



LARRY HOGAN
Governor

BOYD K. RUTHERFORD
Lt. Governor

KENNETH C. HOLT
Secretary

TONY REED
Deputy Secretary

August 21, 2018

The Honorable Larry Hogan
State House
100 State Circle
Annapolis, Maryland 21401

Governor Hogan:

On behalf of the Maryland Department of Housing and Community Development, I am pleased to submit the 2018 Annual State Agency Report for the Maryland Department of Housing and Community Development developed in accordance with the State Environment Article §2-1305, as defined in House Bill 514 Chapter 429,2015. This annual requirement under the law that governs the Maryland Commission on Climate Change asks that numerous state agencies submit annual reports on progress surrounding the implementation of climate change programs to both the Governor and the Commission. This report details the results of the efforts for Calendar Year (CY) 2017.

Sincerely,

Kenneth C. Holt
Secretary

Enclosure





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2018 Status of Programs, Annual State Agency Report
Greenhouse Gas Emission Reductions for CY 2017
Energy Efficiency for Affordable Housing
Statewide Building Codes

This report provides the estimate of reduced greenhouse gas (GHG) emissions as a result of the Maryland Department of Housing and Community Development's (Department) programs during calendar year (CY) 2017. This report is pursuant to State Government Article §2-1305, as defined in House Bill 514 Chapter 429, 2015.

Program Descriptions

The Department implements housing policy that promotes and preserves homeownership and creates innovative community development initiatives to meet the challenges of a growing Maryland. These programs cover homeownership, rental housing, business lending, affordable housing development, and energy conservation and efficiency.

Within the Department, the division of Housing and Building Energy programs manages a suite of loan and grant programs that fund energy conservation and efficiency projects for Maryland homeowners, renters and other building owners. These programs reduce energy costs and address critical health and safety issues for Maryland residents and limited income families.

In CY 2017, the Department's energy programs installed upgrades that saved **0.008** million metric tons of carbon dioxide equivalent (MMTCO₂e) in the first year of installation. In prior years the Department reported only on the GHG reductions from projects installed in their first year. Taking into account the estimated lifetime of energy measures, the Department's programs realized a reduction of **0.06** MMTCO₂e in CY 2017 from projects completed from CY 2011 to CY 2017. Finally, from CY 2011 to CY 2017, the cumulative savings from all projects across years was **0.2** MMTCO₂e.

To calculate greenhouse gas reductions, the Department reports on reductions associated solely with its energy programs. During FY 2019, the Department will review other programs to estimate the significant GHG reductions in programs that have not been included in this calculation. In view of the goal of GHG reduction by 2020, the Department is reviewing its past reporting to ensure reporting on savings from the American Recovery and Reinvestment Act grant and other programs is accurately calculated back to CY 2006.

The Department's Housing and Building Energy Programs division includes the following grant programs:

- **The Weatherization Assistance Program** installs energy conservation measures for eligible limited income households. These measures also reduce greenhouse gas emissions and the cost of maintenance for these homes. Funding is provided by the U.S. Department of Energy and the Strategic Energy Investment Fund. The Department works with Local Weatherization Agencies.
- **The EmPOWER Low Income Energy Efficiency Program and the Multifamily Energy Efficiency and Housing Affordability Program** help limited income households and affordable housing managers with installation of energy conservation measures in their homes and buildings. Funding is provided by ratepayers of the five (5) participating EmPOWER Maryland utility companies. These funds are regulated by the Maryland Public Service Commission.
- **The Targeted and Enhanced Weatherization Program** combined typical weatherization improvements with measures that reduced health and safety risks in the home. This program for limited income homeowners in the Baltimore Gas & Electric territory outside of Baltimore City was funded through the Customer Investment Fund created during the merger of Constellation and Exelon. This program was funded with a one-time grant and has been fully expended.
- **The Improved Efficiency for Affordable Multifamily Housing Program** was funded through the Customer Investment Fund and it covers the costs of energy conservation measures for affordable multifamily projects in the Baltimore Gas & Electric territory. This pilot program was funded with a one-time grant and has been fully expended. Construction completed in CY 2018.

The Department also offers a growing portfolio of energy loan products.

- **The BeSMART Home Energy Loan Program** offers financing to homeowners across the state for energy efficiency replacement and/or upgrade of appliances, heating, cooling and ventilation systems and whole house envelope improvements.
- **The Net Zero Construction Loan Program** funds the construction of new or existing single and multifamily housing in Maryland. The project must be Net Zero or Net Zero Ready (Home Energy Rating System score of 50). The Department deployed this program at the Perry Point Veterans Housing Project, using funding from the Strategic Energy Investment Fund and leveraged with the BeSMART loan program for efficiency measures. Construction will finish in CY 2018.

