

**PUBLIC SERVICE COMMISSION
OF MARYLAND**

**ELECTRIC VEHICLE PILOT
PROGRAM REPORT**

In compliance with Section 7-211 of
the Public Utilities Article,
Annotated Code of Maryland

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January 30, 2015

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I. INTRODUCTION

This document constitutes the 2015 report of the Public Service Commission of Maryland (“Commission”) regarding the implementation of Maryland’s pilot programs for recharging electric vehicles (“EVs”) during off-peak hours. This report is submitted pursuant to § 7-211 of the Public Utilities Article, *Annotated Code of Maryland* (“Pub. Utils.”), which requires that the Commission shall report to the Governor and to the General Assembly on the experience of the pilot program and the Commission’s findings on or before February 1, 2015.

With the passage of Senate Bill 179 (“SB 179”), Maryland’s General Assembly required the Commission to establish “a pilot program for electric customers to recharge electric vehicles during off-peak hours”¹ by June 30, 2013. The statute provides that an electric company may request to participate in the pilot program and directs the Commission to make every effort to include at least two electric companies in the pilot.² Under the statute, the pilot program is required to include incentives for customers to recharge EVs so as to increase the efficiency and reliability of the electric system and lower electricity use at times of high demand. Possible incentives include time-of-use electricity pricing, credits on distribution service, rebates on charging system costs, demand response programs, and other incentives approved by the Commission.³

On August 12, 2013, the Commission issued Order No. 85776 approving EV pilot programs for Baltimore Gas and Electric Company (“BGE”) and Potomac Electric Power Company (“Pepco”).⁴ Both pilots have been extended by the Commission until December 31, 2015.⁵

¹ 2011 Md. Laws, Ch. 403, codified at Pub. Utils. §7-211(m).

² Pub. Utils. §7-211(m)(2).

³ Pub. Utils. §7-211(m)(4).

⁴ Case No. 9261, *In the Matter of the Investigation into the Regulatory Treatment of Providers of Electric Vehicle Charging Stations and Related Services*.

⁵ Pepco and BGE’s extensions were approved by Letter Orders dated October 8, 2014 and January 21, 2015 respectively. Pepco’s filing was made with Mail Log Nos. 158677, 159253 and 159333. BGE’s filing was made with Mail Log Nos. 162358 and 162865.

II. BGE ELECTRIC VEHICLE PILOT

BGE offers a single whole house time-of-use (“TOU”) plan for its EV owning customers. BGE’s pilot is available only to those residential customers who receive Standard Offer Service (“SOS”), do not participate in net metering, and do not purchase renewable energy from a third party. Any qualifying EV owner can opt into the pilot and can leave the pilot for any reason without penalty. BGE’s proposal was designed to be revenue neutral.

Currently, BGE’s generation and transmission charges for customers enrolling in the EV pilot are \$0.16623 per kWh during the summer peak, and \$0.18266 per kWh during the winter peak. The summer and winter off-peak rates are \$0.05606 and \$0.05209 per kWh respectively.⁶ The summer rates are in effect from June through September, while winter rates are in effect from October through May. Summer peak rates are from 10 a.m. to 8 p.m., Monday through Friday. Winter peak rates are from 7 a.m. to 11 a.m. and 5 p.m. to 9 p.m., Monday through Friday. Off-peak rates are all other hours. For comparison, BGE’s current generation and transmission charge for SOS customers is \$0.08616 per kWh.⁷ BGE’s distribution rates are the same for all residential classes.

Table 1 Comparison of BGE's EV and SOS Rates

	Summer EV Rates	Winter EV Rates	SOS	SOS
Months in Effect	June-September	October-May	Oct. 1, 2014 – May 31, 2015	June 1, 2015 – Sept. 30, 2015
Days in Effect	Monday-Friday	Monday-Friday	All	All
Times in Effect	10 a.m.- 8 p.m.	7 a.m.-11 a.m. and 5 p.m.- 9 p.m.	All	All
Peak Rates (per kWh)	\$0.16623	\$0.18266	\$0.08616	\$0.09453
Off-Peak Rates (per kWh)	\$0.05606	\$0.05209	\$0.08616	\$0.09453

⁶ The rates are defined in BGE’s Retail Electric Service Tariff, page 77A. (Available at: http://www.bge.com/myaccount/billsrates/ratestariffs/electricservice/Electric%20Services%20Rates%20and%20Tariffs/Rdr_1.pdf)

⁷ Ibid.

