PACIFIC POWER
A DIVISION OF PACIFICORP

825 NE Multnomah, Suite 2000
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December 27, 2016

VIA ELECTRONIC FILING
AND OVERNIGHT DELIVERY

Public Utility Commission of Oregon
201 High Street SE, Suite 100
Salem, OR 97301-3398

Attn: Filing Center

RE: UM ___ – PacifiCorp's Transportation Electrification Public Charging Pilot Program

In compliance with section 29 of Senate Bill 1547[1] and OAR 860-087-0030, PacifiCorp d/b/a Pacific Power (Pacific Power or Company) submits the attached application for its transportation electrification Public Charging pilot program.

The Public Charging pilot represents one component of Pacific Power's initial efforts to accelerate transportation electrification in its Oregon service area. Other components of the Company's efforts to accelerate transportation electrification include an Outreach and Education pilot program, a Demonstration and Development pilot program, and a proposed Public Direct Current Fast Charger Transitional Rate. Application filings for these components will be made concurrently with this application.

These initial efforts recognize the diverse and dispersed nature of Pacific Power's service area, which includes regions of the state that can present unique challenges with respect to adoption of emerging technologies. These components comprise the initial phase of the Company's longer-term transportation electrification strategy and are designed to establish a foundation by which Pacific Power can partner with its customers and communities to better understand the most effective future roles for the Company in expanding support for transportation electrification as this dynamic market continues to mature.

The enclosed pilot program application includes estimated cost information that is commercially-sensitive, which if disclosed could expose the Company to competitive harm. Confidential information is provided as confidential under OAR 860-001-0070.

It is respectfully requested that all formal data requests to the Company regarding this filing be addressed to the following:

By e-mail (preferred): datarequest@pacificorp.com

[1] Oregon Laws 2016, Chapter 28, Section 29.

By regular mail: Data Request Response Center
PacifiCorp
825 NE Multnomah Street, Suite 2000
Portland, OR 97232

Please direct any informal inquiries to Natasha Siores, Manager, Regulatory Affairs, at (503) 813-6583.

Sincerely,

R. Bryce Dalley
Vice President, Regulation

Enclosure

PACIFIC POWER
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Public Charging Pilot

The current plug-in electric vehicle charging market is characterized by competing technology standards and, in some instances, a lack of public charging infrastructure outside of major metropolitan areas and certain highway corridors. Pacific Power heard through its stakeholder process that publicly available, dual-standard charging pods are important to simplify the driver experience and increase confidence that charging equipment will be available when needed. Through the proposed pilot, PacifiCorp, d/b/a Pacific Power (Pacific Power or Company) will work with communities in its Oregon service area to install, own and operate a limited number of public fast charging pods to test the ability to accelerate transportation electrification and generate benefits for customers.

The Public Charging pilot represents one component of Pacific Power's initial efforts to accelerate transportation electrification in its Oregon service area. These initial efforts recognize the diverse and dispersed nature of Pacific Power's service area, including regions of the state that can present unique challenges with respect to adoption of emerging technologies. This initial phase of the Company's longer-term transportation electrification strategy is designed to establish a foundation by which Pacific Power can partner with its customers and communities and better understand the most effective future roles for the Company in expanding support for transportation electrification as this dynamic market continues to mature.

This application is structured to clearly demonstrate how this pilot program complies with the Transportation Electrification Program Application Requirements under OAR 860-087-0030. Elements that are common to all three pilot programs proposed by the Company are included in appendices to this application to facilitate an efficient review by the Public Utility Commission of Oregon and other interested parties.

PROGRAM DESCRIPTION: OAR 860-087-0030 (1) (A)

Program elements, objectives, timeline, and expected outcomes: OAR 860-087-0030 (1) (a) (A)

Program Elements

The current public direct current (DC) fast charging market is characterized by competing technology standards, such that a given vehicle model can only access a portion of the available public charging infrastructure. For a detailed discussion of this issue, please see Appendix A. Pacific Power heard through its stakeholder process (detailed in Appendix B) that publicly available, dual-standard charging pods are critical to simplify the driver experience and increase confidence that charging equipment will be available when needed. Through the proposed pilot, Pacific Power will install, own and operate up to seven charging pods in its Oregon service area through 2019, anticipated to include multiple dual-standard DC fast chargers and Level 2 charging

equipment at each location.[1] Equipment will be available for use by any driver, regardless of whether he or she otherwise receives electric service from Pacific Power.

In 2017, Pacific Power will issue a request for proposals (RFP) to competitively select providers of charging equipment, network and maintenance services. Key criteria in assessing respondents' proposals will include:

- Cost;
- Experience performing the requested services and partnering with electric utilities on vehicle charging infrastructure deployments;
- Knowledge of Pacific Power's Oregon service territory;
- Means of addressing potential interoperability barriers to make the driver's experience as simple and positive as possible;
- Proposed equipment and network communication protocols; [2]
- Ability to integrate low-cost, innovative technologies to help mitigate impacts to the electrical system;
- Future vision and means of "future proofing" proposed equipment and services;
- Reporting capabilities to track utilization, reliability and revenues, and
- Ability to maintain equipment throughout Pacific Power's service area. The Company anticipates engaging local contractors to perform charger maintenance, but will also consider turnkey solutions from equipment and/or network providers.

