



MARYLAND DEPARTMENT OF GENERAL SERVICES
OFFICE OF THE SECRETARY

BILL: House Bill 665 – Public School Construction and State Buildings – Use of Geothermal Energy
COMMITTEE: House Appropriations
DATE: February 27, 2020
POSITION: Letter of Information

Upon review of House Bill 665 – Public School Construction and State Buildings – Use of Geothermal Energy, the Department of General Services (DGS) provides these comments for your consideration:

- DGS requires a lifecycle assessment of four (4) alternate Heating, Ventilation, and Air-Condition (HVAC) systems in their design process for State facilities. One of the systems **must be Geothermal**.
- Factors that must be considered in the selection of a system include the type of facility, size, location, soil conditions, site size & the demand of HVAC.
- DGS has implemented geothermal systems in several major new construction projects where the lifecycle assessment of the system was favorable, including:
 - Military’s Easton Readiness Center in Easton MD;
 - Military’s Salisbury Readiness Center in Salisbury, MD; and
 - Jefferson Patterson Park Museum in St. Leonard, MD.
- The lifecycle assessment of the system was not favorable on several other projects. The use of geothermal energy was evaluated at the following sites but not chosen due to higher initial expenditures and reduced payback:
 - Maryland Department of Agriculture Animal Lab, Salisbury, MD: In the lifecycle analysis, the geothermal system option was double the initial capital cost of the selected system. The annual utilities were calculated to be \$10,000 less per year than the base system. This leads to a **42-year payback** to cover the increased first costs. The net present value for geothermal was the highest of the 5 systems evaluated at **\$2,040,977**, the selected system was the lowest at **\$1,796,080**.



- Maryland Military Department Freedom Readiness Center, Carrol County, MD: In the lifecycle analysis, the geothermal system option was **\$600,000** more than the base HVAC system. The lifecycle cost analysis showed a net present value for the geothermal system to be **\$4,202,854** and the base system to be **\$3,516,737**.
- It should be noted there are some sites with soil conditions that prevent the use of geothermal energy, including certain rock conditions and naturally occurring asbestos in the soil. Requiring a certain type of HVAC system for all future construction projects will create an unknown cost impact dependent on the scope of future projects and their location.

For additional information, contact Ellen Robertson at 410-260-2908.