

PUBLIC SERVICE COMMISSION
OF MARYLAND

The EmPOWER Maryland Energy Efficiency Act
REPORT OF 2020

With Data for Compliance Year 2019

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

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TABLE OF CONTENTS

Report Contents	1
Executive Summary.....	1
Initiative Highlights	2
EmPOWER Maryland Portfolios	3
Energy Efficiency & Conservation Programs.....	4
Baltimore Gas and Electric Company (“BGE”)	5
Potomac Electric Power Company (“Pepco”)	6
The Potomac Edison Company (“PE”).....	7
Delmarva Power & Light Company (“DPL”)	8
Southern Maryland Electric Cooperative, Inc. (“SMECO”).....	9
Washington Gas Light Company (“WGL”)	10
Limited-Income Programs	11
Demand Response	12
PJM RPM Capacity Market.....	14
EmPOWER Maryland Funding Levels	16
EE&C Program Funding.....	16
Demand Response Program Funding	17
Evaluation, Measurement & Verification.....	18
Overall EM&V Findings of the 2018 EmPOWER EE&C Program.....	19
Energy and Peak Demand Savings	19
Cost Effectiveness	19
2019 per Capita Electricity Consumption and Peak Demand	20
Upcoming Milestones.....	22

Report Contents

This document constitutes the 2020 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 March 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 2, 2019 to review the semi-annual EmPOWER reports filed by the EmPOWER Maryland Utilities¹ (hereinafter “Utilities”), Washington Gas (“WGL”), and the Maryland Department of Housing and Community Development (“DHCD”), with data from the third and fourth quarters of 2018. Following these hearings on July 11, 2019, the Commission issued Order No. 89189, which addressed program design, budget requests, and provided directives for several EmPOWER Maryland Work Groups. Specifically, the Commission approved the transition of measures to the HVAC Midstream Program and the Electric Utilities were directed to complete the rollout of the Midstream HVAC

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”).

Programs in 2019 as approved in their 2019-2020 plans. Further, the Commission directed the Cost Recovery Work Group and Finance Work Group to file reports by September 1, 2020.

The Commission held its second legislative-style hearing on October 25, 2019, to consider the semi-annual EmPOWER reports filed by the Utilities, WGL and DHCD for the first and second quarters of 2019. On December 20, 2019, the Commission issued Order No. 89404, which provided direction on programmatic improvements and modifications. Specifically, the Order approved the final plan for the Electric and Gas Residential New Construction Program and Phase II of the Residential Natural Gas-Electric Coordinated Program, which included a modification to the performance-based incentive (“PBI”) structure. The Order also directed the Utilities to report on the steps taken to increase participation in the limited-income programs and the Commission Staff and DHCD were directed to co-lead the Limited-Income Work Group.

Initiative Highlights

- Program-to-date, the Utilities’ EmPOWER Maryland programs have saved a total of 10,197,376 MWh and 2,530 MW. The expected savings associated with EmPOWER Maryland programs is approximately \$10.5 billion over the life of the installed measures for the EE&C programs.
- Across all Utilities, the lifecycle cost² per kWh for the EE&C programs, in 2019, is \$0.020 per kWh - significantly lower than the current cost of Standard Offer Service (“SOS”), which ranges from \$0.053 to \$0.075 per kWh.
- Program-to-date, the Utilities have spent over \$2.8 billion on the EmPOWER Maryland programs, including approximately \$1.9 billion on EE&C programs and \$814 million on DR programs.
- EmPOWER EE&C programs continue to be cost effective on a statewide basis in 2018, with a statewide Total Resource Cost (“TRC”) score of 1.22 verified for program year 2018. For every dollar of reported utility or participant cost, the EmPOWER EE&C programs generate approximately \$1.22 in benefits.
- Program-to-date, 39,286 limited-income customers participated in EmPOWER Maryland through the Residential Limited-Income Programs. In 2019, 5,184 limited-income households participated. The average savings per participant in 2019 was 1,480 kWh. Program-to-date spending on limited-income energy efficiency programs is approximately \$196.6 million.
- The average monthly residential surcharge bill impacts³ for 2019 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 2019

	EE&C	DR	Dynamic Pricing ⁴	Total
BGE	\$3.91	\$3.22	\$0.23	\$7.36
DPL	\$3.71	\$1.21	(\$0.79)	\$4.13
PE	\$5.82	N/A	N/A	\$5.82
Pepco	\$4.29	\$2.96	\$0.21	\$7.46
SMECO	\$4.90	\$2.08	N/A	\$6.98

- The reported energy savings for 2019 and program-to-date are as follows:

Table 2 Utility Achievement Against the 2 Percent Energy Savings Goal^{5,6}

	Incremental 2019 Reported Energy Savings (MWh) ⁷	2019 Energy Savings as a % of 2016 Retail Sales Baseline	2019 Target Energy Savings %	Program-to-Date Reduction (MWh) ⁸
BGE	841,310	2.63%	2.00%	5,689,452
DPL	117,158	2.79%	2.00%	507,934
PE	145,460	1.96%	1.60%	843,508
Pepco	509,367	3.50%	2.00%	2,866,576
SMECO	75,907	2.24%	1.99%	403,308

