

PUBLIC UTILITY COMMISSION OF OREGON  
STAFF REPORT  
PUBLIC MEETING DATE: April 10, 2018

REGULAR  X  CONSENT \_\_\_\_\_ EFFECTIVE DATE  April 10, 2018

DATE: April 5, 2018

TO: Public Utility Commission

FROM: JP Batmale <sup>JPB</sup>

THROUGH: Jason Eisdorfer <sup>JPB & JE</sup>

SUBJECT: PORTLAND GENERAL ELECTRIC: (Docket No. UM 1811) Report on finalized learnings for PGE's Transportation Electrification Programs, per Order No. 18-054.

**STAFF RECOMMENDATION:**

Staff recommends that the Commission accept Staff's report on the finalized learnings for PGE's three transportation electrification pilots that were adopted by the Commission in Order No. 18-054.

**DISCUSSION:**

Issue

Whether the Commission should accept Staff's report on the finalized learnings for PGE's three transportation electrification pilots.

Applicable Rule or Law

In Order No. 18-054, issued February 16, 2018, the Commission adopted a multi-party stipulation that authorized Portland General Electric Company (PGE) to undertake three pilot programs designed to accelerate transportation electrification. The pilots include a mass transit program in partnership with TriMet, an education and outreach program, and the building and deployment of up to six utility-owned public charging stations.

The Commission also modified an aspect of the stipulation concerning the process for developing the final specific learnings from PGE's three pilot programs based on the draft learnings that had been filed by the stipulating parties with the stipulation. Specifically, the Commission expressed:

We adopt these pilots to produce learnings for EV development, and conclude that efforts to identify those specific learnings would benefit from a transparent and open forum that allows the participation, expertise, and insight from all parties. We recognize that the specific learnings to be developed flow directly from the pilots agreed to in the stipulation, and that the stipulating parties that developed the pilots will play the lead role in finalizing them. We do not believe, however, that opening up these discussions to non-signatories will slow down or unravel the work already completed. We direct the stipulating parties to lead an expedited effort with all parties to finalize the specific learnings and to report results at a public meeting before April 10, 2018.<sup>1</sup>

### Analysis

Based on the direction from the Commission regarding an expedited effort to be led by the stipulating parties to finalize the specific learnings, Staff and PGE invited all parties to the docket to a meeting on March 23, 2018 to discuss the learnings to be gained from the three pilot programs. The meeting was hosted by Portland General Electric (PGE) and attended by the following parties: ChargePoint, Electric Vehicle Charging Association (EVCA), Oregon Citizens' Utility Board (CUB), Forth, Greenlots, Oregon Department of Energy (ODOE), Public Utility Commission of Oregon Staff (Staff), Pacific Power, and TriMet; Siemens participated by phone. Tesla and ICNU were the only parties to the docket that did not attend.

At the meeting, the parties worked from the draft specific learnings that were attached to the stipulation (found at Appendix 1) filed in this docket on June 27, 2017, discussing areas for clarification and areas to be revised. Staff appreciated the significant input from EVCA at the meeting and encouraged ChargePoint to participate in the conversation, especially with regard to areas that might concern them.

After the meeting, Staff endeavored to incorporate all party feedback from the meeting into the finalized learnings. On March 26, Staff circulated a draft of the finalized learnings for redline comment and feedback from all parties, with a request for feedback from PGE by March 28 and all other parties by March 30. PGE responded on March 28, but no other parties offered comments on the document. Staff then incorporated PGE's edits and sent the finalized learnings in a subsequent email to all parties in which Staff noted that it did not receive any feedback from the parties, so Staff would extend the deadline for comments to April 2. CUB, Forth, ODOE, Greenlots, and Siemens replied that they supported the finalized learnings. Because Staff did not hear back

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<sup>1</sup> Docket No. UM 1811, Order No. 18-054 at 12 (Feb. 16, 2018).

from the remaining parties by the deadline, Staff expressed in an email that it would include in the Staff Report that no parties object to the finalized learnings.

The finalized learnings are provided in Appendix B to this Staff Report for presentation to the Commission at the April 10, 2018 public meeting in compliance with Order No. 18-054.

Staff would also note that after the deadline for comments had passed and the learnings had been finalized for posting, both ChargePoint and EVCA emailed the parties proposing revisions to the finalized learnings. At that point, Staff and the other parties had already solicited feedback several times and it was no longer possible to get all parties together to discuss changes to what had been agreed upon. ChargePoint and EVCA now propose additional learnings that have not been considered by the parties, which are attached to this Report as Appendix A. The finalized learnings document, Appendix B, has not been updated to reflect the late information, which will have to be addressed at the public meeting.

