

Department of Legislative Services
Maryland General Assembly
2004 Session

FISCAL AND POLICY NOTE

Senate Bill 577 (Senator Teitelbaum)
Budget and Taxation

Income Tax – Credit for Geothermal Heat Pump

This bill creates a tax credit against the State income tax for the purchase price of a geothermal heat pump installed on or after January 1, 2004 in a new or remodeled single-family dwelling. The amount of the credit may not exceed \$1,500 or the tax liability for that tax year. Any unused amount of the credit may not be carried forward to subsequent tax years.

The bill takes effect July 1, 2004 and applies to tax year 2004 and thereafter.

Fiscal Summary

State Effect: General fund revenue decrease of approximately \$984,600 in FY 2005 due to credits being claimed against the personal income tax. Out-year estimates reflect a 1% increase in geothermal heat pump purchases. Special fund expenditure increase of \$43,000 in FY 2005, which includes one-time tax form changes and computer programming expenditures.

(in dollars)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
GF Revenue	(\$984,600)	(\$994,500)	(\$1,004,400)	(\$1,014,500)	(\$1,024,600)
SF Expenditure	43,000	0	0	0	0
Net Effect	(\$1,027,600)	(\$994,500)	(\$1,004,400)	(\$1,014,500)	(\$1,024,600)

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

Local Effect: None.

Small Business Effect: None.

Analysis

Current Law: No State tax credit of this type exists.

Background: The most common type of heat pump for domestic use, referred to as a “conventional” heat pump, is the air-to-air system in which heat is taken from air (heat source) at one location and transferred to air (heat sink) at another location. In the winter, a heat pump takes heat from outside air and transports the heat inside a home. In the summer, the heat pump reverses the process, removing heat from the home and transporting it to the outside air, cooling the house in the process. Conventional heat pumps lose efficiency in providing heat when outside temperatures drop below 20 to 30°F and switch to a higher cost electric resistance back-up heating system.

A geothermal heat pump is a heat pump that draws heat from or removes heat to the ground or ground water, instead of air. A geothermal heat pump benefits from nearly constant ground temperatures over most of the temperate climate zone in the continental U.S., regardless of outside air temperatures. The ground temperature is cooler than the air temperature in the summer and warmer than the air temperature in the winter, so the heat pump does not need to work as hard to cool or heat a home. A geothermal heat pump can also provide hot water at greatly reduced costs.

Depending on the location, geothermal heat pumps can reduce energy consumption and corresponding emissions of carbon and other air pollutants by more than 20%. Although heat pumps reduce electricity costs, a barrier to widespread use is the higher initial capital cost. Based on energy and maintenance savings, geothermal heat pumps have a payback period of two to 10 years.

State Revenues: General fund revenues would decline by approximately \$984,600 in fiscal 2005. Future year decreases increase by 1%. This estimate is based on the following facts and assumptions:

- According to the federal Energy Information Administration, 33,868 geothermal heat pumps were purchased in the U.S. in 2002. Assuming the number of purchases in Maryland is proportional to population, 643 geothermal pumps were purchased in Maryland in 2003.
- The number of geothermal heat pumps sold nationally has declined less than 1% from 1997 to 2002. It is estimated that the reduction of price due to the credit causes Maryland purchases to increase by 1% annually.

- Taxpayers will have sufficient tax liability to claim the entire amount of the credit.
- The purchase price of the residential geothermal heat pumps exceeds \$1,500.

State Expenditures: The Comptroller's Office reports that it would incur a one-time expenditure increase of \$43,000 to add the tax credit to the personal income tax form. This includes data processing changes to the SMART income tax return processing and imaging systems, and systems testing.

Additional Information

Prior Introductions: None.

Cross File: None.

Information Source(s): Comptroller's Office, U.S. Department of Energy (Energy Information Administration), Department of Legislative Services

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