The Company plans to work with communities to select optimal pod locations in the public right-of-way or on property owned by Pacific Power. Potential sites will be evaluated on a series of criteria intended to minimize costs, maximize benefits, and complement existing public charging infrastructure, including:

- Proximity to major travel corridors, multifamily housing, local attractions, and other public charging infrastructure;
- Visibility and ease of public access;
- Availability of necessary electrical service;
- Capacity on the Company's local distribution system;
- Ease of permitting in the public right-of-way;
- Suitability of Company-owned property;
- Ability to "future proof" sites for additional and/or higher power chargers; and
- Opportunity to integrate advanced technology such as energy storage or renewable generation.

Once equipment, service providers and suitable locations are selected, the Company will begin design and installation of charging pods. Rather than deploying all seven pods at once, the Company plans a phased roll out so that any lessons learned from early installations can be

[1] While the primary focus of these pods is fast charging, not all plug-in electric vehicles are capable of using DC fast charging equipment. Including Level 2 charging equipment broadens the set of customers who can use this equipment.
[2] To provide long-term flexibility and reduce the risk of stranded investments for Pacific Power and its customers, the Company's preference is to procure equipment and services that use open communication protocols. Open communication protocols will allow multiple types of charging equipment to interface with a single network, and vice versa. A provider of proprietary equipment and network services could expose the Company and its customers to increased risk of stranded assets if the selected provider were to go out of business or no longer support the network or equipment.

incorporated into design and installation at future sites. Equipment configurations may vary by location.

Program Objectives

As discussed in detail in Appendix A, the fast charging market is currently fragmented by competing connection standards. As of November 2016 there were only three publicly available dual-standard fast charging locations in Pacific Power's service territory.[3] The proposed pilot program is designed to increase the availability of reliable dual-standard fast charging in Pacific Power's Oregon service area over the next three years. Other program objectives include:

- Working with communities to site fast charging infrastructure in locations that best balance utilization, visibility, and potential adverse electrical grid impacts;
- Learning about driver usage patterns and sensitivity to price signals;
- Establishing driver pricing that stimulates competition and encourages off-peak charging; and
- Testing advanced technologies to mitigate potential adverse electrical grid impacts of fast charging pods.

Program Timeline

The Company expects to focus on selecting equipment and service providers and identifying candidate sites in 2017 with installation beginning in 2018. Solicitations for equipment and services may be issued in advance of Commission approval in order to expedite program ramp-up. This application considers installing three charging pods in 2018 and an additional four in 2019. This timeline is subject to change based on the rate of site identification, partnership opportunities and lessons learned through initial pod deployment. The Company anticipates having all seven pods installed by the end of 2019 and will operate all seven pods for the duration of the useful lives of the pods.

Expected Outcomes

The Company expects access to visible and reliable dual-standard public fast charging infrastructure to accelerate transportation electrification by increasing driver confidence, providing emergency charging, enabling long-range travel and providing an option for customers who are unable to charge at their residences or workplaces. Although the benefits of this infrastructure may not be fully realized until other market barriers, such as vehicle range and cost, are addressed, the Company will investigate the program's ability to accelerate transportation electrification during the pilot period as part of its program evaluation efforts.

Market baseline assumptions: OAR 860-087-0030 (1) (a) (B)

See Appendix A.

Major performance milestones: OAR 860-087-0030 (1) (a) (C)

Major performance milestones for the program include:

- Issue a request for proposals for equipment and service providers;
- Select and contract with equipment and service providers;
- Identify initial charging pod location(s);
- Installation of initial charging pod(s);

[3] Data accessed on November 11, 2016: http://www.afdc.energy.gov/locator/stations/

- Go-live of initial charging pod(s);
- Identify sites, install equipment, and launch additional charging pod locations (may occur concurrently with development of initial charging pod);
- Monitor equipment utilization and reliability and collect data for program evaluation; and
- Complete program evaluation.

Where applicable, a description of program phases, including a proposal for when each subsequent program phase will be submitted for commission review: OAR 860-087-0030 (1) (a) (D)

The proposed pilot program for 2017-2019 represents the first phase of Pacific Power's ownership of public charging infrastructur. During the pilot period, the Company will engage a third party consultant to evaluate the effectiveness of the pilot, including estimating benefits to ratepayers. Based on program evaluation results, the Company may request an expansion of the program in 2019 or 2020.