EmPOWER Maryland Portfolios

For the 2018-2020 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

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 2019 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 2018. The dynamic pricing surcharge for DPL was negative in 2019 (*i.e.* resulted in a credit) because the PJM Capacity payments received by DPL 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*.

directive is limited to those programs that the Commission deems appropriate and cost effective. 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. 88514, issued on December 22, 2017, the Commission approved plans for the 2018-2020 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 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”)

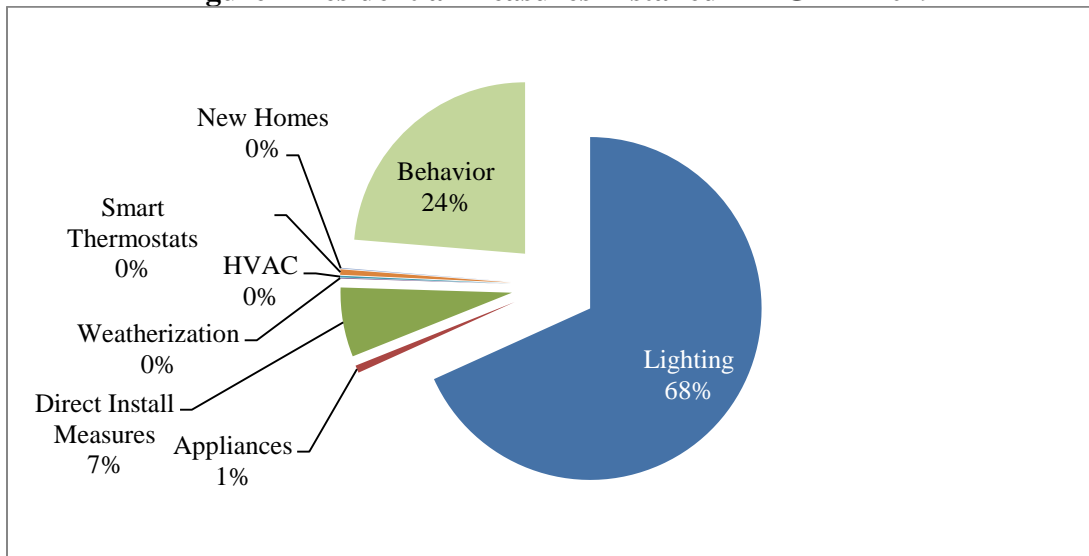
BGE EmPOWER Programs	
Residential Program	Commercial Programs
Appliance Rebates	Combined Heat and Power
Appliance Recycling	Custom
Behavior Based	Midstream Products
Dynamic Pricing	Prescriptive
Home Performance with Energy Star	Retrocommissioning
HVAC	Small Business
Lighting	
Quick Home Energy Checkup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

BGE realized 124 percent of its 2019 annual energy savings target (or 841,310 MWh) and 68 percent of its forecasted 2019 annual demand reduction target (or 576 MW). BGE’s programs reached nearly 2.4 million participants and installed over 8.7 million measures in homes and businesses in the BGE service territory for approximately \$164.0 million.

Table 3 BGE Reported Savings vs Targets for 2019

	Incremental 2019 Reported Savings	2019 Target Savings ^{13,14}	% of Target Achieved
MWh	841,310	675,739	124%
MW	576	867	68%

Figure 1 Residential Measures Installed in BGE in 2019



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.

Potomac Electric Power Company (“Pepco”)

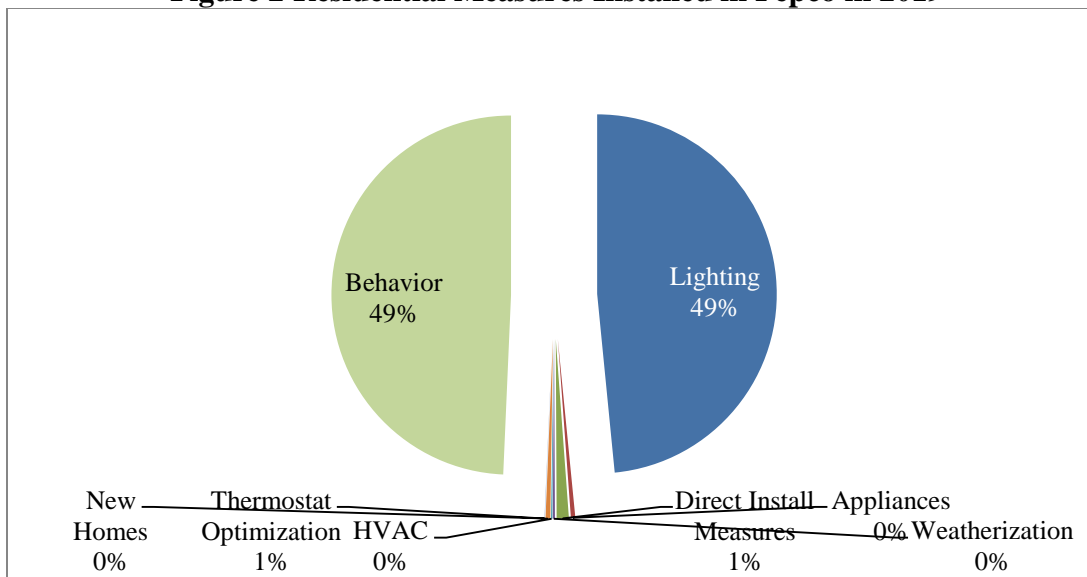
Pepco EmPOWER Programs	
Residential Program	Commercial Programs
Appliance Rebates	Combined Heat and Power
Appliance Recycling	Custom
Behavior Based	Energy Efficient Communities
Home Performance with Energy Star	Midstream Products
HVAC	Prescriptive
Lighting	Retrocommissioning
Quick Home Energy Checkup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

