynamic pricing program. Table 15 and Table 16 summarize the capacity bid into the PJM capacity market from the EE&C and dynamic pricing programs by delivery year, and the payments the Utilities receive from PJM.

Table 15 EE&C Program BRA Results

	Cleared Capacity (MW)	PJM Capacity Payment (Million \$)
DY 2012/2013	168	\$8.2
DY 2013/2014	107	\$8.7
DY 2014/2015	179	\$8.3
DY 2015/2016	175	\$10.2
DY 2016/2017	226	\$9.5
DY 2017/2018	243	\$10.8
DY 2018/2019	172	\$10.1
DY 2019/2020	184	\$6.8
DY 2020/2021	199	\$5.8
DY 2021/2022	180	\$11.4
DY 2022/2023	49	\$2.0
Total	1,882	\$91.8

²⁸ The DLC program committed 589 MW of capacity as a Price Responsive Demand resource. Under the prior RPM construct, 589 MW would have earned approximately \$32.8 million in capacity payments from PJM.

²⁹ The DLC program committed 233 MW of capacity as a Price Responsive Demand Resource. Under the prior RPM construct, 233 MW would have earned \$9.8 million in capacity payments from PJM.

Table 16 Dynamic Pricing Program BRA Results

	Cleared Capacity (MW)	PJM Capacity Payment (Million \$)
DY 2014/2015	267	\$12.2
DY 2015/2016	426	\$23.3
DY 2016/2017	461	\$20.0
DY 2017/2018	387	\$17.0
DY 2018/2019	378	\$10.0
DY 2019/2020	225	\$2.2
DY 2020/2021	425	\$13.1
DY 2021/2022	177	\$4.8
DY 2022/2023	186	\$2.5
Total	2,932	\$105.1

Table 17 illustrates the amount of capacity cleared in the BRA by the EmPOWER Utilities for the delivery years of 2020/2021 and 2021/2022. The table also shows the amount of capacity revenue that the Utilities can expect to receive from PJM in the two delivery years, which will be used to offset the costs of the DR, EE&C, and dynamic pricing programs borne by ratepayers.

The amount of capacity cleared in the 2021/2022 DY auctions is 531 MW less than the amount of capacity cleared in the 2020/2021 DY. There are two reasons for this decline. First, the utilities did not bid any capacity from the demand response programs in this auction as these resources do not meet the Capacity Performance requirements. These resources were offered as PRD resources and do not receive capacity payments. Second, capacity cleared for Dynamic Pricing resources are required to aggregate with winter resources in order to clear the capacity auction. There were fewer winter resources to aggregate with in the 2021/2022 auction compared to the 2020/2021 auction.

Table 17 Maryland Utilities' PJM BRA Results and Expected Revenue for Delivery Years 2021/2022 and 2022/2023

DY 2021/2022					DY 2022/2023				
Cleared Bids (MW)				Value	Cleared Bids (MW)				Value
DR	DP	EE&C	Total	(\$Million)	DR	DP	EE&C	Total	(\$Million)
N/A	177	180	357	\$15.1	N/A	186	49	235	\$4.4

EmPOWER Maryland Funding Levels

EE&C Program Funding

On December 18, 2020, in Order No. 89679, the Commission approved the 2021-2023 program cycle budgets based on the EmPOWER Maryland Utilities' proposals. Table 18 breaks down the 2021 Commission-approved budgets for each of the Utilities, while Table 19 illustrates

the actual 2021 expenditures by the Utilities with respect to their EmPOWER Maryland EE&C programs.

Table 18 Forecasted 2021 EE&C Budgets

Utility	Residential	C&I	DHCD Limited-Income Program	Total
BGE	\$63,827,574	\$51,766,958	\$13,110,731	\$128,705,263
DPL	\$8,718,188	\$18,973,175	\$0	\$27,691,363
PE	\$18,953,207	\$23,515,745	\$2,318,310	\$44,787,262
Pepco	\$28,085,352	\$47,734,597	\$0	\$75,819,949
SMECO	\$17,763,440	\$7,755,851	\$0	\$25,519,292
Total	\$137,347,760	\$149,746,327	\$15,429,041	\$302,523,128

Table 19 Reported 2021 EE&C Spending

Utility	Residential	C&I	DHCD Limited-Income Program	Total
BGE	\$48,032,185	\$47,665,402	\$13,388,033	\$109,085,620
DPL	\$7,394,634	\$14,754,314	\$3,676,929	\$25,825,877
PE	\$14,139,391	\$13,823,950	\$2,861,213	\$30,824,555
Pepco	\$23,937,072	\$42,236,638	\$3,057,608	\$69,231,318
SMECO	\$11,280,558	\$5,987,221	\$10,741	\$17,278,519
Total	\$104,783,839	\$124,467,526	\$22,994,524	\$252,245,889