Expected utilization, participation eligibility, and any incentive structure: OAR 860-087-0030 (1) (a) (E)

Equipment utilization (the number of charging events in a given time period) can vary greatly based on location, price structure and plug-in electric vehicle adoption levels. For example, based on data provided by the Oregon Department of Transportation, utilization levels for DC fast chargers along the West Coast Electric Highway ranged from 2 charging events per month to 118 events per month between August 1, 2015, and July 31, 2016. Some West Coast Electric Highway charging equipment is in less-visited locations by design to provide a charging option at regular intervals along major corridors. Utilization rates for this equipment may not be representative of Pacific Power pod locations, but serve to demonstrate the variability in equipment utilization based on location and objectives. As described in the "Estimated Participant Costs" section below, the Company will assess expected utilization rates when proposing rates to charge drivers for public charging service.[4]

Any drivers may use the program's charging infrastructure regardless of whether he or she otherwise receives electric service from Pacific Power. Drivers may need to sign up for a network membership, depending on the network solution selected through the RFP process.

This program does not include any incentive payments.

Identification of market barriers, program implementation barriers and program strategies to overcome identified barriers: OAR 860-087-0030 (1) (a) (F)

A 2016 conference paper by Jeff Allen, Executive Direct of Drive Oregon, describes the current fast charging landscape in Oregon, market barriers and recommendations to enhance the public charging network.[5] Identified market barriers include:

- Competing connection standards;

[4] Pacific Power intends to file a tariff containing rates for electric vehicle charging at Company-operated public charging pods. Given current market dynamics and the fact that the first Company-operated charging pod is unlikely to be operational until 2018, Pacific Power is not currently proposing a charging rate at this time. Included with this application as Appendix C, however, is a sample-tariff that provides an example of what the Company may request.

[5] "Expanding the Fast Charging Network", Jeff Allen, EVS 29 Symposium: June 2016. http://driveoregon.org/wp-content/uploads/2016/08/Drive-Oregon-DCFC-Paper-EVS29-June-2016.pdf

- Lack of driver confidence that a public charger will be operable and available when needed;
- Competing networks and required memberships can make using public charging equipment difficult to use or inaccessible;
- Without a robust public charging network, drivers cannot perform long-distance travel or access remote areas of the state;
- The plug-in electric vehicle ownership proposition is challenging for customers without access to charging at home or at work; and
- Certain locations may require technology solutions to reduce peak demand.

The proposed pilot program and the associated public fast charging pods are designed to address these market barriers through installing multiple dual-standard chargers in a single location, ensuring a high level of equipment reliability and identifying ways to address interoperability and peak demand impacts to the electrical grid.

The Company has designed its equipment vendor, and site selection process to mitigate potential implementation barriers. Through this selection process, Pacific Power will look to identify optimal sites on its property or in the public right-of-way, implement technology solutions to avoid detrimental grid impacts and minimize the risk of stranded investments to customers. Lessons learned through initial pod deployments will be incorporated into plans for later deployments.

Description of the electric company's role and, if applicable, a discussion of how the electric company proposes to own or support charging infrastructure, billing services, metering, or customer information: OAR 860-087-0030 (1) (a) (G)

Pacific Power will install, own, operate and set driver pricing through a tariff for public charging pods.

Whether transportation electrification adoption attributed to the program will likely necessitate distribution system upgrades: OAR 860-087-0030 (1) (a) (H)

The extent to which the pilot program accelerated transportation electrification above the baseline projection (provided in Appendix A) will be assessed through the program evaluation activities discussed later in this document. At this time, there is insufficient data to estimate the additional adoption that may be attributed to this pilot, and, more importantly, in the context of distribution system upgrades, how concentrated this adoption will be and where charging will occur. For example, if a new vehicle uses the pilot's public charging infrastructure for all charging, these impacts will have already been considered when designing and installing the charging pod. However, if a customer charges his or her vehicle primarily at home, with occasional use of public charging pods, this presents a different type of impact to the distribution system.

A key component of Pacific Power's electric transportation strategy is to encourage customers to charge vehicles during off-peak hours, which the Company intends to reinforce with pricing that varies by time of day in addition to messaging through its proposed outreach and education pilot program. This clear and consistent messaging should further reduce the likelihood of increased distribution system costs as a result of this program.

With today's technology, the power draw from a single DC fast charger (typically around 50 kW) is unlikely to cause adverse impacts to the electrical system. However, when multiple chargers are located together, and as new equipment becomes more powerful, there is increased potential for adverse impacts, particularly when charging occurs during peak periods. In order to build a robust,

reliable network of public charging, it is critical that potential grid impacts are considered when selecting charging technology and locations. Through this pilot, the Company will test its ability to:

- Site public charging pods in locations with sufficient capacity without sacrificing visibility or expected utilization,
- Integrate advanced technologies that can mitigate potential system impacts, such as energy storage, renewable generation, and/or direct load control, and
- Send price signals to drivers to encourage off-peak charging.

Pacific Power will encourage equipment vendors to propose a suite of technology solutions to allow customization on a site-by-site basis, as appropriate. The phased rollout of pods over a 2-3 year period will allow the Company to test different technologies at different locations and apply learnings to potential future deployments.

