

Larry Hogan
Governor

Boyd K. Rutherford
Lt Governor



Ellington E. Churchill, Jr.
Secretary

Nelson E. Reichart
Deputy Secretary

OFFICE OF THE SECRETARY

October 28, 2021

The Honorable Larry Hogan
Governor of Maryland.

Mr. Ben Grumbles
Chair, Maryland Commission on Climate Change

Re: Annual Report on the State of the Department of General Services' Programs that
Support the State's Greenhouse Gas Reduction Efforts or Address Climate Change
Environment Article §2-1305

Dear Governor Hogan and Chair Grumbles:

The Department of General Services is pleased to submit the above referenced report which highlights how our Renewable Energy Purchasing, Energy Database and Energy Performance Contracting programs work together to abate environmental impacts. The report was written in response to and in accordance with §2-1305 of the Environment Article.

Should you have any questions or require additional information, please feel free to contact Mr. David St. Jean, Director of the Office Energy Performance and Conservation, at 410-767-4472 or David.StJean1@maryland.gov.

Sincerely,

A handwritten signature in blue ink that reads "Ellington E. Churchill, Jr.".

Ellington E. Churchill, Jr.
Secretary

Enclosed

c: Christopher Beck, MDE, MD Commission on Climate Change
Sarah Albert, DLS Library
David St. Jean, DGS Office of Energy and Sustainability
Courtney League, DGS Office of Design, Construction and Energy
Ellen Robertson, DGS Legislative Liaison



Annual Report on the Status of Department of General Services Programs that Support the State's Greenhouse Gas Reduction Efforts or Address Climate Change

October 2021

In accordance with § 2-1305 of the Environment Article, the Department of General Services (DGS) submits its annual report to the Governor and the Maryland Commission on Climate Change on the status of programs that support the State's Greenhouse Gas Reduction Act (GGRA) efforts or address Climate Change. This report will highlight how programs run by the DGS Office of Energy and Sustainability reduce greenhouse gases and other air pollutants. This report shows estimated greenhouse gas reductions for the years 2010 through the 2020 calendar year.

DGS Office of Energy and Sustainability

The DGS Office of Energy and Sustainability (Energy Office) performs five primary functions that positively contribute to the State's greenhouse gas reduction efforts. The Energy Office purchases renewable energy, operates the Energy Performance Contracting (EPC) program, oversees progress towards the energy savings goal of Governor Hogan's Executive Order 01.01.2019.08, performs energy retrofits at State facilities, manages a statewide utility tracking database, and chairs the Green Purchasing Committee. The Energy Office also engages in pilot programs, such as retro-commissioning existing State facilities, and fields calls from agencies on various energy conservation related topics. Beginning with the June 2019 issuance of Governor Hogan's Executive Order 01.01.2019.08, Energy Savings Goals for State Government (EO) the Energy Office has taken on a leadership role in meeting the energy savings goal of the EO.

Energy Commodities Purchasing

The Energy Office partners with University System of Maryland (USM) to purchase over \$175 million annually of electricity and natural gas using purchasing strategies that from FY 2012 to FY 2020 allowed the State to avoid over \$84 million in expenses related to these commodities. Included in the energy commodity purchases are three 20-year Power Purchase Agreements (PPAs) of renewable energy from two utility scale wind installations, and one solar installation. In FY 2021, the State of Maryland spent \$17.1 million on renewable electricity which accounted for 15.3% of the electricity for State operations.

Facility name	Initial Delivery Year	Size	FY 2021 Total Generation (MWH)	FY 2021 Total Expenditure (\$)
Mount St. Mary's (Solar)	2012	13 MW	20,213	\$4,497,393
Pinnacle (Wind)	2011	53.7 MW	126,515	\$10,376,049
Roth Rock (Wind)	2011	10 MW	23,727	\$2,239,424
Totals			170,455	\$17,112,866

The Energy Office has partnered with USM to issue an Invitation for Bids (IFB) in late CY 2021 or early CY 2022 to solicit in-state solar energy firms to provide additional renewable energy so that the State remains in compliance with the Renewable Portfolio Standard (RPS). Until new PPAs for solar energy are in place, DGS will purchase Solar Renewable Energy Certificates (SRECs) on the market to ensure that State government operations comply with the RPS.