### Conclusion

The finalized learnings for the PGE transportation electrification pilot programs have been completed per Order No. 18-054. For the most part all parties agree to these learnings, found in Appendix B, although proposed revisions by ChargePoint and EVCA will need to be addressed at the Public Meeting. These revisions can be found in Appendix A.

### **PROPOSED COMMISSION MOTION:**

Accept Staff's Report on the Finalized Learnings for PGE's three transportation electrification pilots that were adopted by the Commission in Order No. 18-054.

**From:** Jim Ross <jim@evassociation.org>  
**Sent:** Wednesday, April 4, 2018 10:34 AM  
**To:** Klein Kaylie  
**Cc:** Thomas Ashley; King, Chris; Drew Stipe; Klein Kaylie; amanda@daltonadvocacy.com; Anne Smart; Barbara Halle; bob@oregoncub.org; Datta, Bonnie; bottomlb@trimet.org; brmullins@mwanalytics.com; bwhiteman@tesla.com; dockets@oregoncub.org; dustin.till@pacificcorp.com; hessee@trimet.org; Irion Sanger; Jacob Goodspeed; jeanettes@forthmobility.org; jeffa@forthmobility.org; Ratcliffe Jesse D; kauerbacher@tesla.com; mike@oregoncub.org; HANHAN Nadine; oregondockets@pacificcorp.com; PGE OPUC Filings; rgp@dvclaw.com; WALLACE Rick \* ODOE; sdunbar@kfwlaw.com; sidney@sanger-law.com; tcp@dvclaw.com; Terry O'Day; tglass@wsgr.com; wendy.simons@oregon.gov; WIGGINS Seth; BATMALE JP; Abdellah Cherkaoui; Park, Young; Renee Samson; Morris, Eli; Kalia Savage  
**Subject:** UM 1811 Draft Learnings  
**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Sorry for the delay in responding and thank you for including EVCA in the process to develop learning for learning for the pilot program on Transportation Electrification Programs. We hope to remain engaged in this process.

Regarding these learnings specifically, we have no opposition to the TriMet Pilot.

#### Regarding the Outreach & Education Pilot

We believe that the data and information from this program can provide very valuable data but we are concerned that the marketing programs and surveys may not provide the data we are all hoping to gather. We would propose adding that PGE will develop outreach, marketing programs and surveys with input from stakeholders.

As we discussed in the meeting we would like to see a multi-channel marketing program that tests a variety messaging and marketing techniques.

#### Regarding the pilot learnings for the Electric Avenue Pilot

A core principal for EVCA is to advocate for pilot/program designs that enable multiple vendors and various business models to participate and maximize customer choice, competition, and innovation, and minimize ratepayer burden. This program does not do this.

We would ask that one of the learnings is the number of new non-utility electric charging stations in PGE's service territory. Therefore, we recommend tracking and identifying new non-utility charging stations installed in PGE's service territory.

Thank you very much for allowing us to provide input.

**From:** Scott Dunbar <sdunbar@keyesfox.com>  
**Sent:** Tuesday, April 3, 2018 4:59 PM  
**To:** Mike Goetz  
**Cc:** Klein Kaylie; Thomas Ashley; King, Chris; Drew Stipe; Klein Kaylie; amanda@daltonadvocacy.com; anne.smart@chargepoint.com; Barbara Halle; bob@oregoncub.org; Datta, Bonnie; bottomlb@trimet.org; brmullins@mwanalytics.com; bwhiteman@tesla.com; dockets@oregoncub.org; dustin.till@pacificcorp.com; hessee@trimet.org; irion@sanger-law.com; Jacob Goodspeed; jeanettes@forthemobility.org; jeffa@forthemobility.org; Ratcliffe Jesse D; kauerbacher@tesla.com; HANHAN Nadine; oregondockets@pacificcorp.com; PGE OPUC Filings; rgp@dvclaw.com; WALLACE Rick \* ODOE; sdunbar@kfwlaw.com; sidney@sanger-law.com; tcp@dvclaw.com; terry.oday@evgo.com; tglass@wsgr.com; wendy.simons@oregon.gov; WIGGINS Seth; BATMALE JP; abdellah@voltcharging.com; jim@telegraphpr.com; Park, Young; Renee Samson; Morris, Eli; Kalia Savage; Anthony Harrison  
**Subject:** Re: UM 1811 Draft Learnings  
**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Kaylie and parties,

My apologies for the multiple emails. After further discussions, ChargePoint would like to request that one additional learning be added to the list of Pilot Learnings for the Electric Avenue Pilot as follows: "The impact of the Electric Avenue program on installations of non-utility-owned charging stations in PGE's service territory."