Where applicable, a discussion of ownership structure: OAR 860-087-0030 (1) (a) (I)

Pacific Power will own all public charging equipment funded through this program.

Where applicable, a discussion addressing interoperabilitv of invested equipment; OAR 860-087-0030 (1) (a) (J)

Ease of use for the driver is critical to program success. In its request for proposals for equipment and services, the Company will look for bidders to propose solutions that minimize interoperability barriers without sacrificing other key program aspects or evaluability.

Where applicable, a discussion of any national standards for measurement and communication: OAR 860-087-0030 (1) (a) (K)

Pacific Power will ask respondents to its RFP to address how their equipment and network comply with any current or upcoming national standards for measurement and communications. The Company's preference is to select equipment and network providers that utilize open communication protocols to minimize the risk of stranded investments.

DATA USED TO SUPPORT THE DESCRIPTIONS PROVIDED IN PARAGRAPHS (1)(A)(A)-(L) OF THIS RULE: OAR 860-087-0030 (1) (B)

Where available, supporting data have been provided above or in Appendix A. Through the pilot, the Company will gather data specific to its service territory that can be used to inform future planning efforts.

A DESCRIPTION OF PROGRAM COORDINATION THAT INCLUDES A DESCRIPTION OF: OAR 860-087-0030 (1) (C)

Stakeholder involvement in program development: OAR 860-087-0030 (1) (c) (A)

See Appendix B.

Efforts to coordinate with related state programs: OAR 860-087-0030 (1) (c) (B)

See Appendix B.

Coordination, if any, of delivery with other market actors and activities, and how the market and other market actors can leverage the underlying program or projects within the program: OAR 860-087-0030 (1) (c) (C)

Pacific Power will assess distance from other dual-standard public charging locations during its site selection process to create a more robust network of charging infrastructure. To simplify the driver's experience, as discussed above, the RFP for equipment and network services will encourage bidders to propose solutions that minimize interoperability barriers (e.g., ability to use the chargers without a network membership).

A DESCRIPTION OF THE ELECTRIC COMPANY'S LONG-TERM STRATEGY TO ACCELERATE TRANSPORTATION ELECTRIFICATION IN ITS SERVICE TERRITORY IN AN EFFECTIVE AND EFFICIENT MANNER AND HOW THE PROPOSED PROGRAM FITS WITHIN THE LONG-TERM STRATEGY: OAR 860-087-0030 (1) (D)

See Appendix A.

A DESCRIPTION OF PROGRAM COSTS THAT INCLUDES, BUT IS NOT LIMITED TO: OAR 860-087-0030 (1) (E)

Estimated total program costs, including incentives, program delivery, evaluation, marketing, and administrative costs: OAR 860-087-0030 (1) (e) (A)

Assuming the deployment of seven public charging pods, the Company estimates the cost of this pilot program at $1.85 million during the pilot period, as shown in Table 1. Given the time required to issue the RFP, select a vendor, select suitable sites, secure necessary permits and design and install a charging pod, Pacific Power anticipates the first public charging pods will go live in 2018, but will not delay the process if expedited opportunities present themselves in 2017. For the purpose of budgeting, it is assumed that each fast charging pod will include four dual-standard DC fast chargers and one level 2 charger.[6]

Table 1. Estimated Program Costs

Cost Category	2017	2018	2019	Total
Equipment and Installation		[redacted]	[redacted]	[redacted]
Equipment Maintenance and Network Admin.		[redacted]	[redacted]	[redacted]
Program Evaluation		[redacted]	[redacted]	[redacted]
Program Administration	[redacted]	[redacted]	[redacted]	[redacted]
Total	[redacted]	[redacted]	[redacted]	**$1,850,000**

Assumptions

- [redacted] equipment and installation cost at each fast charging pod. Assumes [redacted] per DC fast charger, [redacted] per level 2 charger and [redacted] for permitting, installation and potential integration

[6] Configurations may vary by locations, but each pod will include at least two DC fast chargers and one level 2 charger.

of advanced technologies. Equipment cost assumptions were developed based on vendor responses to a Request for Information issued by Pacific Power in August 2016.

- [redacted] annual cost per pod for network services and equipment maintenance.

Network provider fees for processing driver payments will be assessed and negotiated through the vendor selection and contracting process and may be directly tied to equipment utilization rates. For the purpose of developing the budget presented in Table 1, it is assumed that these fees will be treated as a reduction to driver revenue rather than as a program cost.

Estimated participant costs OAR 860-087-0030 (1) (e) (B)

As discussed in the "Program Timeline" section above, given the time required for regulatory approval, vendor selection and contracting, site selection and station deployment, the Company does not anticipate the first charging station will become operational until 2018. Given the dynamic state of the electric transportation market, Pacific Power has not proposed specific charging service rates at this time, but rather has provided with this application an example tariff for Company operated public charging service as Appendix C. Prior to the go-live date of the first pilot charging station, the Company will make an advice filing with the Commission requesting approval of a new tariff schedule with specific rates.