Table 20 details the EmPOWER Maryland EE&C program surcharges and revenue requirements for each of the Utilities. The EmPOWER Maryland surcharges are a volumetric-based charge, subject to the individual ratepayer's monthly energy usage. The revenue requirements do not correspond to the filed budgets because program costs are amortized and collected over a five-year period as directed by the Commission in Order No. 81637.³⁰

Table 20 2021 EE&C Monthly Surcharges (per kWh) and Revenue Requirements

Utility	Residential	Small C&I	Large C&I	Revenue Requirement
BGE	\$0.00452	\$0.01035	\$0.00398	\$119,180,237
DPL	\$0.00120	\$0.00681	\$0.00681	\$24,940,242
PE	\$0.00717	\$0.00523	\$0.00525	\$36,285,965
Pepco	\$0.00473	\$0.00625	\$0.00625	\$75,845,666
SMECO	\$0.00819	\$0.00474	\$0.00474	\$21,183,704

Demand Response Program Funding

The December 17, 2020 Commission Order similarly approved three-year budgets for the demand response programs operated by BGE, DPL, Pepco, and SMECO. Table 21 details the

³⁰ *In the Matter of the Commission's Investigation of Advanced Metering Technical Standards, Demand Side Management (DSM) Cost Effectiveness Tests, DSM Competitive Neutrality, and Recovery of Costs Advanced Meters and DSM Programs*, Case No. 9111.

EmPOWER Maryland demand response surcharges and revenue requirements for each of the Utilities operating an approved DR program.³¹

Table 21 2021 Demand Response Monthly Surcharges (per kWh) and Revenue Requirements

Utility	Residential	C&I	Revenue Requirement
BGE	\$0.00150	N/A	\$16,818,773
DPL	\$0.00120	\$0.00009	\$2,601,954
Pepco	\$0.00184	\$0.00014	\$11,192,212
SMECO	\$0.00167	\$0.00070	\$4,551,124

Table 22 details the respective forecasted and reported budgets for each of the EmPOWER Utilities operating an approved DR program during 2021. All of the Utilities’ programs were under budget for the 2021 program year.

Table 22 2021 Demand Response Forecasted and Reported Budgets

Utility	Forecasted Budget	Reported Costs	Variance
BGE	\$48,033,082	\$35,893,452	(\$12,139,630)
DPL	\$4,304,506	\$4,199,534	(\$104,972)
Pepco	\$17,633,599	\$18,664,636	\$1,031,036
SMECO	\$6,149,691	\$5,521,015	(\$628,677)
Total	\$76,120,879	\$64,278,637	(\$11,842,242)

Evaluation, Measurement & Verification

Determining and validating electricity savings and related impacts is a critical component of EE&C and DR programs. The process of evaluation, measurement, and verification (“EM&V”) of resulting program savings is particularly important in determining: the effectiveness of program delivery; the factors driving or impeding customer participation in programs; characteristics of participants and non-participant customers; determinants of equipment decisions; and customer satisfaction with program delivery. Moreover, the design and depth of program data collection, monitoring, and analyses can impact the accuracy and prudence of compliance results. Given the scale of the EmPOWER Maryland initiative and the potential bill impacts, the Commission is sensitive to the issue of program credibility and transparency. This process also evaluates free-ridership, spillover, cost-effectiveness, deemed savings calculations, etc., pertinent to a thorough and ongoing review of viable and cost-effective energy efficiency and demand response programs.

Based on EM&V best practices, the Commission adopted an independent, third-party evaluator model to review the EmPOWER portfolio results.³² In this model, the Utilities direct primary evaluation and verification activities through an EM&V contractor; subsequently, the

³¹ PE did not operate a separate DR program during 2021 and therefore did not file for a surcharge recovery of DR program costs.

³² Order No. 82869 (Aug. 31, 2009).

Commission’s third-party, independent evaluator provides independent analysis and due diligence of the EM&V process. Because this thorough evaluation process requires up to six months following the receipt of program data from the prior calendar year to complete, this report illuminates the results of the Utilities’ 2020 program year reported savings.

Overall EM&V Findings of the 2020 EmPOWER EE&C Program

Energy and Peak Demand Savings

In 2020, Guidehouse’s evaluation of the first-year savings³³ was 1,166,360 MWh and 235.105 MW, which was 96 percent and 106 percent of the Utilities’ reported energy and demand savings for that year. For the 2020 program year, Guidehouse estimated an effective Net-to-Gross (“NTG”) ratio of 0.71 for annual energy savings and 0.78 for peak demand savings. The NTG ratio is used to derive savings specifically attributable to the EmPOWER programs by calculating free-ridership levels and reducing reported gross savings by that amount.³⁴ Following the application of the calculated NTG ratios, the net savings for program year 2020 were 830,640 MWh and 182.967 MW.