If that learning can be added to the document, ChargePoint would be willing to support the draft learnings.

We recognize that this suggestion is coming late in the process and we appreciate your consideration.

Thanks,  
-Scott

On Tue, Apr 3, 2018 at 5:01 PM, Scott Dunbar <sdunbar@keyesfox.com> wrote:  
Kaylie, my apologies for the delayed reply. In your filing tomorrow, please state ChargePoint's position as follows: "ChargePoint does not necessarily agree with the proposed learnings, but appreciates being part of the process and looks forward to continued engagement."

Many thanks,  
-Scott

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

UM 1811

In the Matter of

PORTLAND GENERAL ELECTRIC  
COMPANY,

Application for Transportation  
Electrification Programs.

FINALIZED LEARNINGS BY PILOT  
PROGRAM FOR PRESENTATION  
AT APRIL 10, 2018 PUBLIC MEETING

**BACKGROUND**

In Order No. 18-054, the Commission directed the stipulating parties to lead an expedited effort that included all parties to the UM 1811 docket to finalize the specific learnings for each of the three transportation electrification pilot programs that were agreed to by the stipulating parties and subsequently adopted by the Commission. All parties were invited to a meeting to finalize the learnings hosted by Portland General Electric (PGE) on March 23, 2018. The following parties attended: ChargePoint, Electric Vehicle Charging Association (EVCA), Oregon Citizens' Utility Board (CUB), Forth, Greenlots, Oregon Department of Energy (ODOE), Public Utility Commission of Oregon Staff (Staff), Pacific Power, and TriMet; Siemens participated by phone. Tesla and ICNU were the only parties to the docket that did not attend. At the meeting, the parties worked from the "draft" specific learnings that were attached to the stipulation (found at Appendix 1) that was filed in this docket on June 27, 2017, discussing areas for clarification and areas to be revised. After the meeting, Staff circulated a draft of the finalized learnings for redline comment and feedback from all parties. All parties support or do not object to the finalized learnings provided below. The finalized learnings will be presented to the Commission at the April 10, 2018 public meeting in compliance with Order No. 18-054.

## THE THREE PILOTS

### 1. TriMet Pilot

#### Description

PGE will own, operate and maintain the bus charging infrastructure, including one 450 kW on route overhead charger and two 100 kW depot chargers powering five charging dispensers for use as part of a mass transit electrification pilot with TriMet. A goal of this pilot is to study impacts of electrified mass transit on PGE's system to help in determining how it can be used to create a system benefit.

#### Pilot Learnings

- Pilot design elements, including an exploration of:
  - Program Implementation
    - Pricing
      - How costs and customer use of different options in the existing, filed tariff affect future tariff design?
    - Suppliers
  - PGE physical infrastructure and cost
    - Line extension
    - Line drop
    - Distribution equipment requirements
  - Customer service and technical assistance needs
- Actual impacts of bus charging load on system infrastructure
  - Additional infrastructure and cost, if any, needed to support and ensure reliable bus charging infrastructure.
- Actual impacts of bus charging load on the distribution system loading
  - Total load and non-coincident peak load compared to feeder loading.
  - Coincident peak demand, summer and winter of combined depot chargers.
- Actual impacts to the bus fleet and fleet facility, of which some information will be provided by TriMet.
  - Based on information provided by TriMet:
    - How does the integration of chargers impact internal logistics of route planning? (Benefits and costs to operations).
    - How does their optimal schedule for charging align with system load?
    - How flexible is their charging need such that it could better align with system loading?
  - TriMet staff feedback on operations and charging compared to existing fleet resources.
  - Total combined costs from PGE and TriMet, including charging infrastructure installation, operation, and maintenance costs.
- PGE's initial deployment with TriMet will include time of use (TOU) rates with demand charges (through Schedule 85-P). PGE intends to study the system impacts on peak days, evaluate the bus charging use case, and assess the customer's needs.

PGE may include these alternative dynamic pricing elements in the future to maximize the benefit of this program to PGE's electrical system.

