Department of Legislative Services

Maryland General Assembly
2011 Session

FISCAL AND POLICY NOTE

House Bill 1044 (Delegate Hucker)
Economic Matters

Electricity - Electric Vehicle Charging Program

This bill requires the Public Service Commission (PSC) to establish by regulation or order, by January 1, 2012, a "charging program," which is defined as a demand response program for residential, commercial, and governmental customers to recharge electric vehicles during off-peak hours. Each electric company must participate in the charging program and include it in its Standard Offer Service (SOS). The program must include specified incentives for customers to recharge electric vehicles in a manner that will increase the efficiency and reliability of the electric distribution system and lower electricity use at times of high demand. Competitive electricity suppliers may participate in the program, and electric companies must provide participating suppliers with specified data. The bill establishes an annual reporting requirement for PSC.

The bill takes effect July 1, 2011.

Fiscal Summary

State Effect: PSC can implement the charging program with existing budgeted resources. Revenues are not affected.

Local Effect: None.

Small Business Effect: Minimal.

Analysis

Bill Summary: The bill requires each electric company to participate and include the program in its SOS. The program must include incentives in the form of time-of-use pricing and credits on distribution charges. Incentives may also include (1) different

time-of-use tariffs for customers that agree to stricter program requirements; (2) different tariffs and requirements to users of different classes of electric vehicles; (3) rebates on the cost of charging systems; or (4) other appropriate incentives.

PSC may allow an electric company to phase in implementation of a charging program.

Competitive electric suppliers may participate in the program, and electric companies are required to share specified data with participating suppliers. However, suppliers must maintain confidentiality of any data designated as confidential by an electric company.

By February 1, 2014, and annually thereafter, PSC must report to the Governor and the General Assembly on the implementation of the program.

Current Law: PSC has authority to regulate public service companies in the State to promote adequate, economical, and efficient delivery of utility services without unjust discrimination. PSC relies on several of the divisions in the Office of the Executive Director (Integrated Resource Planning, Engineering, and Demand Side Management) to evaluate utility alternatives when it considers options for maintaining a reliable electric system. These alternatives include new generating capacity, power purchases, energy conservation and efficiency, cogeneration, and renewable energy resources. The commission evaluates these alternatives in an effort to ensure that adequate and reliable service is provided to electric customers at the lowest system cost.

Under State law, subject to review and approval by PSC, gas and electric companies are required to develop and implement programs and services to encourage and promote the efficient use and conservation of energy by consumers, gas companies, and electric companies. Under the EmPOWER Maryland Energy Efficiency Act of 2008 (Chapter 131), PSC was required by December 31, 2008, by regulation or order, to:

- require each electric company to implement a cost-effective demand response program in the electric company's service territory that is designed to achieve a targeted reduction of at least 5% by the end of 2011, 10% by the end of 2013, and 15% by the end of 2015, in per capita peak demand of electricity consumed in the electric company's service territory during 2007; and

- require each electric company to procure or provide for its electricity customers cost-effective energy efficiency and conservation programs and services, to the extent determined to be available, with projected and verifiable electricity savings that are designed to achieve a targeted reduction of at least 5% by the end of 2011 and 10% by the end of 2015 of per capita electricity consumed in the electric company's service territory during 2007.

The Act required electric companies, by September 1, 2008, and every three years thereafter, to submit plans to PSC detailing the electric companies' proposals for achieving the electricity savings and demand reduction targets for the three subsequent calendar years.

Background:

Demand Response in Maryland

Demand response programs promote changes in electric usage by customers from their normal consumption patterns by allowing retail customers to respond to prices as they change over time or by providing monetary incentives to reduce consumption of electricity at times of high wholesale market prices or when system reliability is jeopardized.

Maryland's five major utilities have demand response programs in place that have been approved by PSC. When fully implemented, many components of a demand response program rely on smart grid technology. 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.