Pepco realized 132 percent of its 2019 annual energy savings target (or 509,367 MWh) and 186 percent of its forecasted 2019 annual demand reduction target (or 486 MW). Pepco’s programs reached nearly 452,500 participants and installed over 4.7 million measures in homes and businesses in the Pepco service territory for approximately \$93.2 million.

Table 4 Pepco Reported Savings vs Targets for 2019

	Incremental 2019 Reported Savings	2019 Target Savings ^{15,16}	% of Target Achieved
MWh	509,367	384,065	132%
MW	486	260	186%

Figure 2 Residential Measures Installed in Pepco in 2019



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.

The Potomac Edison Company (“PE”)

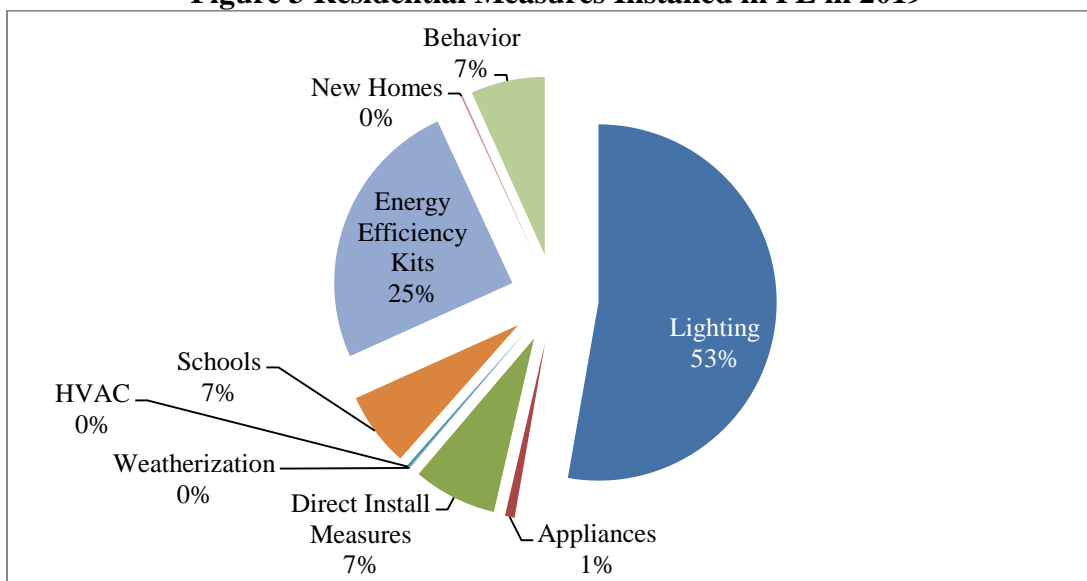
PE EmPOWER Programs	
Residential Program	Commercial Programs
Appliance Rebates	Custom
Appliance Recycling	Prescriptive
Behavior Based	Small Business
Consumer Electronics	
Energy Efficiency Kits	
Home Performance with Energy Star	
HVAC	
Lighting	
Quick Home Energy Checkup	
Residential New Construction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

PE realized 121 percent of its 2019 annual energy savings target (or 145,460 MWh) and 113 percent of its forecasted 2019 annual demand reduction target (or 22 MW). PE’s programs reached over 368,000 participants and installed nearly 1.6 million measures in homes and businesses in the PE service territory for approximately \$29.8 million.

Table 5 PE Reported Savings vs Targets for 2019

	Incremental 2019 Reported Savings	2019 Target Savings ¹⁷	% of Target Achieved
MWh	145,460	119,740	121%
MW	22	19	113%

Figure 3 Residential Measures Installed in PE in 2019



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

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
Family Farms	Midstream Products
Home Performance with Energy Star	Prescriptive
HVAC	Retrocommissioning
Lighting	Small Business
Quick Home Energy Checkup	
Residential New Construction	
Schools	
Smart Thermostats	

DPL realized 122 percent of its 2019 annual energy savings target (or 117,158 MWh) and 81 percent of its forecasted 2019 annual demand reduction target (or 61 MW). DPL’s programs reached over 142,000 participants and installed over 1.4 million measures in homes and businesses in the DPL service territory for approximately \$30.9 million.

