

Department of Legislative Services
Maryland General Assembly
2015 Session

FISCAL AND POLICY NOTE

House Bill 656
Economic Matters

(Delegate Korman, *et al.*)

Electricity - Energy Storage - Fuel Cells (Stored Energy and Power (StEP) Act)

This bill requires the Public Service Commission (PSC) by June 30, 2015, to establish, by regulation or order, a pilot program to encourage the use of “fuel cells” for energy storage in the State. PSC, in cooperation with the Maryland Energy Administration (MEA), must study the use of fuel cells for energy storage in the State and submit the study to the Governor, the Senate Finance Committee, and the House Economic Matters Committee by December 31, 2015.

The bill takes effect June 1, 2015, and terminates June 30, 2016.

Fiscal Summary

State Effect: PSC and MEA can likely handle the bill’s requirements with existing budgeted resources.

Local Effect: None.

Small Business Effect: Minimal.

Analysis

Bill Summary: “Fuel cell” means a *battery storage* system that stores energy generated from (1) solar, including solar photovoltaic and solar water heating systems; (2) wind; (3) qualifying biomass; (4) methane from the anaerobic decomposition or organic materials in a landfill or wastewater treatment plant; or (5) ocean, including energy from waves, tides, currents, and thermal differences.

An in-State generator that generates electricity from a Tier 1 renewable source may request to participate in the program. To participate, the generator must establish a fuel cell demonstration project. PSC may provide incentives for an in-State generator to participate in the program. PSC may offer an electricity supplier a 200% credit toward meeting the renewable energy portfolio standard (RPS) for energy from a fuel cell through October 1, 2018.

By December 31 of each year, PSC must report to the Governor, the Senate Finance Committee, and the House Economic Matters Committee on the status of the pilot program and PSC's findings, including obstacles to implementation or success of the pilot program.

PSC, in cooperation with MEA, must study the use of fuel cells for energy storage in the State. The study must include:

- a determination of whether a fuel cell used to store energy generated from geothermal energy, Tier 1 hydroelectric energy, poultry litter-to-energy, waste-to-energy, refuse-derived fuel, or thermal energy from a thermal biomass system should be considered a Tier 1 renewable source for purposes of meeting the State's RPS;
- a determination of whether a nonelectrochemical stored energy source should be considered a Tier 1 or Tier 2 renewable source for purposes of the State's RPS;
- an examination of the challenges that fuel cell projects encounter when trying to become part of PJM Interconnection;
- a recommendation of whether the State should establish a fuel cell component in the State's RPS similar to California Assembly Bill 2514 of 2010 and California Public Service Commission's Rulemaking 10-12-0007 of 2013;
- a survey of approaches used in other states to encourage the use of fuel cells to store energy; and
- any other information that PSC or MEA considers necessary.

By December 31, 2015, PSC must submit the study to the Governor, the Senate Finance Committee, and the House Economic Matters Committee.

Current Law/Background: "Fuel cell" is not defined in current law; however, a fuel cell that produces electricity from a qualifying biomass or methane from the anaerobic

decomposition of organic materials in a landfill or wastewater treatment plant is considered a Tier 1 renewable source for purposes of compliance with the State's RPS. The additional energy sources authorized for the fuel cell in the bill are also existing Tier 1 renewable sources.

Maryland's RPS requires that renewable sources generate specified percentages of Maryland's electricity supply each year, increasing to 20% by 2022, including 2% from solar energy. Each electricity supplier must submit RECs equal to a percentage specified in statute each year or pay an alternative compliance payment equivalent to the supplier's shortfall. While no credit multipliers for specific energies are currently in effect, they have been in effect for energy derived from methane and wind in the past.

The operating manual for PJM Environmental Information Services, Inc. (the company that tracks the ownership and trading of RECs) defines a fuel cell as an electrochemical device that converts a fuel's (renewable or nonrenewable) chemical energy directly into electricity, heat, and water without combustion. As of February 2015, the combined capacity of all fuel cell systems registered with PJM is less than 10 megawatts.

For additional information on Maryland's RPS, see the **Appendix – Maryland's Renewable Energy Portfolio Standard**.