Electric Vehicles and Demand Response

Generally, there are two types of vehicles capable of drawing energy from an electrical outlet: (1) electric vehicles (EVs); and (2) plug-in hybrid electric vehicles (PHEVs). The difference between the two vehicles is that a PHEV is capable of operating using a gasoline or other fuel-powered internal combustion engine in combination with, or separate from, an electric motor. While EVs have been around for more than a century and are experiencing a resurgence in popularity and sales, PHEVs have only been produced in limited quantities for purchase by the public. Many major automobile manufacturers are planning to make EVs and PHEVs available for purchase in 2011 and

2012. One PHEV model, the Chevy Volt, and one EV model, the Nissan Leaf, are currently available for purchase in limited areas of the country. In addition, there are dozens of smaller manufacturers of EVs and PHEVs as well as companies that convert standard hybrid electric vehicles to PHEVs. The majority of hybrid vehicles currently on the market cannot be plugged-in.

Most electric vehicles will be charged using level 2 charging systems, which require 240 volts and can fully recharge a vehicle in about four hours. The long-term challenge for utility companies is to get consumers and businesses to recharge their vehicles during off-peak hours when the electric grid has excess capacity and energy is cheaper (typically from 10:00 p.m. to 6:00 a.m.).

Implementing a demand response program for PHEVs and EVs will allow the owners of such vehicles to ensure that the batteries for their vehicles are charged at a time where the price of electricity is lowest for the consumer and at a time that places the least strain on the electric grid. Fully implementing EVs or PHEVs into a demand response program may also allow these vehicles to act as distributed generation by using their batteries for electricity storage when they are not in use. Using EVs and PHEVs as distributed generation will also allow electric utilities to increase the amount of electricity available to the grid during times of peak demand.

Promotion of Electric Vehicles in Maryland

Numerous efforts are currently underway to promote electric vehicles in Maryland. Chapter 490 of 2010 established a three-year motor vehicle excise tax credit of up to $2,000 for the purchase of plug-in electric vehicles, in order to incentivize the purchase of EVs in Maryland. In addition, Chapters 491 and 492 of 2010 authorize EVs to ride in high-occupancy vehicle (HOV) lanes regardless of the number of occupants.

The Maryland Energy Administration awarded $1 million in federal stimulus funds in 2010 to build approximately 65 EV charging stations throughout the State.

At the federal level, Congress has authorized a federal income tax credit of up to $7,500 for qualified electric vehicles purchased between 2009 and 2014. In addition, there is a federal tax credit equal to 30% of the cost of an EV charging station that is currently set to expire at the end of 2011.

Implementation of Smart Meters

Currently, the smart-metering infrastructure needed for all electric companies in the State to offer time-of-use pricing for EV owners is not in place. BGE and Pepco have received PSC approval to begin widespread installation of smart meters, but the Delmarva Power

plan has not yet been approved. Potomac Edison (formerly Allegheny Power) has not submitted a plan for widespread implementation of smart metering technology.

Implementation of the BGE plan is expected to be completed in 2014 or 2015 (Case Number 9208). Implementation of the Pepco plan will begin in the second half of 2011, and is expected to take 18 months (Case Number 9207).

State Fiscal Effect: PSC has been considering the impact of EVs on utility distribution systems and has also examined demand response programs of the five major utilities in Maryland. As a result, establishing a charging program for EVs and incorporating the requirements of the bill into the existing demand response programs can be accomplished by PSC with existing budgeted resources. However, PSC advises that it may not be able to implement a charging program statewide by January 1, 2012, as required by the bill, since the smart-metering infrastructure needed for all electric companies in the State to offer time-of-use pricing is not yet in place.

Additional Information

Prior Introductions: None.

Cross File: None.

Information Source(s): Office of People's Counsel, Public Service Commission, Department of Legislative Services

Fiscal Note History: First Reader - March 1, 2011
mc/lgc

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