DGS also currently has photovoltaic (PV) installations at four agency buildings, with total capacity of 432 kW and generating approximately 520,000 kWh per year¹:

- Tawes State Office Building - 580 Taylor Avenue. Annapolis - 126 kW
- John R. Hargrove, Sr. DC & MS Center -700 E. Patapsco Avenue. Baltimore - 106 kW
- Elkton DC & MS Center -170 E. Main Street. Elkton - 74 kW
- Ellicott City DC & MS Center -3451 Courthouse Drive. Ellicott City - 126 kW

DGS' purchases of renewable energy enabled the State to prevent approximately 73,312 Metric Tons of carbon dioxide equivalent (CO₂e) from entering the atmosphere. This is the equivalent of taking 15,944 passenger vehicles off the road for one year.²

Energy Performance Contracting (EPC)

An EPC is a multi-million-dollar energy project in which the cost of the project is paid for over time through guaranteed annual energy and operational savings. The Energy Office drafts and manages the contract that defines the processes and requirements of an EPC and prequalifies the Energy Service Companies (ESCOs) that will perform each project. The ESCOs provide the energy savings guarantee for each project. The Energy Office has been managing the State's EPC program since 2003, during which time 29 EPC projects have been initiated. The EPC program is the State's greatest single contributor to the development of energy efficiency and energy conservation strategies within State facilities.

¹ DGS does not own the Renewable Energy Credits (REC) for these installations.

² Calculated using EPA Greenhouse Gas Equivalencies Calculator, <https://www.epa.gov/energy/greenhousegas-equivalencies-calculator>

The EPC program has provided considerable cost-effective energy savings and GHG reductions since its inception. Table A below indicates energy savings and CO2 reductions associated with EPC projects since 2010.

TABLE A

PROJECT	Construction Completion Date	Overall Annual Energy Reduction MMBTU³	Annual CO2 Reduction Tons
DHMH-Spring Grove Hospital	02/01/10	267,504	14,979
University of Baltimore	02/28/10	31,465	2,990
Veterans Affairs	05/31/10	1,999	253
UMCES- Horn Point Lab	10/01/10	12,652	1,253
Work Force Technology Center	12/01/10	14,593	1,421
DGS Buildings	01/01/11	60,730	5,979
MDA-Agriculture	02/01/11	7,618	963
State Police	06/30/11	3,683	746
UM College Park- 9 buildings	01/01/12	59,060	3,538
UMCES- Chesapeake Lab	01/01/12	6,154	604
MTA	04/12/12	16,030	2,027
DPSCS- Jessup	06/30/12	224,504	14,412
MdTA	10/18/12	30,712	3,285
Towson Univ. Part 1	12/01/12	32,740	4,139
MAA	12/04/12	119,150	10,965
Bowie State University	01/31/13	6,791	547
Port Administration	Ongoing	100,307	5,380
UMBC- Part 1	07/31/13	20,855	2,637
UMCP- Athletic Dept.-	09/30/13	4,450	555
SHA -I	10/01/13	69,687	7,928
Department of Juvenile Services	1/6/2017	25,412	2,392
MDH Springfield Hospital	7/31/2018	14,641	1,205
MDH Finan Center	1/9/2019	9,557	1,131
MVA	4/1/2018	19,223	2,123
MDH Perkins and Holly Center	6/30/2020	25,051	3,490
DPSCS - WCI & NBCI	11/30/2019	22,758	8,163
TOTALS		1,207,326	103,106

³ The energy reduction figures are for all fuel sources associated with a project (electricity, natural gas, fuel oil, etc.) converted to millions of Btus. Figures provided by ESCOs in their Phase II proposals as part of their savings guarantee. Actual savings for most projects have been higher.