III. PEPCO ELECTRIC VEHICLE PILOT

Pepco's EV pilot consists of three separate residential offerings. The first option requires Pepco to install a level II charging station, and the costs of the charging station are shared equally between the customer and Pepco. This option is available for up to 50 residential customers. The second option requires the customer to have an existing charging station and is available for up to 200 residential customers. Both sets of customers (hereafter referred to as "PIV" customers) have a second meter for their EV, receive a second bill for their EV, and may opt to receive 100% renewable energy for an additional \$0.0179 per kWh. Pepco also offers a whole house TOU rate that is available for up to 1,000 residential customers. These customers receive the same rate for their house and EV and do not require a second meter.

Currently, Pepco's generation and transmission charge for PIV customers is \$0.14685 per kWh during the summer peak, and \$0.14603 per kWh during the winter peak.⁸ The summer and winter off-peak rates are \$0.03723 and \$0.04213 per kWh, respectively, for the two options in which the customer's EV charging is separately metered.⁹ For customers with a whole house TOU rate, the on-peak rates are the same as the rates for PIV customers. However, the summer and winter off-peak rates are higher at \$0.07583 and \$0.07547 per kWh, respectively.¹⁰ The summer rates are in effect from June through October, while winter rates are in effect from November through May. Peak rates are from noon to 8 p.m., Monday through Friday, while off-peak rate include all other hours. For comparison, Pepco's current generation charge for an SOS customer is \$0.08457 per kWh.¹¹ Pepco's distribution and transmission rates are the same for all residential classes.

⁸ The rates are defined in Pepco's Rate Schedules for Electric Service in Maryland, pages 21 & 22. (Available at: http://www.pepco.com/uploadedFiles/wwwpepco.com/Content/Page_Content/my-home/MD%20Pepco%20Rate%20Schedule%20Effective%20Billing%20Month%20of%20February%202015.pdf)

⁹ Ibid, at 21.

¹⁰ Ibid, at 22.

¹¹ Ibid, at 43.1.

Table 2 Comparison of Pepco's EV and SOS Rates

	Summer EV Rates	Winter EV Rates	SOS	SOS
Months in Effect	June-October	November-May	Oct. 1, 2014 – May 31, 2015	June 1, 2015 – Sept. 30, 2015
Days in Effect	Monday-Friday	Monday-Friday	All	All
Times in Effect	12 p.m.-8 p.m.	12 p.m.-8 p.m.	All	All
Peak Rates (per kWh)	\$0.14685	\$0.14603	\$0.08457	\$0.09124
Off-Peak Rates (Separate Meters, per kWh)	\$0.03723	\$0.04213	\$0.08457	\$0.09124
Off-Peak Rates (Whole House TOU Rate, per kWh)	\$0.07583	\$0.07547	\$0.08457	\$0.09124

IV. DEVELOPMENT OF THE PILOT METRICS

In Order No. 85776, the Commission directed the EV Working Group¹² to convene to establish the metrics to be captured and reviewed through the duration of the BGE and Pepco pilots. The Working Group identified five key areas that could support the pilot objectives: 1) pricing; 2) demand response; 3) customer education and enrollment; 4) smart technology demonstration; and 5) baseline information and impact understanding. In February 2014, BGE and Pepco submitted detailed metrics they will be tracking throughout their respective pilots. On January 16, 2015, BGE submitted its preliminary findings from its complete 2014 metrics results.¹³ In a January 16, 2015 email to Staff, Pepco provided its summary metrics results. Pepco plans to file the finalized results for all metrics data through the end of 2014 by the end of January 2015.

V. RESULTS OF THE PILOTS

On January 16, 2015, both Pepco and BGE provided reports summarizing the results of the pilots. Although the Commission expected feedback regarding the pilots to use in evaluating

¹² Parties in the Working Group include the following: BGE; Pepco Holdings, Inc.; Potomac Edison; Southern Maryland Electric Cooperative; the Office of the Maryland Governor; the Maryland Office of People’s Counsel; the Maryland Energy Administration; the Maryland Department of the Environment; NRG Energy; Coulomb Technologies; ECotality; E-Car Solutions, Inc.; EV Service Providers; and Commission Staff.

