

Department of Legislative Services
Maryland General Assembly
2009 Session

FISCAL AND POLICY NOTE

House Bill 1072 (Delegate McHale)
Economic Matters

Electricity - Smart Grid Initiative

This bill requires the Public Service Commission (PSC) to establish and administer a pilot program for “smart grid” technology. The pilot program must assess the benefits of implementing a smart grid on improving the reliability and efficiency of the electricity transmission and distribution grid and must assess the benefits to electricity customers. The initial deployment of smart grid technology under the pilot program must begin on or before June 1, 2010. On or before December 31 of each year, beginning in 2010, PSC must report on the status of the pilot program and the measurable costs and benefits of the pilot program for electric companies and customers.

The bill takes effect June 1, 2009.

Fiscal Summary

State Effect: PSC can establish and implement the pilot program and handle the other requirements with existing budgeted resources.

Local Effect: None.

Small Business Effect: Minimal.

Analysis

Bill Summary: The General Assembly finds that smart grid technology is a platform that can be used to enhance existing electricity delivery systems and may result in improved service and reliability for electric customers and can help the State meet its

energy policy goals, including reducing greenhouse gas emissions and reducing reliance on fossil fuels.

“Smart grid” is defined as a two-way communications system installed on a customer’s premises that uses the electric company’s transmission and distribution networks to provide real-time monitoring, diagnostic, and control information and services that improve the efficiency and reliability of the transmission, distribution, and use of electricity. This includes:

- transmission and distribution equipment automation;
- automated load control or demand response;
- power loss detection and prevention;
- remote outage and restoration detection;
- dynamic pricing of service;
- monitoring of transmission and distribution network performance; and
- predictive maintenance and diagnostics.

The purpose of creating a pilot program is to obtain an accurate assessment of the benefits of smart grid technology to both the transmission grid and to electricity customers. PSC is required to determine the scope and nature of the pilot program, including the number of electric customers, the extent and type of technology installed, the coordination and deployment of the technology, the dissemination of information on the deployment, and the geographic area in which to operate the pilot program. An electric company, in whose service territory smart grid technology is deployed under the pilot program may recover any additional costs incurred by a surcharge on services provided to each customer and placed on the periodic bill that the customer receives from the electric company.

As federal funding is made available, the Maryland Energy Administration (MEA), together with at least one electric company and one smart grid company, to be chosen by the director of MEA, must submit a joint application to the U.S. Department of Energy for the Smart Grid Funding Programs or other federal funding programs for smart grid assessment and implementation. Any funding received under this requirement must be used by MEA, in coordination with PSC, and the electric company and smart grid company to offset costs associated with the pilot program.

Current Law: The EmPOWER Maryland Energy Efficiency Act of 2008 (Chapter 131) required PSC to evaluate whether advance meter technology, commonly known as “smart meters,” and digital automation of the components of the entire power supply system, commonly known as “smart grid,” are cost-effective in reducing consumption and peak

demand of electricity in the State. If smart meter or smart grid technology are found to be cost-effective, PSC may require by regulation or order, each electric company to implement as appropriate smart meter or smart grid technology in its service territory.

Background: Smart grid technology refers to a sophisticated communications network among the entities that generate, deliver, and consume electricity. As such, smart grid technology allows the electricity grid to rely on real-time accurate information to act as a self-monitoring system – regulating power flows in the interest of increasing energy reliability and promoting efficiency. Smart grid technology can curtail the need to dispatch generation facilities at peak electric usage periods and reduce congestion costs, while also assisting to forestall power plant construction.

Advanced metering infrastructure (AMI) is seen as a key component for enabling smart grid technology, especially in regards to consumer use. The deployment of AMI enables customers to see and respond to market based pricing. Smart grid technology incorporating AMI can assist in increasing grid reliability, reducing blackout probabilities, reducing forced outage rates, and helping to restore power in shorter time periods.

