



COMMONWEALTH OF PENNSYLVANIA  
PENNSYLVANIA PUBLIC UTILITY COMMISSION  
COMMONWEALTH KEYSTONE BUILDING  
400 NORTH STREET  
HARRISBURG, PENNSYLVANIA 17120

IN REPLY PLEASE  
REFER TO OUR FILE  
M-2020-3020824

**November 18, 2024**

Devin Ryan, Esquire  
Post & Schell  
17 North Second St., 12<sup>th</sup> Floor  
Harrisburg, PA 17101-1601

Re: Petition of PPL Electric Utilities Corporation for Approval of its Act 129  
Phase IV Energy Efficiency and Conservation Plan  
Docket No. M-2020-3020824

Dear Mr. Ryan:

This letter acknowledges that Commission staff has reviewed the PPL Electric Utilities Corporation (PPL) petition, filed with the Commission on September 19, 2024, for permission to modify its Phase IV Energy Efficiency and Conservation Plan,<sup>1</sup> specifically, to add a Residential Electric Vehicle Charging Pilot Program. For the reasons set forth below, Commission Staff deny the approval of the proposed Phase IV Energy Efficiency and Conservation Plan change to include an Electric Vehicle (EV) Charging Pilot program.

On September 19, 2024, PPL filed with the Commission at Docket M-2020-302824 a petition requesting approval of a minor change to its Act 129 Phase IV Energy Efficiency and Conservation Plan to add a residential EV charging pilot program to its Residential Pilot Programs with no change to the existing budget for residential pilot programs.

The information included with the petition was insufficient for the Commission staff to make a determination. Therefore, on October 16, the Commission staff issued a data request to PPL requesting additional information and clarifications regarding its petition.

On October 22, 2024, PPL filed its response to the data request. After staff discussions with PPL for further clarifications, on October 31, 2024, PPL filed supplemental answers to the data request. Commission staff subsequently determined that sufficient information was received to make a determination on the petition.

---

<sup>1</sup> *Petition of PPL Electric Utilities Corporation for Approval of its Act 129 Phase IV Energy Efficiency and Conservation Plan*, Docket No. M-2020-3020824 (March 25, 2021).

Two of the questions from the data request that required further clarification were as follows:

- a. What energy efficiency opportunities do you envision from implementing this pilot?
- b. Please explain how any potential energy savings (kWh) from this proposed pilot program are expected to result from EV charging. What baseline information would data collected from the participants of this pilot be compared against to arrive at energy savings (kWh)?

PPL's responses and supplemental explanations were as follows:

- a. PPL EU would leverage the well-established energy efficiency opportunity of incentivizing ENERGY STAR ("ES") Level 2 chargers. The U.S. EPA notes that ENERGY STAR Level 2 EV chargers use 40% less energy than a standard EV charger in the most common operational mode, standby.

PPL's Supplemental Response to Question (a):

- a. Electric vehicle chargers are not binary like a light bulb that only consumes energy when switched on; when electric vehicle charging equipment is not charging a vehicle, they still consume energy. Energy savings from incentivizing ENERGY STAR level two chargers are realized by reducing consumption of energy while charging equipment is in standby mode (not actively charging). A comparison would be unplugging a cell phone charger while not charging to reduce 'phantom load'. This is possible because ENERGY STAR certified level 2 equipment consumes 40% less energy than standard EV chargers in standby mode. Researchers at the Idaho National Lab supported these results through separate testing and reporting on level 2 charger efficiency as part of the DOE's EV Project - one of the largest on EV charging infrastructure. The calculation methodology can be found in the PPL Electric Vehicle Chargers Draft IMP which mirrors similar approaches in other EDC territories and/or TRMs, including Texas, Arizona Public Service, Arkansas, CPS Energy, Illinois, Iowa, Michigan, New Jersey, New Mexico and RTF. Full algorithms can be found below.

*Energy Savings*

$$\Delta kWh = \frac{(((SBP\_Hr+SBU\_Hr) \times SBb) - ((SBP\_Hr \times SBeP) + (SBU\_Hr \times SBeUP)))}{1000}$$

*Coincident Peak Demand Savings*

$$\Delta kW_{peak} = \frac{((SBb - SBeP) \times (\frac{SBP\_Hr}{(SBP\_Hr+SBU\_Hr)}) + (SBb - SBeUP) \times (\frac{SBU\_Hr}{(SBP\_Hr+SBU\_Hr)}))}{1000} * CF$$

b. The ENERGY STAR (“ES”) testing yields power consumption for the EVSE in various modes (no vehicle, idle, max output, partial on). Threshold, qualifying values for the Level 2 ES specification were developed through testing that also included models ultimately deemed non-compliant. As such, there is an existing comparison of power to draw upon. The pilot will provide the number of hours in each mode, which combined with the power comparison will be used to determine annual energy savings. The pilot will determine the load profile of charging, which will show the proportion of savings that are coincident with peak demand.

