

EmPOWER Maryland Leveraging relationships and experience



The Maryland Department of Housing and Community Development (DHCD) has been able to help close to 21,000 low-income households¹ save an average of \$340 annually on their electricity bills² by overcoming common barriers to improving energy efficiency in low-income communities. Through its 50-year history of administering the state’s low-income housing programs, DHCD has gained a deep understanding of the needs of Maryland’s low-income residents and therefore was well-positioned to implement the low-income components of the broader EmPOWER Maryland energy efficiency initiative. The department’s low-income energy efficiency programs have avoided more than 42,000 megawatt-hours of electricity use and 1.6 million therms of natural gas.¹ These savings amount to more than 35,000 metric tons of greenhouse gas emissions, equivalent to emissions from the annual energy use of more than 3,700 average American homes.³

As implemented by DHCD, EmPOWER Maryland’s low-income programs have helped to eliminate or reduce the up-front costs of efficiency measures, minimize administrative burdens on participants, and provide coordinated services through a statewide network of trusted partners. DHCD has achieved these results by providing end-to-end services under one application process, emphasizing strong customer service, and prioritizing accurate measurement of savings, among other strategies.

The programs take a whole-building approach to energy efficiency, which means treating the home as a complete energy system with interdependent parts that each affect the system’s energy performance. This approach maximizes potential energy and greenhouse gas savings while helping to improve home indoor air quality and safety. DHCD’s comprehensive strategy also overcomes the barrier of “split incentives” in multifamily buildings, in which building owners have little incentive to make efficiency improvements to tenant units where the tenants pay the utility bills.

Fast Facts

Program scope: Direct installation of energy efficiency improvements for low-income homeowners; loans and grants for energy efficiency measures in affordable multifamily housing.

Budget: Approximately \$62 million from 2012–2015. The 2015–2017 budget for low-income programs represents 10% of the total EmPOWER Maryland budget for that period.

Staff: Approximately 10 full-time equivalent staff.

Communities served: Low-income households, including multifamily, located within a participating utility’s territory.

Key partners: Electric utilities, nonprofit housing and social service agencies, energy efficiency service providers.

Promising practices: Eliminate/reduce up-front costs, address split incentives, adopt a whole-house approach.



Making It Happen

In 2008, the Maryland State Legislature set a goal to reduce Maryland's per-capita electricity consumption and peak demand by 15 percent, relative to a 2007 baseline, by the end of 2015. To meet this target, the Maryland Public Service Commission (PSC) launched the EmPOWER Maryland initiative, which directed the state's electric utilities to develop energy efficiency programs for the residential, commercial, and industrial sectors. To ensure energy and economic savings for the state's low-income residents, the PSC mandated that services targeted specifically at these residents be included in EmPOWER Maryland. After the first three years, the PSC found that the utilities' low-income programs were achieving just 21 percent of the expected participation rates. In response, in 2011 the PSC issued an order for DHCD to assume responsibility for EmPOWER Maryland's low-income energy efficiency programs. It based its decision on the strength of the department's performance on existing energy efficiency initiatives (described below), including its success in creating jobs, training contractors, maintaining strong quality control, and keeping marketing costs low. DHCD began managing the programs in early 2012.

Leveraging Experience and Relationships

DHCD's principal mission is to operate a wide range of community development, home ownership, and rental housing programs. It also acts as the state's housing finance agency and administers the state's building codes. Through that work, it has developed relationships with a large network of multifamily housing owners, private developers, and partner organizations that provide social and economic services to low-income households (e.g., community action agencies, municipalities). Its experience with energy efficiency dates to the late 1970s, when it began administering the distribution of U.S. Department of Energy (DOE) Weatherization Assistance Program funds to local agencies and nonprofits.

In 2009–2011, DHCD received more than \$114 million in funding from the American Recovery and Reinvestment Act (ARRA) for housing and community development efforts in Maryland. The funding included a substantial supplement for weatherization. When the ARRA funding expired, DHCD used the investments in staff and partnerships that it had made under ARRA to implement new energy efficiency loan and grant programs, including some targeted to low-income households. This experience helped position DHCD to manage EmPOWER Maryland's two low-income programs when the PSC transferred the programs to the department in 2012.



The EmPOWER Maryland Low-Income Programs

EmPOWER Maryland has two programs targeted at low-income households:

The EmPOWER Maryland Low-income Energy Efficiency Program

This program provides qualified low-income homeowners (those with annual incomes equal to or less than 200 percent of the federal poverty level, and that also have an account with one of the state's utilities) with energy efficiency improvements at no cost, including insulation (in attics, floors, and walls); hot water system improvements; lighting retrofits; furnace cleaning, tuning, and safety repairs; refrigerator upgrades; and minor health and safety improvements (such as installing bathroom ventilation and smoke detectors or fixing electrical problems). The program offers households a full range of services through one application process.