As discussed in the "Program Timeline" section above, given the time required for regulatory approval, vendor selection and contracting, site selection and charging pod deployment, the Company does not anticipate the first charging pod will become operational until 2018. Given the dynamic state of the electric transportation market, Pacific Power has not proposed specific charging service rates at this time, but has included with this application as Appendix C an example tariff that shows the Company's current thinking on proper charging tariff design.

The Company plans to establish rates at closer to the time of pod deployment in order to incorporate further monitoring of the cost of public charging services offered by other entities in its Oregon service territory and utilize data from its proposed Schedule 45 (Public DC Fast Charger Optional Transitional Rate) to propose rates that:

- Stimulate competition during the period when pods will be in operation;
- Encourage off-peak charging;
- Encourage efficient use of the equipment (i.e., parking space turnover);
- Are comparable to typical rates for public charging services charged by other entities in the Company's Oregon service territory;[7]
- Utilize data gathered from proposed Schedule 45 participants to inform expected utilization rates and the percentage of usage expected to occur in on- and off-peak periods; and
- Recognize the difference in cost and value of DC fast and Level 2 charging.

[7] Many different pricing models currently exist in the market, utilizing different combinations of monthly subscriptions, per-charge, per-kWh, per-minute and other charges for service. The Company will attempt to convert these different pricing models to a common metric for direct comparison to the Company's proposed rates.

As shown in Appendix C, Pacific Power expects to implement a simple dollar-per-minute rate that varies by on- and off-peak periods[8] and DC fast and Level 2 charging, for a total of four distinct rates that incorporate the objectives described above.

How the electric company proposes to recover costs: OAR 860-087-0030 (1) (e) (C)

The costs associated with the proposed program will be incremental to cost levels currently included in customer rates. The Company proposes to implement a surcharge to recover the operating costs of the pilot program through its existing Schedule 95, Pilot Program Cost Adjustment (Schedule 95).[9] The Company further proposes to use a balancing account to track the actual costs and surcharge collections. A tariff advice filing will be made to implement this proposed surcharge during the pendency of the proceeding to review the proposed pilot programs, expected to be in the spring of 2017. The Company will review the balancing account periodically to determine if changes to the surcharge are necessary.

Upon Commission approval of this application, the Company will make an advice filing to modify Schedule 95 to fund this program. Pacific Power estimates that program costs will result in an average 0.03% rate impact over the pilot period.

A DESCRIPTION OF THE EXPECTED PROGRAM BENEFITS THAT INCLUDES: OAR 860-087-0030 (1) (F)

Program benefits, including to whom and when the benefits are accrued: OAR 860-087-0030 (1) (f) (A)

While electric transportation currently represents a small share of Pacific Power's total revenues it also represents an opportunity for growth. As discussed in Appendix A, only two out of every 1,000 cars registered in Pacific Power's Oregon service territory currently utilize plug-in electric technology,[10] however, based on current trends, the number of plug-in electric vehicles registered in the Company's Oregon service territory is expected to quadruple by 2025. This revenue growth is a benefit to all Pacific Power customers, particularly if charging is performed in a manner that supports grid efficiency, minimizes required distribution system upgrades and improves operational flexibility. The proposed pilot seeks to accelerate transportation electrification, increasing and pulling forward revenue benefits for customers.

Increased revenue associated with this program can be grouped into two distinct categories: revenues from driver payments at public charging equipment and revenues from charging that occurs at other locations (e.g., homes or businesses) as a result of the program. The first category of funds will be well understood during the pilot period, as the product of the rate that drivers are charged and equipment utilization, less network service provider fees to process payments. Program evaluation efforts will project likely direct revenues over the equipment life and investigate whether additional revenue from charging at other locations can be attributed to the pilot program.

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[8] As defined in Appendix C, on-peak periods are defined as Monday through Friday, excluding holidays, 6:00 a.m. to 10:00 a.m. and 5:00 p.m. to 8:00 p.m. for November through March and 4:00 p.m. to 8:00 p.m. for April through October.

[9] For capital related costs, Schedule 95 will be used to recover the annual revenue requirement (i.e., return on, and depreciation expense).

[10] Data provided by the Oregon Department of Environmental Quality, through June 2016.

The proposed pilot program, and additional pilots concurrently proposed, represent the Company's initial efforts to increase and pull forward the benefits of transportation electrification in its Oregon service area. Given the time required for regulatory approval, vendor and site selection and pod deployment the Company anticipates the first pod will become operational in 2018. Program experience in 2018 and 2019 will provide valuable information for program evaluation and future planning, however, the majority of revenue generated from both categories described above will accrue after the pilot period. The pilot program is designed to establish a foundation by which long-term revenue, and associated customer benefits, may be realized as the Company investigates its ability to effectively and efficiently accelerate the adoption curve in underserved populations and throughout its Oregon service area. Pacific Power will monitor actual revenues closely and provide information on charging pod costs and revenues to the Commission annually during the pilot period. Revenues from the program will be used to offset the pilot program costs.

