Larry Hogan
Governor

Boyd K. Rutherford
Lt. Governor

Ellington E. Churchill, Jr.
Secretary

MARYLAND DEPARTMENT OF GENERAL SERVICES
OFFICE OF THE SECRETARY

November 10, 2017

The Honorable Larry Hogan
Governor of Maryland
100 State Circle
Annapolis, Maryland 21401

Mr. Ben Grumbles
Chair, Commission on Climate Change
1800 Washington Boulevard
Baltimore, MD 21230

Re: 2017 Annual Report on the Status of Department of General Services' Programs that Support the State's Greenhouse Gas Reduction Efforts or Address Climate Change

Dear Governor Hogan and Chairman Grumbles:

The Department of General Services is pleased to submit the above-referenced report which highlights how our Agency Energy Planning and Energy Performance Contracting programs work together to abate environmental impacts. As a result of our well executed programs, this report shows newly estimated Greenhouse Gas Reductions for the 2017 calendar year. The report was written in response to and in accordance with §2-1305 of the Environmental Article.

Should you have any questions or require additional information, please feel free to contact Mr. Randolph Wilson, Energy Administrator, at (410) 767-4439 or by email at Randolph.Wilson@maryland.gov.

Sincerely,

Ellington E. Churchill, Jr.
Secretary

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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 1, 2017

In accordance with §2-1305 of the Environmental 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 (GGRA) efforts or address Climate Change. This report will highlight how our Agency Energy Planning and Energy Performance Contracting programs work together to abate environmental impacts. As a result of our well executed programs, this report shows newly estimated greenhouse gas reductions for the 2016 calendar year.

DGS Energy Office

The DGS Energy Office of Performance and Conservation ("Energy Office") regularly engages sister agencies, industry experts, advocates, and energy sector experts to provide advice and collaborate in crafting and improving upon its programs. The variety of perspectives has helped drive Energy Office initiatives to include Agency Energy Planning; Energy Performance Contracting; Energy Use Tracking, Energy Commodities Purchasing; Demand Response and Energy Security Planning; and Renewable Energy Sourcing. The suite of activities do not function independently; instead, they are intertwined and simultaneously executed to, *among other things*, comply with regulations and policies; meet energy efficiency and conservation goals; support the State's greenhouse gas reduction efforts; and mitigate climate change and its causes.

Agency Energy Planning

Agency Energy Planning directly links recommended energy policies to energy programs. The plan minimizes taxation, the effects of market fluctuations, adverse externalities, and threats to energy security and system reliability. At the same time, it maximizes the state's unique mix of energy resources, energy conservation measures, reliability standards, and environmental mitigation strategies to advance energy efficiency efforts.

Out of 58 Maryland State agencies, 22 agencies are constructing, revising, or finalizing their Agency Energy Plans (AEP). Of those 22 agencies, DGS records indicate four agencies on our Capital Construction Maintenance Backlog are requesting $28,019,519 for repairs or equipment replacement of major energy consuming equipment. The need to repair and replace nearly $29M of antiquated, major energy consuming equipment from just four agencies directly correlates to greater greenhouse gas emissions and detrimental climate change. Stated in the

converse, some of the state agencies, which have completed an agency energy plan, have installed modern energy and water saving fixtures as energy conservation measures. The dedication of these agencies has substantially helped lead the State's efforts to lessen greenhouse gas emissions and mitigate climate change.

In a nutshell, Agency Energy Plans are intended to target positive, transformative change and provide a structure for agency buy-in. Well-developed plans result in quantifiable and achievable energy reduction goals, reduce carbon emissions, and link financing mechanisms to each goal in order for each goal to be implemented. Therefore, completion of all state Agency Energy Plans and implementation of energy conservation measures will help improve the status of greenhouse gas reduction and mitigate climate change.

Energy Performance Contracting

DGS Energy Office Project Engineers manage, from A to Z, energy performance contracting on behalf of Maryland state agencies. An energy performance contract (EPC) is an innovative financing technique that uses cost savings from reduced energy consumption to repay the cost of installing energy conservation measures. Energy Service Companies (ESCOs), partner with the DGS Energy Office to perform energy performance projects. EPC's are important contributors to the development of clean energy, sustainability and climate change mitigation strategies. Currently, the DGS Energy Office is managing 28 EPC's for various state agencies.

DGS Energy Office Project Engineers work with representatives of state agencies seeking to engage and execute an EPC. As a team, they review the identified energy consuming units and the recommendations for energy conservation measures and climate mitigation strategies from the AEP. Throughout the entire project, the teams continuously work to discover additional energy conservation measures with the successful ESCO.

Mature EPCs

Current EPCs, as a whole, are executing well proven energy conservation measures, such as installing new technology or features to older systems; LED lighting; insulated windows; building control software; energy efficient insulation; high-efficiency water fixtures; and high-efficiency boilers and split-system furnaces to upgrade heating, ventilation and air conditioning equipment. Some state agencies, at a mature stage of an EPC, include projects at Maryland Department of Health (MDH) Spring Grove Hospital; Department of Public Safety and Correctional Services (DPSCS) Jessup; Maryland State Police (MSP); Maryland Department of Agriculture (MDA); and the Department of General Services (DGS) buildings. When completed, these EPCs are projected to annually save the total amounts in **Table A**.

TABLE A

State Agency	CO_2 Emissions (Tons)	Electric Energy (kWh)	Natural Gas (Therm)	Water (kGal)
Maryland Department of Health (MDH)- Spring Grove Hospital	14,979	3,145,621	2,456,736	22,162
Department of Public Safety and Correctional Services (DPSCS)- Jessup	14,412	4,886,962	2,013,132	4,791
Maryland State Police (MSP)	746	1,577,368	16,568	0
Maryland Department of Agriculture (MDA)	963	2,232,181	0	173,090
Department of General Services (DGS) Buildings	5,979	10,433,391	247,741	14,050
Total Reductions	37,079	22,275,523	4,734,177	214,093

Newer EPCs

Some of the newer EPCs have moved beyond the traditional technologies to incorporate combined heat and power (CHP) and solar as a zero source of carbon emissions. DGS Project Engineers are also leading a unique EPC at the Maryland Department of Health. An energy conservation measure for this project will replace several, 40-year-old, underground fuel tanks with a new, interstate, natural gas pipeline being extended onto state property. Located in Western Maryland, the team is working closely with the local utility alongside the owner of the interstate natural gas pipeline to build an extension to the state facility. Since natural gas is a cleaner energy resource, coordination is occurring to extend 4,230 feet of natural gas pipeline to the facility and remove 13 energy inefficient fuel tanks located underground and at the end of its life cycle. Coupled with other proven energy conservation measures to be located inside of the sprawling facility and outer buildings, this EPC is projected to save annually the total amount in **Table B**.

TABLE B

Maryland Department of Health (MDH): Thomas B. Finance Center Gas Line EPC Project	CO_2 Emissions (Tons)	Electric Energy (kWh)	Natural Gas (Therms)	Water (kGal)
Total Reductions	980	3,145,621	0	11,061

Department of General Services
Total Annual Estimated Greenhouse Gas Reduction emissions

In 2016, DGS continued to help Maryland state agencies substantially reduce energy consumption through the management of 28 Energy Performance Contracts. When completed these mature and new EPC's are estimated save the total amount in **Table C**.

TABLE C

Department of General Services (DGS): Total Annual Reduction Resources	$C0_2$ Emissions (Tons)	Electric Energy (kWh)	Natural Gas (Therm)	Water (kGal)
Total Reductions	96,086	122,077,668	6,200,774	1,062,463