Program Objectives

Under the Housing and Building Energy Programs, the Division provides grants and low cost loans with flexible terms for the purchase and installation of energy efficiency improvements in single family and affordable multifamily rental housing developments. The program is being undertaken as part of the State's efforts to:

1. reduce the energy cost burden on Marylanders,
2. increase energy efficiency,
3. reduce greenhouse gas emissions,
4. promote energy efficiency and renewable energy sources,
5. provide a healthier environment in which to live,
6. create and preserve affordable rental housing opportunities,
7. create jobs, and
8. foster business development and sustainable mortgages by reducing the energy burden on residents and property owners.

Implementation Milestones

The 2015 Greenhouse Gas Emissions Reduction Act Plan Update published October 2015 stated that the Department's programs could reduce 0.02 million metric tons of carbon dioxide equivalent (MMTCO₂e) by 2020 (LIEEP, MEEHA, WAP).

In CY 2017, the Department's energy programs completed energy efficiency upgrades of 5,828 households. These improvements represent a first year reduction of 7,971 metric tons of carbon dioxide equivalent (MTCO₂e) - or 0.008 MMTCO₂e. The average life of savings for each energy project is eight years. For the 35,844 households that received energy efficiency upgrades since CY 2011, in CY 2017 the realized savings were 60,366 MTCO₂e (0.06 MMTCO₂e).

One goal of the Division's programs is to reach eligible residents. In CY 2017, the Division served 5,828 households and 35,884 units over the seven year period 2011 through 2017.

Year	Households Served
CY2011	6,317
CY2012	3,222
CY2013	3,788
CY2014	6,517
CY2015	5,828
CY2016	5,517
CY2017	4,695

Estimated Emission Reductions for CY 2017

In CY 2017, the Department's Housing and Building Energy programs installed energy efficiency retrofits for single family households, renters, and multifamily tenants. The programs delivered 88,857 in MMBtu savings and a GHG reduction of 7,971 MTCO₂e (0.008 MMTCO₂e). Below is a table of savings by program.

CY 2017 – SAVINGS IN THE INSTALLATION YEAR		
Program	MMBtu Saved	MTCO ₂ e
EmPOWER - Single Family (State)	52,439	4,170
Customer Investment Fund - Single Family (State)	10,279	759
DOE Weatherization Assistance Program (Federal)	18,723	2,371
EmPOWER - Multifamily Energy Efficiency and Housing Affordability (State)	7,415	772
First Year Reductions: TOTAL	88,857	7,971

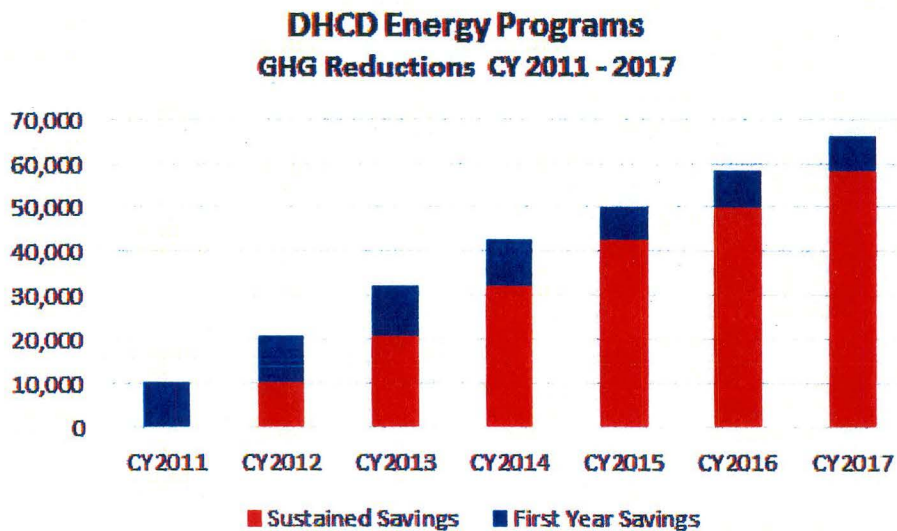
For the work installed in CY 2011 to 2017, the division estimates that the average life of its measures is eight years. For the projects installed in CY 2017, these projects will continue to reduce GHG emissions every year until 2024. Some measures will provide savings well into the future, beyond 2030.

In prior reporting, the Department reported only first year savings. For CY 2017, the Department will also report the savings that have persisted on projects since CY 2011. This figure is the GHG reduction achieved in CY 2017 from both new projects and the remaining useful life on projects installed in prior years.