California Assembly Bill 2514 of 2010 and Related Rulemaking

California Assembly Bill 2514 of 2010 required the California Public Utilities Commission (CPUC) to open a proceeding to determine appropriate targets, if any, for each load-serving entity (utility) to procure viable and cost-effective energy storage systems to be achieved by December 31, 2015, and December 31, 2020. CPUC was required to adopt the procurement targets, if determined to be appropriate, by October 1, 2013.

In October 2013, CPUC adopted an energy storage procurement framework and established a combined energy storage target of 1,325 megawatts of energy storage to be procured by Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company by 2020, with installations required no later than the end of 2024.

Additional Information

Prior Introductions: None.

Cross File: None.

Information Source(s): Public Service Commission; Maryland Energy Administration;
California Public Utilities Commission; PJM Environmental Information Services, Inc.;
Department of Legislative Services

Fiscal Note History: First Reader - February 17, 2015
mel/lgc

Analysis by: Stephen M. Ross

Direct Inquiries to:
(410) 946-5510
(301) 970-5510

Appendix – Maryland’s Renewable Energy Portfolio Standard

Maryland’s Renewable Energy Portfolio Standard (RPS) was enacted in 2004 to facilitate a gradual transition to renewable sources of energy. Maryland’s RPS operates on a two-tiered system with carve-outs for solar energy and offshore wind energy and corresponding renewable energy credits (RECs) for each tier. Electric companies (utilities) and other electricity suppliers must submit RECs equal to a percentage specified in statute each year or else pay an alternative compliance payment (ACP) equivalent to their shortfall. Over the past few years, the requirements have been met almost entirely through RECs, with negligible reliance on ACPs. For example, the combined ACPs over 2012 and 2013 were less than \$8,000 out of a total compliance cost of \$81.3 million. The Maryland Energy Administration must use ACPs to support new renewable energy sources.

The percentage requirements gradually increase to a minimum of 20%, including 2% from solar sources, by 2022. The Tier 2 requirement remains constant at 2.5% each year until ending after 2018. In 2015, the requirements are 10.5% for Tier 1 renewable sources, including at least 0.5% from solar energy, and 2.5% from Tier 2 renewable sources.

Generally, a REC is a tradable commodity equal to one megawatt-hour of electricity generated or obtained from a renewable energy generation resource. In other words, a REC represents the “generation attributes” of renewable energy – the lack of carbon emissions, its renewable nature, etc. A REC has a three-year life during which it may be transferred, sold, or redeemed. RECs are classified as Tier 1 or Tier 2, depending on the energy source. Solar and offshore wind are accounted for separately but are considered part of Tier 1. REC generators and electricity suppliers are allowed to trade RECs using a Public Service Commission-approved system known as the Generation Attributes Tracking System, a trading platform designed and operated by PJM Environmental Information Services, Inc. that tracks the ownership and trading of RECs.

Tier 1 sources include wind (onshore and offshore); qualifying biomass; methane from anaerobic decomposition of organic materials in a landfill or wastewater treatment plant; geothermal; ocean, including energy from waves, tides, currents, and thermal differences; a fuel cell that produces electricity from specified Tier 1 renewable sources; a small hydroelectric plant of less than 30 megawatts; poultry litter-to-energy; waste-to-energy; refuse-derived fuel; and thermal energy from a thermal biomass system. Tier 1 Solar sources include photovoltaic cells and residential solar water heating systems commissioned in fiscal 2012 or later. Following the transfer of several sources to Tier 1, Tier 2 includes only large hydroelectric power plants. *RPS Compliance*

For the 2013 compliance year, (the most recent for which data is available) electricity suppliers retired approximately 6.5 million RECs at a cost of \$56.8 million. Of that amount, the Tier 1 Nonsolar cost was \$32.7 million, the Tier 1 Solar cost was \$21.4 million, and the Tier 2 cost was \$2.8 million. The total cost of RPS compliance has increased steadily since 2009, as shown in **Exhibit 1**.

Exhibit 1
Cost of RECs for RPS Compliance
(\$ in Millions)

	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
Tier 1 Nonsolar	\$1.3	\$1.9	\$6.2	\$12.5	\$32.7
Tier 1 Solar	1.1	5.1	7.8	11.3	21.4
Tier 2	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>	<u>0.7</u>	<u>2.8</u>
Total	\$3.1	\$7.6	\$14.7	\$24.5	\$56.8

Note: Numbers may not sum to total due to rounding.

Source: Public Service Commission
