

EmPOWER MARYLAND

MCCC MWG Buildings Subgroup
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Disclaimer

- Any opinions expressed are my own.
- They do not reflect the position of the PSC nor of any of the Commissioners.

The Maryland Public Service Commission (PSC or Commission)

- The PSC oversees the implementation of the EmPOWER programs for the State per PUA §7-211.
- Regulates public utilities and certain passenger transportation companies.
- The PSC is comprised of the Commissioners and their staff and the Commission's Technical Staff.

Why Energy Efficiency in MD?

- 2006: North American Electric Reliability Council (NERC) issued warning to Maryland that electricity supply and reliability were at risk if steps to reduce energy usage were not taken.
- 2008: EmPOWER Maryland Energy Efficiency Act of 2008 established a statewide goal of 15% reduction in per capita electricity consumption and peak demand by the end of 2015.
- 2017: EmPOWER statute updated to establish a new annual energy savings goal of 2% of gross energy sales through 2023.

Residential Programs (2018-2020)

Rebates

- Lighting
- Appliances
- Appliance Recycling
- Consumer Electronics
- HVAC
- Smart Thermostats
- Residential New Construction
- Family Farms
- Prescriptive

Weatherization

- Quick Home Energy Checkups
- Home Performance with Energy Star
- Energy Efficiency Kits
- Schools

Other

- Behavior
- Thermostat Optimization

Commercial and Industrial Programs (2018-2020)

- Small Business: customers that use up to 60 kW per month are eligible; rebates up to 80% and energy advance available
- Prescriptive: up to 50% rebates for all C&I customers
- Custom: incentives for non-standard projects
- Retrocommissioning: facility operational and maintenance upgrades
- C&I New Construction: builder incentives for energy efficient measures in C&I construction
- Combined Heat and Power (CHP): design, commissioning, and operation of CHP system
- Midstream Incentives: rebates for qualifying distributors and retailers of energy efficient measures
- Energy Efficient Communities: agreement between utility and local government or municipality to manage energy usage and install efficient measures

Limited Income Programs

- DHCD oversees the limited income programs for EmPOWER.
- Low Income Energy Efficiency Program (LIEEP): weatherization program in which qualifying participants receive no cost direct install, health and safety, and weatherization measures.
- Multifamily Energy Efficiency and Housing Affordability Program (MEEHA): financing mechanism for the installation of qualifying energy efficiency measures in both the residential and commercial spaces of housing developments.

Demand Response and Other Programs

- Demand Response: bill credits for allowing the utility to cycle certain devices during demand events
- Dynamic Pricing: earn bill credits of \$1.25/kWh from 1-7PM on event days in comparison to typical usage
- Conservation Voltage Reductions: reductions at feeders to optimize voltage and reduce line losses
- Transmission & Distribution Upgrades: efficient upgrades to transmission and distribution infrastructure
- Streetlights: upgrades to energy efficient lighting
- Transformers: upgrades that exceed the industry minimum efficiency levels



Historic Performance (through 12/31/2019)

- Saved a total of 10,670,600 MWh and 2,571 MW of peak demand.
 - This is equivalent to reducing 7.5 million metric tons of carbon dioxide or the greenhouse emissions from:
 - 1.6 million vehicles driven for one year.
 - 870,000 homes' energy use for one year.
 - 1.9 coal-fired power plants in one year.
- Spent \$3.1 billion since 2009 including \$2.3 billion on energy efficiency programs and \$814 million on demand response programs.
- For the average residential customer using 1,000 kWh per month, the 2020 EmPOWER surcharge ranges between \$5.63 and \$8.30 depending on the utility.

Benefits of Energy Efficiency

- For every \$1 spent, the EmPOWER programs generate approximately \$1.22 in benefits.
- Expected savings of \$10.6 billion over the life of the installed energy efficiency measures through the end of 2019.
- Benefits to all ratepayers are the system-wide benefits and societal benefits.
 - System-wide benefits include avoided investments in transmission infrastructure, distribution infrastructure, and peak production capacity.
 - Societal benefits include reduced air pollution emissions, reduced greenhouse gas emissions, and increased reliability and security.
- Direct benefits to participants include reduced costs for operating and maintaining equipment like HVAC systems, reduced costs in energy bills, and improved health and comfort.

EM&V

- The Commission uses the Total Resource Cost Test and the Societal Cost Test to determine if the EmPOWER programs are cost-effective.
- Cost-effectiveness is measured at the Residential and Commercial and Industrial sub-portfolio levels.
- Individual programs within the Residential and C&I sub-portfolios are not required to be cost-effective if the sub-portfolios are cost-effective.
- Limited Income programs are not required to be cost-effective.

Table 5-1. Comparison of Benefits and Costs Included in the Cost-Effectiveness Tests

Test	Benefits	Costs
TRC	Present value of electric avoided energy and capacity costs,* DRIPE, secondary fuel savings, water savings, C&I O&M savings, residential lamp replacement cost savings and participant comfort for HPwES.	Program administrative and marketing costs, and incremental measure costs incurred by participants.
SCT	All TRC plus air emissions benefit for electricity, gas, oil and propane savings (uses societal discount rate).	Same as TRC.
PCT	Electric bill savings, secondary fuel savings, participant incentives, water savings, C&I O&M savings, residential lamp replacement cost savings, and participant comfort for HPwES.	Incremental measure and installation costs.
PAC	Present value of electric avoided energy and capacity costs,* and PJM capacity payments.	Program administrative, marketing, and incentive costs.
RIM	Present value of electric avoided energy and capacity costs.*	Program administrative, marketing, and incentive costs, plus the present value of lost revenues.