Executive Order 01.01.2019.08

Governor Hogan's EO, calls on the Energy Office to perform several tasks to help achieve 10% energy savings in State-owned buildings by 2029 based on an FY 2018 baseline. Tasks outlined for the Energy Office include creating an accurate energy baseline for FY 2018, identifying 2 million square feet of buildings with cost-effective energy saving opportunities, performing energy audits on those buildings, presenting the building owners with the recommendations from the audit reports, tracking the energy use in those buildings after upgrades, and reporting progress towards meeting the overall goal to the Governor.

Beyond fulfilling the specific tasks outlined in the EO, the Energy Office has formed a Working Group on Reducing Energy Use in State Operations, whose members include representatives from the 20 agencies, or university campuses, that are responsible for 90% of the State government's energy use. The Working Group meets quarterly to coordinate efforts, collaborate on solutions, and share successes on reducing energy use in State facilities. The Working Group has met seven times since September 2019.

In the 2020 legislative session, DGS introduced House Bill 662 to include the energy savings goal of Governor Hogan's EO into statute. The bill passed and took effect on July 1, 2020.

The Energy Office performed energy audits on 1.7 million square feet of buildings in FY 2021 and is on track to complete another 2 million square feet of audits during FY 2022. The second Annual Report on the Executive Order was submitted to the Governor in September 2021.

Other Energy Reduction Efforts

The Energy Office is currently managing the installation of over 10,000 state-of-the-art LED light fixtures and controls in several buildings throughout the Annapolis Capitol Complex. There are two distinct lighting projects, the first project is through the current DGS EPC, and the second is funded by a loan from MEA. The scope of each project was extended to include additional buildings using utility rebate funds totaling nearly \$600,000, which will allow us to install an additional 2,500 fixtures. Total annual project savings are expected to be 2,281 MWH of electricity, avoidance of \$193,902 in annual operating expenses, and yearly avoidance of 981 metric tons of CO₂. The project will be complete by early CY2022.

In December 2020, the Energy Office completed a retro-commissioning pilot at the Rockville Multi-Service Center (MSC). Retro-commissioning involves an in-depth evaluation of opportunities to improve the efficiency of an existing building's HVAC equipment and systems. In this case, the building's automated controls were updated, and associated systems were returned to their original operating parameters. The result of the project is that between January and April 2021, the natural gas use of the building, normalized for weather variations, was reduced by 70% over the average use during the same months of the previous four years.

We are estimating the payback from the project to be less than 24 months. The Energy Office has identified two other DGS-owned properties to continue the pilot project and work will begin on them in fall 2021. The Energy Office will track the energy use of the buildings for the year following the retro-commissioning, and assuming good results, will develop a retro-commissioning program to roll out to other agencies.

The Energy Office has been working with DGS Capital and Facilities Management divisions over the past year to integrate “green” building practices into building design and renovations. The Energy Office drafted a “Green Building Standards” document and presented its contents on a webinar with several of the capital and management division project managers and later gave the presentation to the architectural and engineering firms contracted with DGS. Following that presentation, the Energy Office held a webinar for project managers on “HVAC Sizing Considerations” to overcome a common problem when designing new and replacement HVAC systems. In order to make green building an ongoing and permanent part of DGS’ decision-making process, the Energy Office drafted an addendum to the DGS Procedure Manual that incorporates energy efficient and sustainable design into common practices.

Utility Bill Tracking Database “State Energy Database”

The Energy Office maintains the nation’s most comprehensive statewide utility database for tracking energy consumption and cost for all state-owned and leased facilities. The database allows the Energy Office and other agencies to analyze their energy consumption patterns over time in order to identify poor performing facilities, and to track the progress of facilities undergoing energy efficiency projects. The database is used extensively during the development and measurement and verification stages of EPCs. It also is an instrumental tool that enables the State to engage in financially beneficial strategies for energy purchasing.

In FY 2020, building attributes such as square footage, build year, leased owned status, and primary use were added for the majority of the state’s portfolio. Additionally, building/meter relationships were confirmed, allowing the State to confirm buildings that are individually metered for further building-level benchmarking and analysis, and to confirm campuses sharing utility meters for future submetering opportunities. The result was a comprehensive report of all State-owned and independently metered buildings, with their energy usage data so their progress may be tracked over time.