PPL’s Supplemental Response to Question (b):

b. PPL EU expects to claim approximately 60,500 kWh and 7.13 kW through the EV Charging Pilot. This is based on 60.50 kWh and 0.00713 kW per networked charger installed. These values are defaults that rely on ENERGY STAR efficient and baseline average standby mode power consumption, as well as annual plugged and unplugged standby hours utilized in testing scenarios. PPL EU will use actual EDC gathering values to update reported savings, where possible. As such, the savings may be less or greater depending on availability of data. The deemed values above are based on the following standby values and hours:

| Term          | Description                                    | Values |
|---------------|--|--------|
| <i>C_Hr</i>   | Annual Active Charging Hours                   | 278    |
| <i>P_Hr</i>   | Annual Plugged In Hours                        | 3,511  |
| <i>SBP_Hr</i> | Annual Plugged Standby Hours                   | 3,233  |
| <i>SBU_Hr</i> | Annual Unplugged Standby Hours                 | 5,249  |
| <i>SBb</i>    | Baseline Average Standby Power (W)             | 9.9    |
| <i>SBeP</i>   | Efficient Average Standby Power (W) plugged in | 3.2    |
| <i>SBeUP</i>  | Efficient Average Standby Power (W) unplugged  | 2.5    |

PPL's responses indicate that electric vehicle charging equipment consumes energy when they are in standby mode and not charging a vehicle (phantom load). ENERGY STAR certified level two charging equipment consumes 40% less energy than standard EV charging equipment in standby mode. Through the pilot program, PPL plans to incentivize the use of ENERGY STAR certified EV charging equipment, and to study savings based on the phantom load. They anticipate saving approximately 60.50 kWh per installed charging equipment, to claim approximately 60,500 kWh in energy savings for the anticipated installations of 1,000 residential Level 2 EV chargers.

Based on the information that PPL has provided, Commission staff believes that a more cost-effective and efficient option would be application of deemed savings, via establishment of an Interim Measure Protocol, for ENERGY STAR-certified Level 2 residential EV chargers. This approach will eliminate the need for a pilot program and all related costs.

If PPL contemplates analysis of load shifting to off-peak periods, based on various rate structures, such investigation was not suggested and would be most appropriate as part of a potential EV charging Time-of-Use tariff filing.

For the reasons mentioned above, Commission staff denies PPL's request for approval of a minor change to its Act 129 Phase IV Energy Efficiency and Conservation Plan to add a residential EV charging pilot program to its Residential Pilot Programs.

The determinations in this Secretarial Letter have been made by PUC staff under authority delegated by the Commission. Parties have the right to seek reconsideration of this staff action. Parties may seek reconsideration of these directives by petitioning the Commission within 20 days after service of this Secretarial Letter. See 52 Pa. Code § 5.44 (relating to petitions for appeal from actions of the staff).

Commission Staff generally have 35 days from a utility's filing of a petition for approval of a minor change to its Energy Efficiency and Conservation Plan to issue a Secretarial Letter approving, denying, or transferring the matter to the Office of Administrative Law Judge for hearing.<sup>1</sup> PPL's Petition was filed September 19, 2024, which would ordinarily make October 24, 2024, the deadline for Commission Staff to issue a Secretarial Letter on the matter. However, PPL's Petition was incomplete and therefore required staff to issue data requests to PPL. PPL's Petition was not complete until PPL filed its supplemental response to staff's data requests on October 31, 2024, rendering this Secretarial Letter timely under the *Final Order*.

Please direct any questions to Darren Gill, Bureau of Technical Utility Services, at (717) 783-5244 or Scott Thomas, Assistant Counsel, Law Bureau, at (717) 783-2812.

---

<sup>1</sup> See *Final Order – Energy Efficiency and Conservation Program*, Docket No. M-2008-2069887 at 18-20 (Order entered June 10, 2011) (*Final Order*).

Sincerely,

  
Rosemary Chiovetta  
Secretary

cc: Joseph Sherrick, TUS  
Kriss Brown, Deputy Chief Counsel, LAW  
Kathy Aunkst, Secretary's Bureau