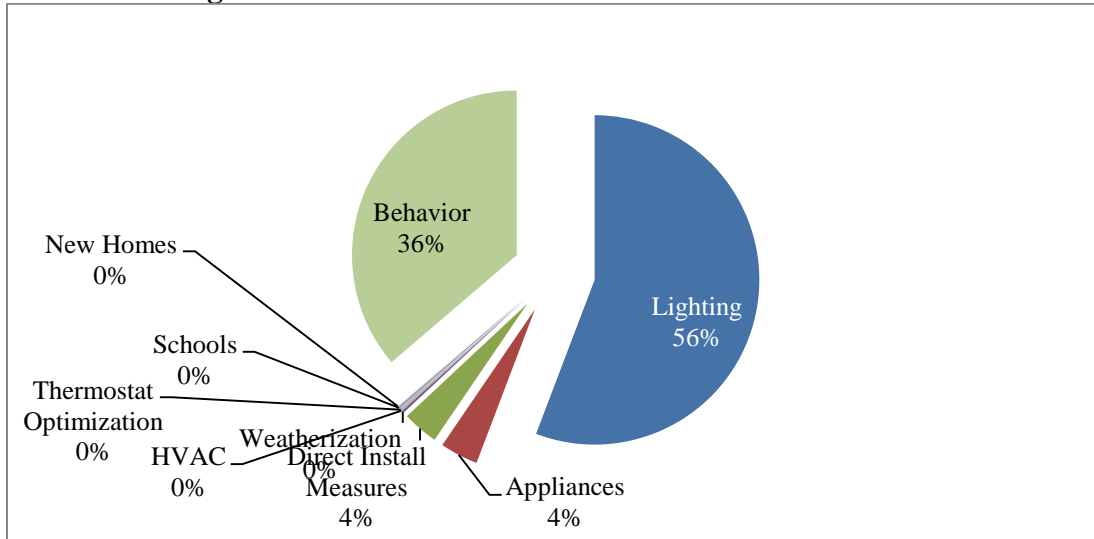
Table 6 DPL Reported Savings vs Targets for 2019

	Incremental 2019 Reported Savings	2019 Target Savings ^{18,19}	% of Target Achieved
MWh	117,158	95,746	122%
MW	67	81	83%

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.

Figure 4 Residential Measures Installed in DPL in 2019



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

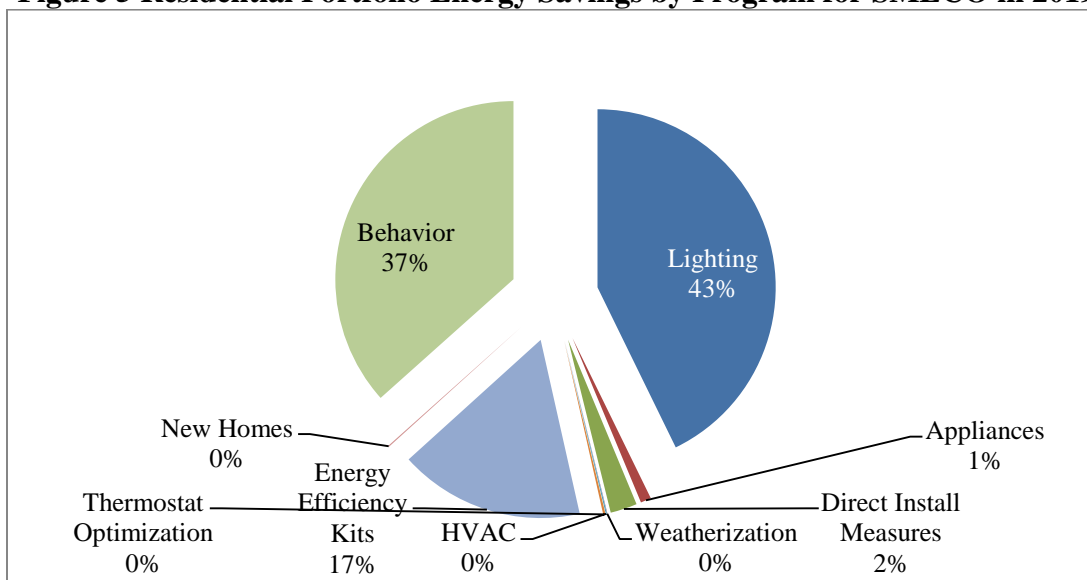
SMECO EmPOWER Programs	
Residential Program	Commercial Programs
Appliance Rebates	Combined Heat and Power
Appliance Recycling	Custom
Behavior Based	Midstream Products
Energy Efficiency Kits	Prescriptive
Home Energy Improvements	Retrocommissioning
HVAC	Small Business
Lighting	
Residential New Construction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

SMECO realized 106 percent of its 2019 annual energy savings target (or 75,907 MWh) and 88 percent of its forecasted 2019 annual demand reduction target (or 63 MW). SMECO’s programs reached over 283,800 participants and installed over 1.0 million measures in homes and businesses in the SMECO service territory for approximately \$22.1 million.