As the EmPOWER Maryland Independent Evaluator, Itron, Inc. (“Itron”) supports the Commission’s oversight of the statewide evaluation of the EmPOWER EE&C programs conducted by Navigant. Itron’s verification analysis confirmed Navigant’s results and accepted all of the evaluated energy and demand savings estimates for program year 2020. This important result should increase ratepayer and other stakeholders’ confidence that the evaluated savings from the EmPOWER Maryland programs are real and credible.

Given that the key energy assumption values and NTG ratios have been updated and other anomalies in the program tracking databases have been rectified to improve the quality of reporting, it is expected that the Utilities’ reported savings estimates for 2021 should continue to be very similar to the evaluation results. Changes to evaluation parameters and codes and standards will have the effect of raising the baseline level of energy savings, therefore reducing the incremental energy savings achieved by installing efficient equipment. The EM&V contractors will monitor and reflect these changes in future evaluation cycles.

Cost Effectiveness

Table 23 presents the 2020 total resource cost (“TRC”) test cost-effectiveness results by sector for each of the Utilities.³⁵ The sector-level benefit-to-cost ratios reflect the present value of the benefits compared to the present value of the costs, aggregated from each program in the sector-level sub-portfolio. As noted, TRC ratios greater than 1.0 indicate that the financial benefits that accrue over the life of the measures exceed the financial costs of the program, specifically the costs associated with: utility program administration; the provision of incentives to free riders; and customer outlays for the efficiency measures. Statewide, both the Residential

³³ “First-year savings” is the amount of energy a measure will save in the first year in which the measure is installed.

³⁴ A “free rider” is a customer who would have installed an energy efficiency measure absent the utility-provided EmPOWER incentive.

³⁵ The 2021 program year cost-effectiveness results are expected in the second half of 2022.

and C&I sub-portfolios were cost effective in 2020, with overall TRC scores of 1.27 and 1.30, respectively.

Table 23 2020 Portfolio TRC Results

	Residential	Commercial	Portfolio
BGE	1.38	1.32	1.34
Pepco	0.94	1.22	1.14
PE	1.42	1.29	1.34
DPL	0.86	1.47	1.32
SMECO	1.50	1.18	1.39
Statewide	1.27	1.30	1.29

At the statewide level, the 2020 EmPOWER portfolio is expected to generate approximately \$1.29 in utility and participant benefits for each dollar of utility and participant cost. For a total investment of \$314 million,³⁶ the State’s Utilities, participants, and ratepayers will realize approximately \$407 million³⁷ in financial benefits via electricity, fuel, and water savings generated over the lifetime of the measures installed through the EmPOWER program. These results correspond to a net benefit of approximately \$93 million.

When assessing whether to approve the Utilities’ plans, the Commission evaluates cost effectiveness at the sub-portfolio level, i.e., the C&I and Residential sub-portfolios should both generate TRC ratios greater than 1.0. Thus, individual programs do not necessarily need to be cost effective as long as other programs are sufficiently cost-effective to generate sector-level TRC ratios that are greater than 1.0. The Commission may approve individual programs that are not individually cost effective to ensure a broader array of energy-saving opportunities amongst rate classes, income levels, etc., or because the program may promote innovative technologies and market-transformative practices leading to broader energy savings. All EmPOWER Utilities have developed cost-effective portfolios that pass the TRC test - most by a comfortable margin.

2021 per Capita Electricity Consumption and Peak Demand

Table 24 and Table 25 compare the per capita energy use and peak demand from 2011 to 2021 for all Maryland utilities. In 2021, a majority of the State’s electric utilities experienced a decrease in per capita energy use and per capita peak demand as compared to 2020 levels.

³⁶ The \$309 million total investment is the present value of both utility and participant costs.

³⁷ The \$401 million in financial benefits is the present value of both utility and participant benefits.