DHCD works with the Maryland Department of Human Resource's Office of Home Energy Programs to identify and reach out to households that have previously received energy bill assistance, and it recruits other low-income households through social services agencies and outreach at events. Households that want to participate in the EmPOWER Low-Income Energy Efficiency program submit an application to DHCD. Once DHCD determines that a household is eligible, one of its local partners (typically a weatherization agency or private contractor) contacts the household to schedule an energy audit. The partner agency then discusses the results of the energy audit with the household and completes the recommended work. After the improvements are complete, the partner agency conducts a quality control inspection to ensure all the work has been performed in an effective and professional manner.

The Multifamily Energy Efficiency and Housing Affordability EmPOWER Program

This program promotes energy efficiency and affordability in Maryland's multifamily rental housing developments for low-income households. Under the program, owners of affordable⁴ multifamily housing receive loans and grants with flexible terms for the purchase and installation of a variety of energy improvements, from lighting and appliances to insulation and HVAC systems. The measures undertaken must be based on an energy audit completed by a department-qualified energy auditor. DHCD has existing relationships with many owners of multifamily housing in the state; it reaches others through the energy audit process that DHCD already requires for all multifamily building energy efficiency projects funded by the department.



The program currently services only buildings in which tenants pay their own utility bills. It provides funding for both residential and common spaces, thus ensuring that tenant units also benefit from energy improvements. Upgrades to tenant units can be useful to building owners as well, through higher occupancy rates related to lower utility costs and more comfortable and safer units for renters. The program also helps owners by paying for higher efficiency capital improvements they otherwise would have to pay for themselves as part of regular building maintenance.

Building owners first apply to the program for a pre-audit inspection conducted by DHCD. This helps owners better understand whether they will be eligible for energy improvement funding, before investing in an energy audit. As part of the project, building owners obtain consent from as many tenants as possible to release both pre- and post-retrofit data on their utility use. To ensure accuracy, the program stipulates that owners must submit data on actual energy use rather than estimates. DHCD tracks energy use for 24 months before the retrofit and for at least 24 months after completion of the project. The department also developed a multifamily building energy audit guide to improve the accuracy and consistency of audits, and to increase the alignment between predicted and actual energy savings.

To make the process more convenient for building owners, DHCD assigns a single management officer for each approved project. As part of the program, owners are encouraged (or in some cases required⁶) to educate their tenants on the benefits of energy efficiency and steps they can take to further reduce their energy use, such as turning off lights in unoccupied rooms.

Looking Ahead

The original 2008 legislation for EmPOWER Maryland established targets only through 2015, but it directed the Maryland Energy Administration, in consultation with the PSC, to determine whether there should be new targets beyond 2015. In July 2015, the PSC issued an order setting a post-2015 electric energy efficiency goal for the overall EmPOWER program of two percent of annual weather-normalized gross retail electric sales, beginning in

Multiple Benefits for Multifamily Residents

Residents of three multifamily developments in Anne Arundel County saw their energy bills fall by 15% after retrofits were conducted under EmPOWER Maryland's Multifamily Energy Efficiency and Housing Affordability program. Upgrades included installing new windows, sealing existing windows, weather-stripping front doors, adding insulation around pipes and in attics, and installing programmable thermostats and energy-efficient refrigerators.

Residents also reported quality-of-life improvements. For instance, residents stated that the new windows increased the amount of fresh air in households as they are easier to open and close than the original windows. Residents also noted that air duct maintenance improved the air flow through vents and made the air easier to breathe for children with allergies.⁵



2018.⁷ The order reaffirmed the importance to the state of providing energy efficiency services to low-income households and affordable multifamily housing, with specific goals for these sectors to be set at a later date. In April 2017, the Maryland General Assembly passed a bill that codified the PSC's 2015 order into law and extended EmPOWER Maryland until 2023.⁸

Key Partners

Because DHCD's multiple partners share the common goals of reducing grid load and lessening low-income energy burdens, the department considers all of them important to the success of its low-income programs. The network is broad and includes a variety of state and local agencies, nonprofit and for-profit housing developers, social service organizations, utilities, low-income advocates, and contractors. The PSC, the Maryland Office of People's Counsel, and the participating utilities all play key roles in planning and improving the low-income programs. DHCD also relies on its state-wide network of installation contractors, consisting of nonprofit and private organizations and community action agencies, to perform high-quality on-the-ground work. Other key partners in the program are the participants themselves: the multifamily housing owners and single-family homeowners who recognize the benefits of the program and express interest in taking advantage of its services.

Funding Sources

The EmPOWER Maryland budget for the low-income programs totaled approximately \$62 million from 2012–2015. Utility ratepayers provide all funding for the EmPOWER Maryland low-income programs.