Table 7 SMECO Reported Savings vs Targets for 2019

	Incremental 2019 Reported Savings	2019 Target Savings ^{20,21}	% of Target Achieved
MWh	75,907	71,606	106%
MW	63	72	88%

Figure 5 Residential Portfolio Energy Savings by Program for SMECO in 2019



Washington Gas Light Company (“WGL”)²²

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

WGL realized 84 percent of its 2019 annual energy savings target (or 1,526,163 therms). WGL completely redesigned its programs for the 2018-2020 program cycle, with 2018 results well below forecasts. In 2019, WGL had programs operating for the full year and the program results in the residential and commercial portfolios improved over 2018 results. WGL’s

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.

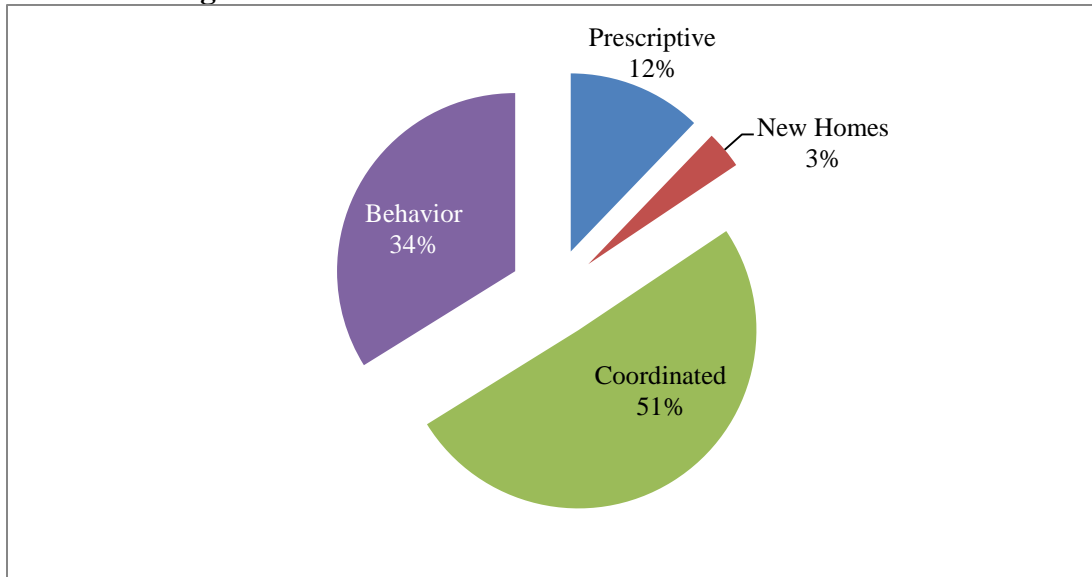
²² Pursuant to PUA §7-211(d) and (f), WGL filed a plan for energy efficiency programs with the Commission in 2015. The Commission has approved WGL's plans for the 2015-2017 program cycle and 2018-2020 program cycle. While WGL does not have a statutory energy savings goal as a gas-only utility, WGL still abides by the same reporting and cost-effectiveness standards as the electric utilities.

programs reached over 59,000 participants and installed over 90,000 measures in homes and businesses in the WGL service territory for approximately \$7.7 million.

Table 8 WGL Reported Savings vs Targets for 2019

	Incremental 2019 Reported Savings	2019 Target Savings ²³	% of Target Achieved
Therms	1,526,163	1,817,006	24%

Figure 6 Residential Measures Installed in WGL in 2019



Limited-Income Programs

DHCD has implemented the limited-income program since 2012. DHCD offers two programs, one for single family homes and another for multifamily properties. In 2019, DHCD weatherized approximately 3,541 limited-income homes and 87 multifamily properties at a total cost of \$25.9 million. Total energy savings per job averaged 1,480 kWh.

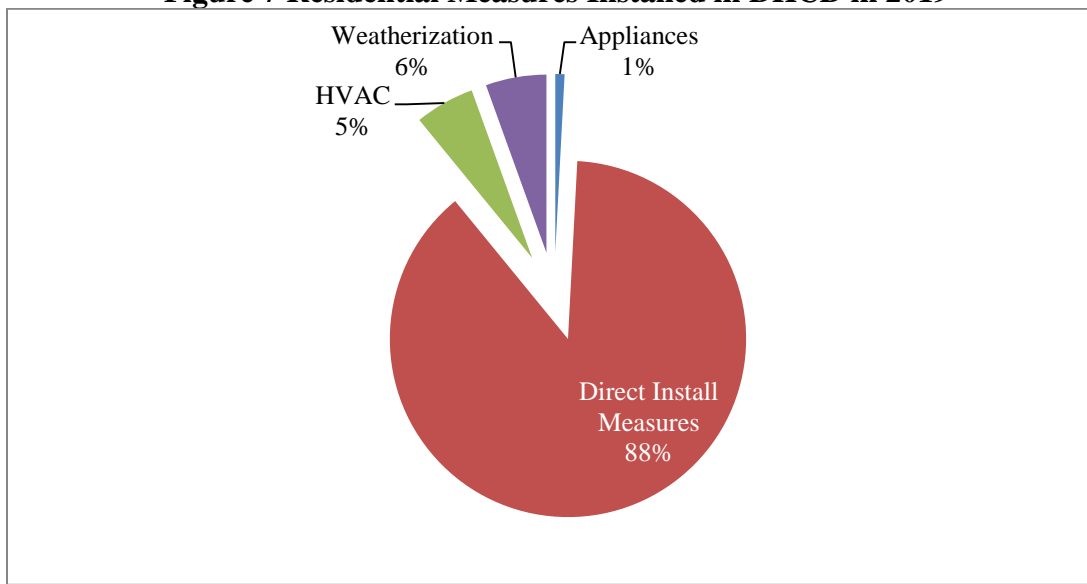
Table 9 DHCD Reported Savings vs Targets for 2019