Maryland has led in data transparency by ensuring that the energy database is available in a public-facing version, hosted on DGS’ website. The database is also available (with detailed cost and consumption data) to over 300 state agency users with log in privileges.

Green Purchasing Committee

The Maryland Green Purchasing Committee (GPC) is an interagency committee created by the Green Maryland Act of 2010 and is tasked with providing the State with education and training promoting environmentally preferable purchasing. Chaired and staffed by the Energy Office, the GPC develops and implements statewide green purchasing policies, guidelines, programs, best practices, and regulations which will provide benefits to the health and well-being of Maryland citizens and the environment.

The GPC approves and publishes tools and guidelines for state purchasers that would limit the use of hazardous or toxic materials and advance the conservation of natural resources and energy in state agency operations. Specifications for the procurement of certain environmentally friendly goods and services are created, approved, and published for State agencies to adopt. In FY 2021, the GPC issued 6 new or updated specifications:

- [Snow & Ice Control](#) (updated)
- [Electronic + IT Products](#) (updated)
- [Appliances](#) (updated)
- [Plumbing & Other Water-Using Products](#) (new)
- [HVAC Systems](#) (updated)
- [Janitorial Services](#) (updated)

In FY 2021, environmentally preferable purchasing by Maryland State agencies totaled \$51,278,245. Environmentally preferred commodities include office supplies, janitorial supplies, IT equipment, paints and coatings, and food service supplies. The cost savings associated with these purchases was \$1,194,650 and included a reduction of 128,894 Tons of CO₂e. Other benefits from Maryland's Green Purchasing program for FY 2021 are as follows:

- 10.97 GWH of electricity savings
- 186.80 tons of solid waste reduced
- 3,075.40 tons of material conserved
- 12,607,529 gallons of water conserved

The Energy Office launched a Green Purchasing Training Module in July of 2020 as part of the Maryland Procurement Academy, where state procurement professionals will gain the basics of green purchasing to apply in their procurement practices. In FY 2021, 120 procurement professionals were trained on the fundamentals of green procurement through this program. Additionally, the Committee has delivered training and organized educational events to further promote Maryland's leadership in environmentally preferable purchasing.

The GPC received an Environmental Leadership Award from the Northeast Recycling Council (NERC) for its FY 2021 activities in the areas of resource conservation, toxics and hazardous material reduction, and the promotion of recycling markets.

Also, in recognition of Maryland's leadership in the procurement of sustainable electronics and Information Technology (IT), the state received awards from the State Electronics Challenge, and the Green Electronics Council in 2021.

Electric Vehicle (EV) Infrastructure

In FY 2021, DGS supported the electrification of Maryland State government's fleet through:

- Establishing **state-wide contracts** for EV charging infrastructure.
- Coordinating with the Department of Budget & Management (DBM) on procuring **40 zero emission vehicles** including sedans and SUVs (to arrive in FY 2022).
- Developing plans and strategy documents to install EV infrastructure at State-owned and leased facilities across the state.
- Constructing and opening **21 EV charging ports** across six sites.

In FY 2021, Maryland ramped up its fleet electrification activities to support the State's greenhouse gas reduction goals. To this end, the State has started to replace eligible State fleet vehicles with internal combustion engines with battery EVs which produce no tailpipe emissions. Vehicles are eligible for replacement when they reach 10 years of age or 100,000 miles.

As EVs are added to the State's vehicle fleet, State facilities will need adequate charging infrastructure in place to support them. DGS is taking the lead in establishing a Statewide EV Infrastructure Strategy and installing charging equipment at State-owned facilities. EV Stakeholder update meetings are held monthly to share information about current and upcoming EV charging projects and other relevant information. DGS coordinates these efforts with the Departments of Budget and Management, Environment, Transportation, and the Maryland Energy Administration.

FY 2022 will see a significant increase in both electric vehicles and charging infrastructure. DGS has established an EV Infrastructure Charging Program which includes three staff. Additionally, \$1 Million was allocated to DGS in the FY 2022 Supplemental Budget for the installation of charging infrastructure at State facilities.

More information about EVs is available on the [Green Purchasing website](#).