Achievements

EmPOWER Maryland has resulted in significant energy savings throughout the state, with the low-income programs serving close to 21,000 households since DHCD took over in 2012. This represents approximately 70 percent of the program's participation goal for this period.⁹ The programs have educated thousands of residents on how to save energy, and upgrades performed under the programs have helped improve the comfort and safety of their homes while reducing their utility bills. Other results include:

- The average savings of \$340 per year per household equate to more than two months of free electricity per year, or nearly 20% annual savings, based on average residential electric bills in the state.²



- Average savings per participant total approximately 2,980 kWh per year¹—translating to approximately 1.8 metric tons of CO₂ avoided per household.¹⁰
- A total of more than 35,000 metric tons of CO₂ emissions have been avoided annually due to upgrades completed since DHCD began implementing the programs, equivalent to emissions from the annual energy use of more than 3,700 average American homes.³
- Total lifetime energy savings from the efficiency measures implemented from 2009–2015 exceed 1.1 million megawatt-hours, and the corresponding cumulative annual demand savings avoid the need for more than 17 megawatts of power.¹¹

Keys to Success

DHCD staff identified the following features as keys to the success of EmPOWER Maryland's low-income programs in achieving participation and energy savings goals:

- **Using housing finance and assistance as points of entry for energy efficiency.** DHCD's role as administrator of the state's low-income housing programs allows it to serve as a focal point for the housing community (affordable housing owners, government agencies, contractors), providing it with many opportunities to promote and implement energy-saving measures.
- **Emphasizing customer service and quality.** DHCD aims to provide excellent customer service and quality control. It developed a one-application process for low-income program participants to relieve them of the administrative burden of completing multiple applications for different services. DHCD's network partners follow a consistent, established process and support participants through the entire upgrade process from initial consultations through post-retrofit monitoring (they perform evaluations to ensure the installed measures continue to operate efficiently) and data reporting.
- **Ensuring accurate data on program savings.** DHCD requires a final inspection of every completed unit in the single-family program by a certified quality control inspector. A department-qualified energy auditor inspects a representative sample of units in multifamily projects. DHCD performs a combination of direct and sample-based monitoring and inspection activities at different stages of the project, including energy modeling, work-in-progress, and a final quality assurance inspection. The PSC also requires the EmPOWER Maryland program to have a third-party evaluation, measurement, and verification analysis performed for each calendar year.



Replication and Sustainability Tips

DHCD staff identified the following specific steps for other organizations to consider if they want to create and implement similar low-income energy efficiency programs:

- **Hire and retain experienced staff and contractors.** DHCD’s effectiveness and efficiency depend on having staff and contractors with strong experience in the areas of energy efficiency and affordable housing. Some of the department’s contractors have been weatherizing properties for more than 25 years. DHCD also employs staff who understand the unique needs of specific groups within low-income communities, such as older adults and persons with disabilities.
- **Take a hands-on approach in managing the workforce.** Keeping the program management structure simple and centralized allows DHCD to maintain control over quality and the clients’ experience. In some states, agencies may administer energy efficiency programs but have little oversight on how the money is actually spent.
- **Emphasize a positive client experience.** Ensuring that customers have a good experience by prioritizing customer service helps build the reputation of the program, trust in the program, and interest on the part of potential new participants. DHCD works to ensure that customers understand the process by sending clear and consistent messages about the program’s goals, benefits, and activities.

For More Information

- [EmPOWER Maryland main website](#)
- [EmPOWER Maryland Low Income Energy Efficiency Program website](#)
- [Multifamily Energy Efficiency and Housing Affordability EmPOWER program website](#)
- [EPA Informational Resources on Energy Efficiency and Renewable Energy in Low-Income Communities](#)

¹ Public Service Commission of Maryland, 2016. [The EmPOWER Maryland Energy Efficiency Act Standard Report of 2016, With Data for Compliance Year 2015](#).

² U.S. Energy Information Administration, 2016. [2015 Average Monthly Bill—Residential](#). The average residential price for electricity in Maryland was \$0.1128/kWh in 2015. The PSC’s EmPOWER Maryland report cited in endnote 1 above reported that participants in the low-income programs saved an average of 2,976 kWh/year.

³ Based on annualized electricity and natural gas savings provided by DHCD; avoided emissions from electricity estimated using EPA’s [eGRID](#) tool; avoided emissions from natural gas and the household energy use equivalency for combined electricity and natural gas emissions estimated using EPA’s [Greenhouse Gas Equivalencies Calculator](#).



⁴ Affordable and low-income housing do not necessarily mean the same thing. In this case study, “affordable” means rental housing with existing income or rent restrictions, or housing with units that serve tenants with low to moderate incomes, as determined by DHCD. Applicants eligible for DHCD’s affordable multifamily energy efficiency program include nonprofit and for-profit organizations and government entities.

⁵ Letter from the Housing Commission of Anne Arundel County, Maryland, to the Maryland Department of Housing and Community Development, October 3, 2016.

⁶ Tenant education is a requirement for projects involving rental housing financing, but not for retrofit projects. Some property managers voluntarily offer education to help tenants reduce not only their own energy use but also that of common areas.

⁷ Public Service Commission of Maryland, 2015. [Order No. 87082](#). Issued July 16, 2015.

⁸ Maryland General Assembly, 2017. [Senate Bill 184/House Bill 514](#). Enacted April 6, 2017.

⁹ Personal communication with DHCD, October 2016.

¹⁰ Calculated using EPA’s [eGRID](#) tool.

¹¹ ACEEE, 2017. [Maryland Benefits: Examining the Results of EmPOWER Maryland through 2015](#).