Program	Energy/Demand Savings	Incremental 2019 Reported Savings	2019 Target Savings ²⁴	% of Target Achieved
Single Family	MWh	4,404	8,491	52%
	MW	3.0	2.5	121%
Multifamily	MWh	3,266	1,984	165%
	MW	0.9	0.6	166%

²³ EmPOWER Maryland reduction targets are based upon the individual EmPOWER Maryland filings of each utility.

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

Figure 7 Residential Measures Installed in DHCD in 2019



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 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

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.

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.

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 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, 2019.

Table 11 Utilities’ Direct Load Program Device Installation

Utility	Residential	Commercial	Total
BGE	380,814	N/A	380,814
DPL	38,803	3,000	41,803
Pepco	223,788	5,943	229,731
SMECO	45,332	48	45,380
Total	688,737	6,291	697,728

Table 12 summarizes the demand reduction capability for the Utilities’ DLC programs as of December 31, 2019.

Table 12 DLC Program Coincident Peak Demand Reduction (MW)

Utility	Program-to-Date Reported
BGE	275.000
DPL	41.464
Pepco	233.729
SMECO	52.811
Total	603.004

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 2013-2019. 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
BGE	0	209	309	336	330	140	111
DPL	0	0	143	39	31	47	53
Pepco	309	125	47	126	135	124	91
Total	309	334	499	501	496	311	255

PJM RPM Capacity Market

Due to rulings by the Federal Energy Regulatory Commission (“FERC”), PJM did not conduct the 2019 Reliability Pricing Model (“RPM”) Base Residual Auction (“BRA”) for Delivery Year (“DY”) 2022/2023. On June 29, 2018, FERC ruled the PJM’s existing Minimum Offer Price Rule (“MOPR”), which had been only applied to new natural gas generation, does not result in a competitive market due to resources receiving out of market payments. On December 19, 2019, FERC issued an Order requiring PJM to revise the MOPR to address state subsidies and their impact in the PJM capacity market. The Order extended the MOPR to cover resources receiving out-of-market support through state subsidies, unless the resource qualifies for an exemption set forth by FERC.

It is unclear what the full effect of the changes to the MOPR will have on the EmPOWER Maryland programs’ ability to participate in the RPM Capacity Market. PJM has made several changes to the eligibility to participate in the capacity market, the most recent being the Capacity Performance Standard, which requires resources that clear in the market be available for 24 hours a day, 7 days a week, 365 days a year. The EmPOWER Maryland demand response programs are summer resources that control load through the cycling of air conditioning equipment. These resources can be aggregated with a winter resource to participate in the capacity market, but there was little success with this plan in the 2018 RPM auction.

The following tables illustrate the declining cleared capacity from the demand response programs over time and the declining revenue from PJM that has been used to offset EmPOWER Maryland program costs and lower surcharge bill impacts.

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 2021/2022²⁸	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
Total	1,833	\$89.8

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.

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
Total	2,746	\$102.6

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 2020/2021 and 2021/2022

DY 2020/2021					DY 2021/2022				
Cleared Bids (MW)				Value	Cleared Bids (MW)				Value
DR	DP	EE&C	Total	(\$Million)	DR	DP	EE&C	Total	(\$Million)
265	425	199	889	\$28.0	N/A	177	180	357	\$15.1

EmPOWER Maryland Funding Levels

EE&C Program Funding

On December 22, 2017, in Order No. 88514, the Commission approved the 2018-2020 program cycle budgets based on the EmPOWER Maryland Utilities' proposals. Table 18 breaks down the 2019 Commission-approved budgets for each of the Utilities, while Table 19 illustrates

the actual 2019 expenditures by the Utilities with respect to their EmPOWER Maryland EE&C programs.

Table 18 Forecasted 2019 EE&C Budgets

Utility	Residential	C&I	DHCD Limited- Income Program	Total
BGE	\$71,853,705	\$55,568,398	\$15,967,824	\$143,389,927
DPL	\$7,803,565	\$17,628,208	\$0	\$25,431,774
PE	\$17,885,523	\$17,258,428	\$4,141,043	\$39,284,994
Pepco	\$22,398,531	\$51,629,482	\$0	\$74,028,013
SMECO	\$11,384,760	\$6,039,412	\$0	\$17,424,172
Total	\$131,326,084	\$148,123,928	\$20,108,867	\$299,558,879