Drivers utilizing this charging infrastructure (program participants) will receive a direct benefit during the pilot period through increased access to visible, reliable dual-standard charging infrastructure, which may enable the adoption, or better utilization, of plug-in electric vehicles and save fuel costs when compared to vehicles operated on fossil fuels.

Oregon's Clean Fuels Program (OAR 340-253) presents a potential opportunity to capture additional future benefits for all customers through monetizing credits generated by the use of electricity as a transportation fuel. The Public Charging Pilot may allow Pacific Power to directly capture credits generated through the use of company-operated charging equipment The Company is monitoring the Clean Fuels Program to identify opportunities that maximize benefits. Details of Pacific Power's ongoing analysis and strategy to capture potential future benefits from this program are captured in Appendix B.

While the Commission historically focuses on benefits specific to utility ratepayers, the Company notes the legislative findings that transportation electrification has the ability to improve air quality, reduce greenhouse gas emissions, improve the public health and safety, and create fuel cost savings for drivers, which can be a particular benefit for low and moderate income populations.[11] Pacific Power will evaluate opportunities to incorporate innovative technologies that improve electrical system efficiency.

Electric system benefits: OAR 860-087-0030 (1) (f) (B)

Present plug-in electric vehicle adoption levels and the relative nascence of utility transportation electrification programs nationwide make it difficult to forecast long-term electric system benefits of electric transportation acceleration associated with this pilot program. Having direct control over where charging pods are located will allow the Company to site equipment in locations with necessary system capacity. Additionally, the Company will look for opportunities to incorporate project features that can test and enhance electric system benefits, including integrating on-site energy storage and/or renewable generation. Driver pricing will be structured to encourage charging during off-peak periods to send consistent messaging to drivers about efficient use of the electrical system and to test drivers' willingness to respond to price signals.

[11] Senate Bill 1547, Section 20 (2)

If the Company is successful in increasing the adoption of these technologies and practices as use of electricity as a transportation fuel increases, benefits to the electric system may include increased operational flexibility, such as the ability to utilize energy storage to mitigate impacts of charging during peak periods and the ability to integrate variable generation resources, such as wind generation available during off-peak hours. The pilot will provide the Company with deeper insight into siting best practices, driver charging behaviors and price sensitivities and how to maximize electrical system benefits associated with public plug-in electric vehicle charging.

A discussion of how a net benefit to ratepayers is attainable: OAR 860-087-0030 (1) (f) (C)

In this application, the Company proposes a measured approach to investment in transportation electrification, beginning with an initial pilot phase to test program design, market barriers, and the ability to accelerate transportation electrification beyond what might happen in the absence of the program and the benefits associated with this acceleration. As discussed above, the majority of benefits to Pacific Power's customers will not be realized until after the end of the pilot period as vehicles and equipment continue to generate revenue and provide electrical system benefits over their useful lives. Program evaluation efforts will estimate the benefits that can be attributed to this program to determine whether a net benefit, relative to program costs, is likely to be achieved after the pilot period. The findings from this initial phase will be used to determine whether a second phase of the program is likely to generate a net benefit for ratepayers.

A DESCRIPTION OF HOW THE ELECTRIC COMPANY WILL EVALUATE THE PROGRAM THAT INCLUDES, BUT IS NOT LIMITED TO: OAR 860-087-0030 (1) (G)

Timeline of program evaluation and proposed evaluation reporting schedule: OAR 860-087-0030 (1) (g) (A)

Pacific Power will issue a request for proposals for third-party program evaluation services in 2017. The Company will work with the selected evaluation contractor to scope required evaluation efforts and develop an evaluation plan. Evaluation efforts will begin in earnest in 2018, leading up to the development of a program evaluation report to be filed with the Commission in 2019. The program evaluation report will address all reporting requirements specified in OAR 860-087-0040 (1).

Estimated cost of evaluation: OAR 860-087-0030 (1) (g) (B)

The Company has budgeted [redacted] for program evaluation, assumed to be spread evenly between 2018 and 2019. This budget estimate is based on the Company's extensive experience contracting with third parties to evaluate energy efficiency programs, recognizing that the exact cost will not be known until contractor bids are received through the competitive bidding process.

How the evaluation will be conducted and whether a third-party evaluation is necessary: OAR 860-087-0030 (1) (g) (C)

The program evaluation will be conducted by a third-party contractor selected through a competitive bidding process. The Company has a long history of working with third-party consultants to evaluate its demand-side management programs and will seek proposals from this qualified pool of consultants to perform evaluation activities for this program.

The Company may engage its network service provider to perform limited evaluation efforts that it is best suited to deliver, such as analysis of charger utilization and equipment reliability.

