

Department of Legislative Services
 Maryland General Assembly
 2009 Session

FISCAL AND POLICY NOTE

House Bill 1163 (Delegate Manno)
 Health and Government Operations

Procurement - Capital Procurements - Life Cycle Assessment

This bill requires that the Department of General Services (DGS), in collaboration with the Department of Budget and Management (DBM), conduct a life cycle assessment (LCA) of every project in the State’s capital program. A life cycle assessment is a process that evaluates the effects that a product, service, or structure has on the environment over the entire period of its life.

Fiscal Summary

State Effect: General fund expenditures by DGS increase by \$152,100 in FY 2010 for three new positions to carry out LCAs required by the bill. Out-year expenditures reflect annualization and inflation. No effect on revenues.

(in dollars)	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Revenues	\$0	\$0	\$0	\$0	\$0
GF Expenditure	152,100	189,700	198,700	208,100	218,000
Net Effect	(\$152,100)	(\$189,700)	(\$198,700)	(\$208,100)	(\$218,000)

Note:() = decrease; GF = general funds; FF = federal funds; SF = special funds; - = indeterminate effect

Local Effect: None.

Small Business Effect: None.

Analysis

Current Law: The State’s capital program consists of all public improvement projects proposed by a unit of State government, except the Maryland Department of Transportation (MDOT).

During the preliminary design phase of the construction or renovation of any State building, DGS must, in conjunction with the Maryland Energy Administration (MEA), project life cycle costs and perform an energy consumption analysis of the building. The projection of life cycle costs includes three components. The first component is an evaluation of:

- the amount and type of glass used in the building and directions of exposure;
- the effect of insulation;
- the effect of the use of active and passive solar energy systems;
- if wind or solar energy is used, the orientation and integration of the building with respect to its site;
- the variable occupancy and operating conditions of the building and its parts.

The second component of the life cycle assessment includes an energy consumption analysis of each major piece of equipment used in the following building systems:

- the cooling system;
- the heating system;
- the hot water system;
- the lighting system;
- the ventilation system; and
- any other major energy-using system.

The third component of the life cycle cost projection is a comparative analysis of the energy efficiency of alternative energy systems over the life of the building.

Chapter 427 of 2006 requires DGS and MEA to set energy performance standards to reduce the average energy consumption in State buildings from 2005 levels. The statute requires that energy consumption be reduced by 5% in 2009 and by 10% in 2010.

Background: The U.S. Environmental Protection Agency describes LCA as a technique to assess the environmental aspects and potential impacts associated with a product, process, or service. It consists of three steps:

- compiling an inventory of relevant energy and material inputs and environmental releases;
- evaluating the potential environmental impacts with identified inputs and releases;
- and

- interpreting the results to make an informed decision.

Often described as a “cradle-to-grave” assessment, LCA estimates the cumulative environmental effect of a product often not considered in traditional analyses. It includes an examination of the environmental impact of raw material acquisition, manufacturing, maintenance, and waste management (disposal and dismantling).

In the early 1990s, LCA was denounced by 11 state Attorneys General because of marketing abuses by companies seeking to exploit it to sell products. The development of a standardized LCA methodology by the International Standards Organization, combined with the Life Cycle Initiative launched by the United Nations Environment Program and the Society of Environmental Toxicology and Chemistry in 2002 have given LCA renewed attention and legitimacy. However, controversy remains, as LCA methodology can still vary due to the complexity of different environmental systems. The interpretation of LCA results still remains highly subjective, as the results can often identify tradeoffs without providing a clear choice among them.

In December 2008, DGS signed an energy performance contract with Johnson Controls designed to reduce utility costs in State buildings by 19.3%. The contract includes lighting retrofits, water conservation retrofits, heating and cooling system upgrades, digital controls, and facility maintenance services.

The State’s fiscal 2010 *Capital Improvement Program* (CIP) includes the construction or renovation of 52 State-owned buildings that have not yet received construction funding.

State Fiscal Effect: The life cycle cost projections currently conducted by DGS engineers focus on the costs of operating and maintaining building systems and components (for example, heating and cooling systems or roofs). Although significant, this is a substantially narrower focus than LCAs required by the bill, which examine the environmental impact of every material or piece of equipment that goes into the construction or renovation of a building, including the impact of extracting raw materials for its construction and disposal.

DGS engineers lack the training or expertise to carry out LCAs as required by this bill. DBM estimates the cost of outsourcing LCAs to be approximately \$100,000 per assessment. Assuming that the State’s CIP contains about 50 new or renovated buildings each year, the total cost may be as high as \$5.0 million to outsource LCAs. Alternatively, DGS may be able to carry out the bill’s requirements with three new positions: a program administrator, an engineer trained to carry out LCAs, and one administrative support position. If additional staff are necessary to meet the demand for LCAs on State capital projects, they can be requested through the annual budget process.

Therefore, general fund expenditures by DGS increase by \$152,103 in fiscal 2010, which accounts for the bill's October 1, 2009 effective date. This estimate reflects the cost of hiring three full-time equivalent positions to carry out LCAs on all new capital projects included in the annual CIP. It includes salaries, fringe benefits, one-time start-up costs, and ongoing operating expenses.

Positions	3
Salaries and Fringe Benefits	\$130,210
Start-up Costs	12,270
Ongoing Operating Expenses	<u>9,623</u>
Total FY 2010 State Expenditures	\$152,103

Future year expenditures reflect full salaries with 4.4% annual increases, 3% employee turnover, and 1% annual increases in ongoing operating expenses.

The complexity and breadth of LCAs may cause delays in DGS's approval of future capital improvement projects, which can lead to cost overruns. Legislative Services cannot reliably estimate the extent of these delays or their potential effect on project costs.

Additional Information

Prior Introductions: None.

Cross File: None.

Information Source(s): U.S. Environmental Protection Agency, Society of Environmental Toxicology and Chemistry, Board of Public Works, Department of Budget and Management, Department of General Services, Maryland Department of Transportation, University System of Maryland, Department of Legislative Services

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