Table 19 Reported 2019 EE&C Spending

Utility	Residential	C&I	DHCD Limited- Income Program	Total
BGE	\$57,978,980	\$57,283,384	\$14,117,353	\$129,379,717
DPL	\$7,632,874	\$13,886,761	\$4,967,888	\$26,487,523
PE	\$13,838,225	\$13,822,840	\$2,140,657	\$29,801,722
Pepco	\$20,987,505	\$49,520,165	\$4,194,954	\$74,702,624
SMECO	\$10,040,803	\$5,090,347	\$10,505	\$15,141,655
Total	\$110,478,387	\$139,603,497	\$25,431,357	\$275,513,241

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. 81637.²⁹

Table 20 2019 EE&C Monthly Surcharges (per kWh) and Revenue Requirements

Utility	Residential	Small C&I	Large C&I	Revenue Requirement
BGE	\$0.00391	\$0.00785	\$0.00330	\$98,644,330
DPL	\$0.00371	\$0.00606	\$0.00606	\$19,107,646
PE	\$0.00582	\$0.00314	\$0.00328	\$28,649,536
Pepco	\$0.00429	\$0.00477	\$0.00477	\$64,170,765
SMECO	\$0.00490	\$0.00388	\$0.00388	\$15,769,597

Demand Response Program Funding

The December 22, 2017 Commission Order similarly approved three-year budgets for the demand response programs operated by BGE, DPL, Pepco, and SMECO. Table 21 details the

²⁹ *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.³⁰

Table 21 2019 Demand Response Monthly Surcharges (per kWh) and Revenue Requirements

Utility	Residential	C&I	Revenue Requirement
BGE	\$0.00322	N/A	\$40,711,861
DPL	\$0.00121	\$0.00023	\$2,969,992
Pepco	\$0.00247	\$0.00014	\$17,159,558
SMECO	\$0.00208	\$0.00113	\$6,028,605

Table 22 details the respective forecasted and reported budgets for each of the EmPOWER Utilities operating an approved DR program during 2019. All of the Utilities’ programs were under budget for the 2019 program year.

Table 22 2019 Demand Response Forecasted and Reported Budgets

Utility	Forecasted Budget	Reported Costs	Variance
BGE	\$37,923,776	\$33,935,663	(\$3,988,113)
DPL	\$4,536,856	\$3,851,007	(\$685,849)
Pepco	\$20,077,630	\$17,169,468	(\$2,908,162)
SMECO	\$7,916,699	\$6,243,140	(\$1,673,559)
Total	\$70,454,961	\$61,199,278	(\$9,255,683)

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.³¹ In this model, the Utilities direct primary evaluation and verification activities through an EM&V contractor; subsequently, the

³⁰ PE did not operate a separate DR program during 2018 and therefore did not file for a surcharge recovery of DR program costs.

³¹ 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’ 2018 program year reported savings.

Overall EM&V Findings of the 2018 EmPOWER EE&C Program

Energy and Peak Demand Savings

In 2018, Navigant’s evaluation of the first-year savings³² was 1,122,634 MWh and 206.091 MW, which was 101 percent and 100 percent of the Utilities’ reported energy and demand savings for that year. For the 2018 program year, Navigant estimated an effective net-to-gross (“NTG”) ratio of 0.72 for annual energy savings and 0.76 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.³³ Following the application of the calculated NTG ratios, the net savings for program year 2018 were 810,404 MWh and 155.950 MW.

As the EmPOWER Maryland independent evaluator, Itron, Inc. 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 2018. 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 2018 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 2018 total resource cost (“TRC”) test cost-effectiveness results by sector for each of the Utilities.³⁴ 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

³² “First-year savings” is the amount of energy a measure will save in the first year in which the measure is installed.

³³ A “free rider” is a customer who would have installed an energy efficiency measure absent the utility-provided EmPOWER incentive.

³⁴ The 2018 program year cost-effectiveness results are expected in the second half of 2019.

to free riders; and customer outlays for the efficiency measures. Statewide, both the residential and C&I sub-portfolios were cost effective in 2018, with overall TRC scores of 1.56 and 1.05, respectively.

Table 23 2018 Portfolio TRC Results

	Residential	Commercial	Portfolio
BGE	1.68	1.10	1.31
Pepco	1.71	1.07	1.21
PE	1.31	0.86	1.13
DPL	1.14	0.98	1.02
SMECO	1.28	0.87	1.08
Statewide	1.56	1.05	1.22

At the statewide level, the 2018 EmPOWER portfolio is expected to generate approximately \$1.22 in utility and participant benefits for each dollar of utility and participant cost. For a total investment of \$295 million,³⁵ the State’s Utilities, participants, and ratepayers will realize approximately \$361 million³⁶ 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 \$66 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.

2019 per Capita Electricity Consumption and Peak Demand

Table 24 and Table 25 compare the per capita energy use and peak demand from 2008 to 2019 for all Maryland utilities. In 2019, a majority of the state’s electric utilities experienced an increase in per capita energy use and per capita peak demand as compared to 2018 levels. The primary causes for the per capita increase is an increase in electricity usage during a colder than normal winter combined with a nominal decrease in the state’s population.

³⁵ The \$250 million total investment is the present value of both utility and participant costs.

³⁶ The \$516 million in financial benefits is the present value of both utility and participant benefits.