How the evaluation will address identified barriers: OAR 860-087-0030 (1) (g) (D)

Evaluation efforts will attempt to answer the following questions related to identified barriers:

- Did charging pod configurations increase driver confidence that a compatible charger would be available when needed?
- Did drivers perceive an interoperability barrier? If so, how could this barrier be removed?
- Did the pricing model work as intended (e.g., did it encourage off-peak charging)?
- Has the program accelerated transportation electrification?
- How has the program stimulated innovation, competition and customer choice?
- How has the program supported system efficiency and operational flexibility, including the ability to integrate variable resources?
- What were the utilization levels of charging equipment and what factors led to differences by location?
- What are the costs and benefits of the program? How are these benefits expected to grow over time?
- Are any program modifications recommended to improve current or future charging pods?

The answers to these questions will be used to inform future planning after the pilot period.

A discussion of the method of data collection that is consistent with subsection (1)(b) of this rule and how the data will be used to evaluate the effectiveness of the program: OAR 860-087-0030 (1) (g) (E)

During the development of the program evaluation work plan, the Company will work with the selected vendor to identify all data needed to answer the question above. The Company will provide data on program costs, utilization and up-time by location and other data required to assess program costs and benefits. The third-party evaluator will collect information from customers to answer other questions above regarding program satisfaction, increased miles traveled, driver confidence, etc. The third-party evaluator will be tasked with identifying the best way to solicit feedback from customers, which may include participant surveys and/or review of electric vehicle charger feedback sites such as plugshare.com.

Prior to selecting a network solution, it is unknown whether drivers will be required to join a network to use charging infrastructure and thus, participants may be difficult to identify for feedback. The Company will balance the desire to identify drivers for feedback with the desire to address interoperability barriers and make the charging experience simple for drivers.

The evaluation will also utilize Oregon Department of Environmental Quality data on plug-in electric vehicle registrations to investigate whether adoption has accelerated above the baseline forecast provided in Appendix A. While increased adoption may not be directly tied to the pilot program, this will be a useful metric to assess the effectiveness of the coordinated efforts of organization across Oregon working to accelerate transportation electrification during the pilot period.

A DESCRIPTION OF HOW THE PROGRAM ADDRESSES THE CONSIDERATIONS IN OREGON LAWS 2016, CHAPTER 028, SECTION 20(4)(A)-(F).EVALUATION: OAR 860-087-0030 (1) (H)

Senate Bill (SB) 1547 identified six considerations for the Commission "[W]when considering a transportation electrification program and determining cost recovery for investments and other expenditures related to a program proposed by an electric company…" A discussion of how the pilot program addresses each of these considerations is provided below.

(a) Are within the service territory of the electric company

All charging pods will be located within Pacific Power's service area.

(b) Are prudent as determined by the commission;

The Commission's prudence review of utility investment focuses on "whether the company's actions, based on all that it knew or should have known at the time were reasonable and prudent in light of the circumstances which then existed."[12] In determining prudence, the Commission does not rely on "hindsight judgments" or substitute "its best judgment for the judgments made by the company's managers."[13] Senate Bill (SB) 1547 requires the Company to file applications for programs to accelerate transportation electrification. Pacific Power's proposed Public Charging pilot program represents a prudent approach to meeting the legislative directives of SB 1547. This pilot program, along with the other pilot programs simultaneously submitted by the Company, will test key transportation electrification program design elements at a relatively low cost to customers. The Company intends to utilize competitive bidding processes for third-party services and its extensive experience effectively managing capital investments to keep costs low for customers. In addition PacifiCorp is uniquely situated to test the market for electric vehicle charging infrastructure within areas of its service territory that have not, to date, been attractive to third party developers. Through the installation and operation of electric vehicle charging infrastructure, the Company will be able to collect data on usage patterns that will be helpful to the development of a robust electric vehicle market in the state of Oregon. PacifiCorp will use a competitive process to select the least-cost, least-risk equipment and installation.

(c) Are reasonably expected to be used and useful as determined by the commission

Charging pods will be sited in areas where they are expected to be used and useful, based on the criteria listed in the "Program Elements" section of this application. Pacific Power will track equipment utilization and report this information annually to the Commission during the pilot period. The Company notes that even pods with low utilization may be useful if they reduce range anxiety and increase driver confidence that charging options are available when needed.

(d) Are reasonably expected to enable the electric company to support the electric company's electrical system

Having direct control over the location of charging pods will allow Pacific Power to consider impacts on the electrical system when identifying candidate sites. The Company will look for opportunities to integrate advanced technologies to mitigate detrimental electrical system impacts,

[12] In the Matter of PacifiCorp, dba Pacific Power Req. for a Gen. Rate Rev., Order No. 12-493, Docket UE 246 at 25 (Dec. 20, 2012).
[13] *Id*.

where appropriate. Pricing will be designed to encourage off-peak usage to further mitigate impacts during peak loading periods.