## 2. Outreach & Education Pilot

### Description

The purpose of this pilot is to increase awareness of plug-in electric vehicles (PEVs) among PGE customers, and to ease uncertainty around the maintenance, reliability, and feasibility of driving electric. PGE will execute this pilot through leveraging existing outreach channels and a wide range of partners to cost-effectively reach potential electric vehicle (EV) drivers. The focus of education and outreach will be to provide technical assistance for commercial and industrial customers, specialized trainings, conduct ride and drive events, and offer education regarding how TOU rates can help incentivize charging at a time that is most beneficial to both the customer and PGE's grid. PGE will use market research and evaluation techniques (e.g., surveys, interviews, and focus groups) to set a baseline for customer awareness and knowledge of EVs. These techniques will also help determine which outreach methods and messages are the most effective.

### Pilot Learnings

- The impact of outreach efforts (e.g., ride-and-drive events, education) and marketing (e.g., ads), if available, on:
  - PGE customer awareness of EVs in the service area as measured through PGE customer surveys, focus groups, one-on-one interviews, program data, etc.
  - The consideration of an EV for new car shoppers; and
  - Overall sales and leases of EVs in the service area as measured through evaluation of recent EV purchasers/lessees.
- The impact of technical assistance programs and marketing on the installation of workplace EV chargers.
  - Number of recipients of technical assistance that result in charger installations.
- The change to participation rates in TOU rate schedules by EV owners.
- The change in EV charging load characteristics, influenced by education efforts.
- The major challenges business customers face when planning for and siting EV charging infrastructure.
  - Evaluate the efficacy of outreach effort including challenges; and
  - Adjustments to outreach efforts to increase effectiveness and response to barriers.
- Gather data on customer awareness of EVs and their exposure to PGE's EV marketing campaigns. This approach will provide important data in case impacts are difficult to determine from market-level sales data analysis.
- Develop and implement a plan to gather sample information from a variety of populations in PGE's service territory, including those listed below:
  - General sample of PGE customers;
  - Recent EV purchasers;
  - Recent technical assistance customers;

- Recent non-EV purchasers;
- Trade allies (e.g., dealers, manufacturers);
- Key stakeholders (e.g., Forth, transportation authorities, program staff);

Data collected from these populations will be critical in measuring impacts at each step of the vehicle purchasing process and on EV owners' charging behavior.

### 3. Electric Avenue Pilot

#### Description

This pilot will provide a network of publicly available quick charging stations. The network will include six new Electric Avenue community charging stations (locations) throughout PGE's service area. Like the existing Electric Avenue station, these community charging stations will consist of multiple dual-head direct current quick chargers (DCQCs) and one dual port Level 2 charger. All DCQCs will be equipped with two interoperable charging ports (SAE Combo and CHAdeMO) to accommodate nearly all mass market vehicles on the road.

#### Pilot Learnings

- Effect of EV charging on PGE's system to determine how EVs can be used to create a system benefit.
- The impact of the presence of visible, reliable, and accessible charging infrastructure on:
  - Customers' willingness to purchase an EV; and
  - Customers' willingness to take longer trips in an EV.
- To the extent possible, learning who the predominant users of the charging infrastructure are:
  - Whether there are distinct use cases with predictable load profiles;
  - Whether the chargers are regularly utilized by non-PGE customers; and
  - If possible, use by and effects of transportation network companies (TNCs).
- Utilization and/or demand for quick chargers versus Level 2 chargers, including time of day and pricing information.
- To the extent possible, learning who is not using the charging infrastructure and why?
- Network load profiles and the impacts on PGE's distribution system, including coincident and non-coincident peak loads of DCQCs and power quality in the vicinity of the chargers.
  - Gathering of information to assist with analysis of impacts to PGE's system, including how many users are charging off peak and how that affects the system.
- A comparison of customer use of charging infrastructure under time-variant rates versus free charging.
  - Gathering of information to assist with analysis of whether price signals actually change charging behavior and why or why not.
- Impact of, and customer interest in, unlimited monthly charging versus other pricing options (e.g., single use, who uses, behavior).
- The additional PGE infrastructure, if any, needed to support and ensure highly reliable public charging infrastructure (and applicable costs).

- The siting criteria that can be used to limit or reduce distribution system upgrades necessary to install quick charging infrastructure.
- Charging infrastructure installation, operation, and maintenance costs.
- Challenges and best practices in permitting, designing, and siting DCQC infrastructure.
- Revenue broken down into revenue streams including Clean Fuels Program (CFP) credit revenue, monthly fees, DCQC versus Level 2, etc.
- Coincidence Factor of Charging Stations
- Availability of chargers (e.g., maintenance, vandalism, unexpected events causing the charging stations to be down)
- Load Profile
- Load Factors
- Operational learnings