

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

November 13, 2023

In accordance with § 2-1305 of the Environment Article of the Annotated Code of Maryland, 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 2010 through the 2022 calendar year.

DGS Energy Office

The DGS Office of Energy and Sustainability ("Energy Office") performs several functions that positively contribute to the State's greenhouse gas reduction efforts. The Energy Office purchases renewable energy, installs electric vehicle (EV) infrastructure, operates the Energy Performance Contracting (EPC) program, reports on progress towards the energy savings goal of Governor Moore's Executive Order 01.01.2023.07 *Leading by Example in State Government*, 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, develops procurements and plans to decarbonize the state's facilities, and fields calls from agencies on various energy conservation related topics. Beginning with the May 2023 issuance of Governor Moore's Executive Order 01.01.2023.07, 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 the University System of Maryland (USM) to purchase over \$187 million annually of electricity and natural gas. 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 2023, the State of Maryland spent approximately \$19 million on renewable electricity which accounted for 11% of the electricity cost for State operations.

Facility name	Initial Delivery Year	Size	FY 2023 Total Generation (MWH)	FY 2023 Total Expenditure (\$)
Mount St. Mary's (Solar)	2012	13 MW	19,613	\$4,365,228
Pinnacle (Wind)	2011	53.7 MW	181,208	\$12,350,979
Roth Rock (Wind)	2011	10 MW	23,220	\$2,333,472
Totals			224,041	\$19,049,679

The Energy Office is currently drafting a solicitation per the POWER Act (SB 781 - 2023) to purchase up to 5 million megawatt-hours of offshore wind power.

DGS also currently has Solar PV installations at four agency buildings, with total capacity of 432 kW and generating 450,789 kWh in FY 2023¹:

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

DGS' purchases of renewable energy enabled the State to prevent approximately 68,709 Metric Tons of carbon dioxide equivalent (CO₂e) from entering the atmosphere. This is the equivalent of taking 14,937 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 (ESCO) 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.

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

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

² Calculated using EPA eGRID Emission Factors, <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>

PROJECT	Construction Completion Date	Overall Annual Energy Reduction MMBTU ³	Annual CO2 Reduction Tons
MDH-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

Executive Order 01.01.2023.07

Governor Moore's Executive Order, *Leading by Example in State Government*, calls on the Energy Office to perform several tasks to help achieve 20% energy savings in State-owned buildings by 2031 based on an FY 2018 baseline. Tasks outlined for the Energy Office include: identify potential candidates for energy savings performance contracts at State-owned facilities, conduct energy and greenhouse gas emissions audits on at least 2 million square feet of State-owned buildings, present the building owners with the recommendations from the

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.

audit reports, track the energy use in those buildings after upgrades, and report progress towards meeting the overall goal to the Governor.

Beyond fulfilling the specific tasks outlined in the Executive Order, 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.

In the 2024 legislative session, DGS will introduce a Bill to include the energy savings goal of Governor Moore's EO into statute.

The Energy Office performed physical energy audits on 1.5 million square feet of building space and 30 million square feet of virtual audits using the Rapid Energy Audit (REA) software tool in FY 2023. The first Annual Report on the Executive Order was submitted to the Governor in September 2023.

Other Energy Reduction Efforts

The Energy Office is currently managing the installation of over 40,000 state-of-the-art LED light fixtures and controls in several buildings throughout the state at several state agencies. Total annual project savings are expected to be 9,600,000 kWh of electricity, avoidance of \$1,152,000 in annual energy expenses, and yearly avoidance of 3,356 metric tons of CO₂. The project will be complete by early CY2024.

In December 2020, the Energy Office completed a retro-commissioning pilot at the Rockville Multi-Service Center housing the District Court. 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 began retro-commissioning at two other DGS-owned properties to continue the pilot project and began work on them in spring 2022. 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 couple years 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 maintenance 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 to the database 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.

In FY 2023, submetered data from the Annapolis Capital Complex was added to the data “tree” in the database. Data from 136 meters installed on 16 buildings collect consumption data including steam, electricity, chilled water, natural gas and domestic water. Data from the meters will help energy office staff identify problems and track usage.

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 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 DGS Office of Energy, the Committee 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 Committee 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 2023, the Committee issued 7 new or updated specifications:

- Electronic + IT Products (updated)
- EV Charging Equipment
- Flooring & Adhesives (updated)
- Landscaping Supplies
- Landscaping Services
- Landscaping Plants (updated)
- Office Supplies (updated)

In FY 2022, environmentally preferable purchasing by Maryland State agencies totaled \$49,983,826. FY 2023 numbers will be published by December 2023. 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 \$3,008,973. Other benefits from Maryland's Green Purchasing program for FY 2022 are as follows:

- 41 GWH of electricity savings
- 633 tons of solid waste reduced
- 15,303 tons of material conserved
- 30,656,142 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 2022, 114 procurement professionals were trained on the fundamentals of green purchasing and procurements through this program. In FY 2022, 21 Green Purchasing Specialists were certified at Maryland state agencies. Additionally, the Committee has delivered training and organized educational events to further promote Maryland's leadership in environmentally preferable purchasing.

In recognition of Maryland's leadership in the procurement of sustainable electronics and Information Technology (IT), the state received an award from the Global Electronics Council, marking the 4th year of receiving the recognition.

Electric Vehicle Infrastructure

In FY 2023, DGS supported the electrification of Maryland State government's fleet through:

- **State-wide contracts** for EV charging infrastructure.
- Coordinating with DBM on procuring **zero emission vehicles** including sedans and SUVs.

- Developing plans and strategy documents to install EV infrastructure at State-owned and leased facilities across the state.
- Constructing and opening **64 EV charging ports** at DGS, MDH, DPSCS, and MDOT MVA facilities

In FY 2023, Maryland ramped up its fleet electrification activities to support the State's greenhouse gas reduction goals and the requirements of Climate Solutions Now Act. DBM continues to replace eligible State fleet internal combustion engines with battery Electric Vehicles (EVs) which produce no tailpipe emissions.

DGS holds monthly EV Stakeholder update meetings to share information about current and upcoming EV charging projects and other relevant information. DGS has also hosted numerous educational events such as ride and drives and charging demonstrations to assist state employees with the transition to zero emission vehicles.

The DGS Electric Vehicle Infrastructure Program (EVIP) website includes resources and information for state agencies related to EVs and EV charging.