As advised by PSC, there are several current and completed efforts to develop, implement, and organize “smart grid” technologies and architecture. The Federal Energy Regulatory Commission and National Association of Regulatory Utility Commissioners Demand Response Collaborative is an important forum for sharing and leveraging the growing body of AMI deployment, acceptance, and impact experience. Additional efforts include the U.S. Department of Energy’s (DOE) National Energy Technology Laboratory’s Modern Grid Strategy; the GridWise™ Alliance and the DOE’s Office of Electric Transmission and Distribution; and the San Diego Smart Grid Study, funded by San Diego Gas & Electric (SDG&E) and the Utility Consumer’s Action Network, which applied the smart grid concepts developed by DOE’s Modern Grid Initiative to a specific region.

Several AMI initiatives have been completed throughout the country. Typically, the initial cost of AMI deployment is recovered through a monthly surcharge on customers’ bills over a period of 15 to 20 years. AMI meters have a cost of approximately \$250 per electric meter and data on customer usage must be transmitted to the utility in a similar fashion to DSL or cable broadband services. AMI provides operational benefits to utilities, such as allowing automated meter reading, and AMI installation expenses charged to customers are partially offset by the operational cost savings realized by the implementing utility.

On June 8, 2007, PSC established a collaborative process to consider four issues pertaining to AMI and demand side management (DSM) programs. Case Number 9111

initiated a proceeding to determine technical standards; the extent to which programs are to be offered; program cost recovery; and the appropriate tests to determine cost effectiveness. The resulting PSC Order Number 81637 established the following minimum technical standards for AMI:

- a minimum of hourly meter reads delivered one time per day;
- nondiscriminatory access for retail electric suppliers and curtailment service providers to meter data and demand response functions that is equivalent to the electric company's own access to those functions;
- AMI shall be implemented for all customers of the electric company;
- metering and meter data management and AMI/DSM implementation should generally continue to be an electric company function;
- all AMI meters shall have the ability to monitor voltage at each meter and report the data in manner that allows the utility to react to the information;
- all meters shall have remote programming capability;
- all meters shall be capable of two-way communications;
- remote disconnect/reconnect for all meters rated at or below 200 amps;
- time-stamp capability for all AMI meters;
- all meters shall have a minimum of 14 days of data storage capability on the meter;
- all meters shall communicate outages and restorations; and
- all meters shall be net metering and bi-directional metering capable.

In response to PSC Order Number 81637, in early 2008, three Maryland investor-owned utilities filed smart metering and DSM proposals, including AMI. BGE is the only utility in Maryland that is currently running an AMI pilot. PEPCO, Delmarva, and Allegheny Power have filed proposals, as discussed below.

Baltimore Gas & Electric (BGE) AMI Pilot Program was approved by PSC in April 2008. BGE initiated a competitive bid process and contracted with two vendors to execute the AMI pilot program. The pilot program planned to test roughly 5,300 electric meters and gas modules in two zip codes, including both urban and suburban areas. As of October, 2008, 5,274 electric meters and gas modules were installed along with communications infrastructure and a meter data management system. Pending pilot results, BGE will file a service territory wide AMI business case.

PEPCO and Delmarva have proposed AMI system implementation for their entire service territories. The companies advised that an AMI pilot program was unnecessary and would not provide for additional learning, given the availability of robust information

available as a result of activities conducted in other states. Allegheny Power has included an AMI pilot proposal as a part of its EmPower Maryland filing. Allegheny Power plans on running a pilot in the city of Urbana. The pilot will last 15 months and include 1,140 customers. Some customers will receive a smart thermostat to control electric central air conditioning and/or a device for electric hot water heaters.

State Fiscal Effect: None. PSC can develop additional pilot programs related to smart grid technology with existing budgeted resources.

Small Business Effect: Small businesses that install and service smart metering equipment may benefit from a Statewide pilot program. A smart grid pilot program will allow an electric company to apply a surcharge to services provided to each customer. The monthly surcharge on individual small businesses is expected to be minimal.

Additional Information

Prior Introductions: None.

Cross File: None.

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