*The present value of electric avoided energy and capacity costs includes avoided line losses occurring from reductions in customer electric use. It also includes avoided T&D benefits.

Table 5-2 to Table 5-5 present the statewide and utility-specific PAC, RIM, PCT, and SCT test results for the residential programs.

Acronyms: TRC= Total Resource Cost Test; SCT= Societal Cost Test; PCT= Participant Cost Test; PAC= Program Administrator Test; RIM= Ratepayer Impact Measure

Source: Navigant EmPOWER Maryland Cost-Effectiveness Results for 2018 Energy Efficiency Programs in Maryland page 24

<https://www.psc.state.md.us/search-results/?q=9494&x.x=16&x.y=14&search=all&search=case>

Table A-16. Non-Electric Benefits by Program

Sector	Program	O&M	Secondary Fuels	Water	Comfort	Air Emissions
Residential	Appliance Rebates		Gas/Oil/Propane	X		X
	Appliance Recycling	X				X
	Behavior		Natural Gas			X
	Consumer Electronics					X
	EE Kits	X				X
	Family Farms					X
	HPwES (HEIP)	X	Gas/Oil/Propane	X	X	X
	HVAC		Natural Gas			X
	Lighting	X				X
	New Construction		Gas/Oil/Propane			X
	Quick Home Energy Check	X	Gas/Oil/Propane	X		X
	School Kits	X				X
	Smart Thermostat		Gas/Oil/Propane			X
	C&I	Prescriptive	X			
Custom			Natural Gas			X
Midstream Lighting		X				X
Small Business Direct Install		X				X
Combined Heat & Power						X
Retrocommissioning			Natural Gas			X

Source: Navigant EmPOWER Maryland Cost-Effectiveness Results for 2018 Energy Efficiency Programs in Maryland page 20

<https://www.psc.state.md.us/search-results/?q=9494&x.x=16&x.y=14&search=all&search=cas>

Upcoming Milestones

- Utilities and DHCD file plans for 2021-2023 by September 1, 2020 with Commission Order approving, denying, or modifying the plans by December 31, 2020.
- Commission is required to file recommendations to the General Assembly on future goals and cost-effectiveness testing beyond 2023 by July 1, 2022.

Statutory Limitations

- PUA §7-211 (g)(2)(i-iv)
 - (g) (2) (i) Except as provided in subsection (e) of this section, for the duration of the 2018–2020 and 2021–2023 program cycles, by regulation or order, the Commission shall, to the extent that the Commission determines that cost-effective energy efficiency and conservation programs and services are available, for each affected class, require each electric company to procure or provide for its electricity customers cost-effective energy efficiency and conservation programs and services with projected and verifiable electricity savings that are designed on a trajectory to achieve a targeted annual incremental gross energy savings of at least 2.0% per year, calculated as a percentage of the electric company’s 2016 weather-normalized gross retail sales and electricity losses.
 - (ii) The savings trajectory shall use the approved 2016 plans submitted under subsection (h)(2) of this section as a baseline for an incremental increase of a rate of .20% per year until the minimum 2.0% per year savings rate is achieved.
 - (iii) The gross retail sales against which the savings are measured shall:
 - 1. reflect sales associated with customer classes served by utility-administered programs only; and
 - 2. be updated by the Commission for each plan submitted under subsection (h)(2) of this section.
 - (iv) The targeted annual incremental gross energy savings shall be achieved based on the 3-year average of an electric company’s plan submitted under subsection (h)(2) of this section.

Statutory Limitations

- PUA §7-211 (f) The Commission shall:
- (1) require each gas company and electric company to establish any program or service that the Commission deems appropriate and cost effective to encourage and promote the efficient use and conservation of energy;
- (2) adopt rate-making policies that provide cost recovery and, in appropriate circumstances, reasonable financial incentives for gas companies and electric companies to establish programs and services that encourage and promote the efficient use and conservation of energy;

Statutory Limitations

- PUA §7-211 (i)(1)(i-iv)
 - (i) (1) In determining whether a program or service encourages and promotes the efficient use and conservation of energy, the Commission shall consider the:
 - (i) cost-effectiveness of the residential sector subportfolio and the commercial and industrial sector subportfolio by utilizing:
 - 1. the total resource cost test in order to compare the electricity savings and demand reduction targets of the program or service with the results of similar programs or services implemented in other jurisdictions, including:
 - A. participant nonenergy benefits; and
 - B. utility nonenergy benefits; and
 - 2. the societal cost test in order to determine whether cost-effectiveness requirements will be met prospectively, including:
 - A. participant nonenergy benefits;
 - B. utility nonenergy benefits; and
 - C. societal nonenergy benefits;
 - (ii) impact on rates of each ratepayer class;
 - (iii) impact on jobs; and
 - (iv) impact on the environment.

Pathways Forward

- Statutory changes
 - Update the law to reflect how the State would like its energy efficiency programs to be designed in the future.
- Commission decisions
 - The Commission makes decisions based on the record before it and based on what it is authorized to do in the statute.
- Program design
 - The utilities design their programs to achieve the goals laid out in statute and based on guidance via Commission orders.
- Stakeholder participation
 - Stakeholders provide valuable input to the utilities and the Commission as decisions are made both levels.

Thank you!

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