Table 24 2011 - 2021 Per Capita Energy Consumption

	Per Capita Energy Use MWh										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
BGE	12.65	12.26	12.06	11.86	11.82	11.57	11.31	11.44	11.25	11.17	11.10
Pepco	8.91	8.18	8.1	7.81	7.94	7.73	7.56	7.6	7.45	7.21	7.17
PE	17.17	16.93	17.53	17.64	17.39	17.57	17.6	18.1	17.47	17.04	16.52
Delmarva	13.02	12.61	12.6	12.55	13	12.73	12.65	12.89	12.52	12.1	9.79
SMECO	10.85	10.61	10.49	10.21	10.25	10.03	9.72	9.75	9.96	9.45	9.20
Choptank	12.58	12.31	12.92	12.55	13.04	12.73	13.24	13.42	12.52	12.1	N/A
Hagerstown	8.37	7.93	7.71	7.6	7.62	7.58	7.49	8.27	8.05	7.71	7.91
Easton	16.59	16.65	16.52	16.41	16.55	16.33	16.03	17.12	17.36	15.01	15.63
Thurmont	13.73	13.02	13.27	13.02	13.68	13.06	12.61	13.41	11.94	11.77	11.22
Berlin	9.31	9.4	9.37	9.9	10.61	10.15	9.86	11.06	10.13	10.05	10.21
Williamsport	9.2	9.44	9.87	10.06	10.04	9.64	9.39	9.85	9.65	9.34	9.86
Somerset	4.49	N/A									
A&N Coop.	8.05	10.83	10.81	11.06	N/A						

Table 25 2011 - 2021 Per Capita Peak Demand

	Per Capita Energy Use kW										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
BGE	2.7	2.38	2.38	2.27	2.36	2.4	2.34	2.36	2.22	2.3	2.29
Pepco	1.98	1.79	1.55	1.57	1.88	2.03	1.62	1.62	2.73	2.6	2.58
PE	3.24	3.27	3.1	2.62	3.68	3.49	3.42	3.34	3.19	3.39	3.28
Delmarva	2.76	2.8	2.72	2.62	2.76	2.83	2.67	2.64	2.67	2.61	2.11
SMECO	2.42	2.22	2.15	1.93	2.76	2.36	2.41	2.42	2.27	2	1.94
Choptank	2.77	3.17	3.33	2.59	3.33	2.83	2.99	2.98	3.31	3.08	N/A
Hagerstown	1.71	1.65	1.54	1.28	1.66	1.5	1.52	1.55	1.49	1.56	1.52
Easton	4.04	4.09	3.81	3.24	4.27	3.73	3.63	3.63	3.6	3.42	3.42
Thurmont	2.58	2.41	2.39	2.03	4.33	3.26	2.94	3.11	3.44	2.63	2.45
Berlin	1.99	2.44	2.09	2.19	2.3	1.17	2.21	2.27	2.1	2.31	2.25
Williamsport	1.64	1.85	1.87	1.39	2.48	2.15	2.18	2.21	2.52	2.09	1.96
Somerset	1	N/A									
A&N Coop.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 26 illustrates the per capita electricity usage and peak demand statewide. Generally, statewide per capita energy usage has been lower in 2019-2021 than previous years.

Table 26 Statewide Per Capita Electricity Usage and Peak Demand 2007-2021

Year	Per Capita Energy Use MWh	Per Capita Energy Use kW
2007	12.38	2.56
2008	11.74	2.49
2009	11.73	2.53
2010	12.02	2.40
2011	11.70	2.50
2012	11.21	2.28
2013	11.13	2.18
2014	10.91	2.07
2015	10.96	2.37
2016	10.74	2.39
2017	10.53	2.21
2018	10.68	2.22
2019	10.49	2.50
2020	10.27	2.49
2021	10.02	2.42

Upcoming Milestones

The Commission will review several Work Group reports as a result of Commission Order Nos. 89855 and 90003.

- Finance Work Group
 - A report, filed March 1, 2022, on any cost differential associated with lowering the credit score requirement for the CEA Pilot Program and the (anticipated or actual) launch date and reporting templates for the CEA Pilot Program
 - A final report, filed July 25, 2023 on the CEA Pilot Program
- ERPI Work Group
 - A report, filed February 15, 2022, on advising the Commission of the metrics established and communications made to the Utilities regarding Midstream Program data
 - To file updated reporting templates designed to include relevant greenhouse gas reduction data by April 15, 2022
- Midstream Work Group
 - A status report, filed by April 15, 2022, with the ERPI Work Group to establish and communicate to the Utilities the necessary reporting metrics for their respective Midstream Programs
- Limited Income Work Group
 - A status report, filed by April 15, 2022, with DHCD on an analysis of whether the current MEEHA funding allocation for each service territory is reasonable and, if appropriate, to submit to the Commission for approval the revised budget(s) containing modified funding allocation

Finally, the current goal structure for EmPOWER Maryland is mandated by legislation through the end of the 2021-2023 program cycle. The Commission is required to provide the General

Assembly with recommendations on future goals and cost effectiveness by July 1, 2022. The Commission established a Future of EmPOWER Work Group and directed the Work Group to convene at the start of the 2021-2023 program cycle and develop a plan and timeline to be filed with the Commission by April 15, 2021. The Work Group was directed to file final recommendations by April 15, 2022, to allow time for the Commission and stakeholders to review the Work Group's findings prior to the Commission reporting any recommendations to the General Assembly.