In CY 2017, the Department’s sustained savings totaled 60,366 MTCO₂e – or 0.06 MMTCO₂e. In CY 2018, the savings from CY 2011 will exceed the useful life estimate and the savings will no longer be calculated for these projects. Going forward the Department anticipates using an 8 year useful life for reporting savings.¹

CY 2017 – SUSTAINED SAVINGS OVER LIFETIME OF EQUIPMENT			
Year	First Year MTCO ₂ e	Sustained MT CO ₂ e	Sustained MMTCO ₂ e
CY 2011	10,331	10,331	0.010
CY 2012	10,218	20,124	0.020
CY 2013	11,782	32,229	0.032
CY 2014	10,169	42,301	0.042
CY 2015	7,346	46,832	0.047
CY 2016	8,164	54,200	0.054
CY 2017	7,971	60,366	0.060

In the following chart, the first year savings are included with the sustained savings over time.



The cumulative savings over time since CY 2011 is over 266,383 MTCO₂e (0.267 MMTCO₂e)

The Division’s reduction in greenhouse gas emissions were calculated using project specific energy reductions estimated per measure. The Division used the 2017 emission factors provided by PJM, the Maryland region electric grid operator, the Department of Energy’s eGRID sub-regional data and data from the U.S. Environmental Protection Agency’s national greenhouse gas inventory.²

¹ EUL see page 3 for Table1 - Berkeley Labs - Energy Savings lifetimes and Persistence
<https://eta.lbl.gov/sites/all/files/publications/savings-lifetime-persistence-brief.pdf>

² The Division used CO₂ emission factors from the PJM Environmental Information System, [https://www.pjm-eis.com/reports-and-events/public-reports.aspx], CH₄ and N₂O factors from the DOE Power Profiler tool based on the eGRID subregion [http://www.epa.gov/powerprofiler], and natural gas and oil factors from

Fuel	Value	Unit	Source	Link
Electricity				
CO ₂	948.43	lbs/MWH	PJM	System Mix 2017, https://gats.pjm-eis.com/gats2/PublicReports/PJMSystemMix/Filter
CH ₄	0.02644		DOE	2012 eGRID, RFCE http://www.epa.gov/powerprofiler
N ₂ O	0.01149			
Natural Gas				
CO ₂	0.05444	kg/scf	EPA	https://www.epa.gov/sites/production/files/2015-07/documents/emission-factors_2014.pdf
CH ₄	0.00103	g/scf		
N ₂ O	0.0001			
Oil				
CO ₂	10.21	kg/gallon	EPA	https://www.epa.gov/sites/production/files/2015-07/documents/emission-factors_2014.pdf
CH ₄	0.41	g/gallon		
N ₂ O	0.08	g/gallon		
Global Warming Potential				
CO ₂	1	SAR, 100 Year	IPCC	https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html
CH ₄	21			
N ₂ O	310			

The Department also took into account changes in the grid overtime in calculating historic savings. The PJM Factor for CO₂ emissions has decreased since 17 percent since CY 2011.

PJM Factor	
Year	CO ₂ (lbs/MWH)
CY2011	1,146
CY2012	1,092
CY2013	1,112
CY2014	1,108
CY2015	1,014
CY2016	992
CY2017	948

Enhancement Opportunities

In CY 2017, the Department continued to pursue opportunities to expand its loan and grant programs. The Department sees an opportunity from leveraging the experience of its multifamily, single family, and business lending to grow the energy programs.

the EPA's national inventory [https://www.epa.gov/sites/production/files/2015-07/documents/emission-factors_2014.pdf]. Global Warming Potential data come from the Intergovernmental Panel on Climate Change's Second Assessment Report (100 year).

Funding

In each of the last three fiscal years, the Division's financial commitments (direct benefits to Marylanders and administrative costs) averaged \$25 million. This is largely supported by the EmPOWER funding which requires renewal every three years and the Customer Investment Fund which was fully expended in FY 2018.

Challenges

At the current time the department is not slated to receive SEIF funds from RGGI proceeds in FY 2019 which will impact our savings potential in several programs as this critical leveraging source is not available. These funds allow us to maximizing savings per project. The Department also fully expended the Customer Investment Fund award as of the end of FY 2018.

Relevant Information

The portfolio of programs within the Department of Housing and Community Development has a direct impact on the economic vitality of the State.

The Division's programs support residents and businesses in direct funding of energy efficiency projects that create or sustain jobs. Energy bill reductions free up funds that can be spent on family well-being or as investments. The Division's programs improve health through reduced air and water pollution from power plants, but also directly remediate hazards such as mold, asbestos and lead in the house.

Program Change

Until June 30, 2018, Maryland Law, Public Safety Article, Section 12-503, required the Department of Housing and Community Development (DHCD) to adopt through regulation (Maryland Building Performance Standards; COMAR 05.02.07) the latest version of the International Building Code (IBC), the International Residential Code (IRC) and the International Energy Conservation Code (IECC) with any modifications as the Maryland Building Performance Standards (MBPS). The MBPS applies to all buildings and structures constructed within the State. Local jurisdictions are authorized to adopt amendments to MBPS to suit local conditions.

This program was transferred to the Department of Labor, Licensing & Regulation as of July 1, 2018.

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