Table 24 2008 - 2019 Per Capita Energy Consumption

	Per Capita Energy Use MWh											
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BGE	12.99	12.72	13.17	12.65	12.26	12.06	11.86	11.82	11.57	11.31	11.44	11.25
Pepco	9.05	8.81	8.97	8.91	8.18	8.10	7.81	7.94	7.73	7.56	7.60	7.45
PE	19.49	18.86	19.39	17.17	16.93	17.53	17.64	17.39	17.57	17.60	18.10	17.47
Delmarva	12.60	12.83	13.14	13.02	12.61	12.60	12.55	13.00	12.73	12.65	12.89	12.52
SMECO	10.57	10.47	10.83	10.85	10.61	10.49	10.21	10.25	10.03	9.72	9.75	9.96
Choptank	12.65	12.79	13.06	12.58	12.31	12.92	12.55	13.04	12.73	13.24	13.42	12.52
Hagerstown	9.01	8.67	8.95	8.37	7.93	7.71	7.60	7.62	7.58	7.49	8.27	8.05
Easton	19.23	17.82	18.48	16.59	16.65	16.52	16.41	16.55	16.33	16.03	17.12	16.55
Thurmont	14.53	14.26	14.37	13.73	13.02	13.27	13.02	13.68	13.06	12.61	13.41	11.94
Berlin	10.60	9.93	10.84	9.31	9.40	9.37	9.90	10.61	10.15	9.86	11.06	10.13
Williamsport	8.92	8.37	8.56	9.20	9.44	9.87	10.06	10.04	9.64	9.39	9.85	9.65
Somerset	N/A	N/A	4.48	4.49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A&N Coop.	11.10	9.52	8.87	8.05	10.83	10.81	11.06	N/A	N/A	N/A	N/A	N/A

Table 25 2008 - 2019 Per Capita Peak Demand

	Per Capita Energy Use kW											
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BGE	2.69	2.75	2.55	2.70	2.38	2.38	2.27	2.36	2.40	2.34	2.36	2.22
Pepco	1.95	2.05	1.99	1.98	1.79	1.55	1.57	1.88	2.03	1.62	1.62	2.73
PE	3.35	3.04	2.93	3.24	3.27	3.10	2.62	3.68	3.49	3.42	3.42	3.19
Delmarva	2.78	2.81	2.77	2.76	2.80	2.72	2.62	2.76	2.83	2.67	2.67	2.67
SMECO	2.29	2.43	2.40	2.42	2.22	2.15	1.93	2.76	2.36	2.41	2.42	2.27
Choptank	2.72	2.81	2.44	2.77	3.17	3.33	2.59	3.33	2.83	2.99	2.98	3.31
Hagerstown	1.78	1.68	1.76	1.71	1.65	1.54	1.28	1.66	1.50	1.52	1.55	1.49
Easton	4.37	3.91	4.13	4.04	4.09	3.81	3.24	4.27	3.73	3.63	3.63	3.51
Thurmont	2.55	2.20	2.21	2.58	2.41	2.39	2.03	4.33	3.26	2.94	3.11	3.44
Berlin	2.35	2.27	2.58	1.99	2.44	2.09	2.19	2.30	1.17	2.21	2.27	2.10
Williamsport	1.52	1.47	1.17	1.64	1.85	1.87	1.39	2.48	2.15	2.18	2.21	2.52
Somerset	N/A	N/A	0.36	1.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A&N Coop.	2.29	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 was lower in 2012-2018 compared to 2007-2011.

Table 26 Statewide Per Capita Electricity Usage and Peak Demand 2007-2019

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
2018	10.49	2.50

Upcoming Milestones

The EmPOWER Maryland Planning Group has been meeting since the end of 2019 to discuss potential programs to constitute the 2021-2023 program cycle. The Utilities must file their EmPOWER Maryland program plans for the 2021-2023 program cycle by September 1, 2020. The Work Group will provide feedback to the Utilities throughout the spring and early summer of 2020. Furthermore, any stakeholder will have an opportunity to comment on the proposed plans at the Commission hearing in the fall. The Commission will issue an Order approving, modifying, or rejecting all aspects of the EmPOWER Maryland plans by the end of 2020.

Pursuant to Commission Order No. 89189, the Commission will review two reports that the Work Group must file by September 1, 2020.

- Finance Work Group - The final report is to include possible residential financing options for energy efficiency programs, as well as how residential financing options can be integrated into the EmPOWER program, and any legislation needed to effectuate an affordable and effective residential financing option.
- Cost Recovery Work Group – This Work Group was directed to investigate the appropriate rate of return for the EmPOWER programs, impact to the surcharge and ratepayers for adjusting the amortization period for all EmPOWER programs, investigate performance bases rates, and transition plans from the current surcharge structure to another.

Finally, the Commission will monitor any effect of the COVID-19 State of Emergency on the performance of EmPOWER Maryland programs. Based on social distancing and stay-at-home guidelines implemented by Governor Hogan, the utilities have suspended programs that require close contact with customers at their residences or businesses. Therefore, the utilities have made filings notifying the Commission about suspended EmPOWER programs.