¹³ Commission Mail Log No. 162865.

these programs, both BGE and Pepco reported that they are still reviewing and collecting data, so any conclusions drawn from the pilots are best considered preliminary. Moreover, due to the timing of customers' enrollments and the number of enrollees thus far (29 for BGE and 55 for Pepco as of December 31, 2014), the pilots may lack sufficient data to draw robust conclusions regarding the charging behavior of EV owners in response to TOU rates.¹⁴

Both BGE and Pepco requested and the Commission granted approval to extend pilots through the end of 2015. As more EV models are being introduced and more customers purchase EV's, there could be a larger pool of customers from which to draw pilot participants. Extending the pilots will allow the companies more time to acquire the data necessary to draw statistically significant conclusions from the respective pilots (currently the companies have gathered a full year of data for only three enrolled customers).

A. BGE Pilot Results

Of BGE's 29 participants, 17 enrolled in the second half of 2014. While there is not sufficient data to determine conclusively if there have been changes in participant behavior regarding charging patterns, BGE's preliminary analysis show the participants are shifting load off the peak price hours.

BGE's metrics show an estimate of 695 EV owners that could participate in the pilot. Of those, 541 EV owners are not eligible to participate in the pilot; most commonly because the customer's electricity was served by a competitive electricity supplier. In addition, BGE has received 464 requests for information regarding the EV pilot rates. Assuming these inquiries are all coming from EV owners, this would represent over two-thirds of the estimated EV owners in BGE's territory, indicating that a significant number of EV owners may have at least preliminary interest in TOU rates.

B. Pepco Pilot Results

¹⁴ As almost 60% of BGE's enrollees occurred in the second half of 2014, there is limited data with regards to how the rates affected behavior in the peak months.

Pepco received 117 customer applications resulting in 55 enrollees, with one on hold at the customer's request, six in the enrollment process, 22 customers deciding not to enroll, and 33 disqualified applications. Of those disqualified, the two most common reasons were code-related¹⁵ and customers participating in net-metering.¹⁶ On July 30, 2014, the Commission accepted a request from Pepco to allow net-metering customers to participate in its EV pilot.¹⁷

Of Pepco's 55 participants, 27 enrolled in the second half of 2014. Of those participants, 47 are enrolled in the PIV rate offering, and Pepco cost-shared the charging station installation of 30 of these. Pepco has spent an average of \$2,154 per customer in cost-sharing, or \$249,627 of its \$1,092,500 total budget for the pilot.¹⁸ Of the 47 PIV customers, 19 have elected to receive their electricity supply from renewable resources.

The Nissan Leaf, Chevy Volt, and Tesla S models account for 45 of the 55 vehicles owned by customers enrolled in the pilot. Six other models account for the remaining ten vehicles. Pepco's metrics show it takes approximately two months to enroll a PIV customer, about half of which is for installation of the EV charging equipment. Conversely, customers electing the whole house TOU rates are on average enrolled in four days.

The Pepco report states that all of these customers charge their EVs primarily in the off-peak hours. Since the eight customers with a whole house TOU rate don't have a separate meter for their EVs, Pepco has no way of confirming when these customers are charging their EVs. However, Pepco eventually will be able to determine whether these customers shift substantial load into the off-peak hours.

VI. CONCLUSIONS

BGE is currently performing customer surveys, and will begin receiving usage and customer feedback data available by the end of March 2015. Pepco is also continuing its analysis of the existing data to date. Moreover, as part of Pepco's proposal to extend the pilot for one

¹⁵ The wiring or electric panels in these residences were not in compliance with the National Electrical Code.

¹⁶ One customer was disqualified because they didn't own an EV.

¹⁷ Commission Letter Order dated July 20, 2014, Mail Log No. 156556.

¹⁸ Pepco's total budget attributed \$610,000 to equipment, installation and inspection costs and \$500,000 to administrative costs.

year, Pepco committed to submit a more robust report by December 31, 2015.¹⁹ This latter report will include additional information from the more extensive data set obtained through October 31, 2015. The forthcoming data provided by each utility will assist the Commission in presenting more robust conclusions once the pilots are completed.

¹⁹ BGE is also planning to submit an additional report by December 31, 2015. The reports will not include data for all of 2015, but instead are intended to provide the available data to the Commission in sufficient time to report to the General Assembly early in the 2016 legislative session.