(e) Are reasonably expected to improve the electric company's electrical system efficiency and operational flexibility, including the ability of the electric company to integrate variable generating resources

Through its vendor and site selection process, the Company will investigate the viability and benefits of integrating advanced technology, including but not limited to renewable generation and energy storage, into charging pods. Pricing will be designed to encourage off-peak usage to further mitigate impacts during peak loading periods.

(f) Are reasonably expected to stimulate innovation, competition and customer choice in electric vehicle charging and related infrastructure and services.

Innovation

Through its RFP process, the Company will encourage equipment and service vendors to propose innovative solutions to integrating advanced technologies, mitigating grid impacts, future-proofing investments and addressing interoperability barriers.

Competition

As shown in Appendix A, there is currently a dearth of dual-standard public charging pods in Pacific Power's Oregon service territory and many communities have no such option. The Company hopes that its presence will stimulate others to develop competing infrastructure to enhance choices for customers. Pricing will be designed to stimulate competition both with other transportation fuels and with other public plug-in electric vehicle charging options.

Customer Choice

The pilot is designed to provide an additional choice for drivers interested in using public charging infrastructure either as a primary or secondary means of fueling their vehicles. Given the current dearth of dual-standard public charging pods in Pacific Power's Oregon service territory, these charging pods may be the only such option in certain communities, but the Company hopes that its presence will stimulate others to develop similar infrastructure to enhance choices for customers. The Company intends to site charging pods on its own property or in the public right-of-way, allowing customers interested in deploying public charging on their own property to choose the equipment and services that best suit their needs.

APPENDIX A –

TRANSPORTATION ELECTRIFICATION STRATEGY

PACIFIC POWER
A DIVISION OF PACIFICORP

Appendix A – Transportation Electrification Strategy

Consistent with OAR 860-087-0030 (1) (d), this appendix contains: "[a] description of the electric company's long-term strategy to accelerate transportation electrification in its service territory in an effective and efficient manner and how the proposed program fits within the long-term strategy", including:

- (A) The current condition of the transportation electrification market in the electric company's service territory and the outlook for development of the market in the absence of the proposed program;
- (B) Near and long-term market barriers to the development of transportation electrification and how the electric company proposes specifically to address those barriers;[1]
- (C) Near and long-term opportunities for improving the operation and reliability of the electric company's power system through transportation electrification and how the electric company proposes specifically to take advantage of those opportunities; and
- (D) Other factors pertinent to the electric company's plans for transportation electrification.

GUIDING PRINCIPLES

In March of 2016, the Oregon legislature passed Senate Bill (SB) 1547 which, among other things, states that "[t]ransportation electrification is necessary to reduce petroleum use, achieve optimum levels of energy efficiency and carbon reduction, meet federal and state air quality standards, meet this state's greenhouse gas emissions reduction goals described in ORS 468A.205 and improve the public health and safety;" and that "[w]idespread transportation electrification requires that electric companies increase access to the use of electricity as a transportation fuel;"[2]

As a leading provider of safe, reliable and affordable energy and a trusted source of information for customers across Oregon, Pacific Power can play a critical role in helping its customers understand and adopt electric transportation options and supporting the state's environmental goals. In this nascent and rapidly evolving market, it is important to take a measured approach, remain flexible and focus on pilot initiatives designed to inform long-term strategy and investment. The pilot programs and associated transitional rate[3] were developed through an extensive stakeholder process and represent the Company's initial efforts to address market barriers to widespread transportation electrification.

Given the rapidly evolving state of the transportation electrification market, PacifiCorp's long-term strategy is to remain flexible and responsive to market conditions. In doing so, the Company will rely on a set of guiding principles to inform current and future strategy and initiatives. These principles and specific examples of how they are applied are presented below:

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[1] Also see the "Identification of market barriers, program implementation barriers and program strategies to overcome identified barriers: OAR 860-087-0030 (1) (a) (F)" section of the main body of this program application.

[2] Senate Bill 1547, Section 20(2)

[3] Pacific Power is separately proposing a transitional rate for public DC fast charging, proposed Schedule 45. The transitional rate is a stand-alone tariff advice filing that is intended to complement Pacific Power's proposed transportation electrification pilot program proposals but is not a necessary component of the pilot program proposals.

Lead by example

Adopting and supporting electric transportation in its operations is important to drive market development and empower Pacific Power customers to do the same. To this end, the Company is currently engaged in several electric transportation initiatives:

- Pacific Power pledged to commit at least 5% of its annual vehicle replacement budgets to purchase plug-in electric vehicles through 2024.
- Pacific Power is a partner in the U.S. Department of Energy's Workplace Charging Challenge and are committed to providing vehicle charging options to employees.
- Pacific Power is committed to the White House's efforts to accelerate electric vehicle deployment along Department of Transportation Alternative Fuel Corridors.[4]

Understand Oregon customers' specific market barriers to adopting electric transportation

The Company performed extensive stakeholder outreach throughout 2016 to identify barriers to transportation electrification and determine which of these were best addressed by an electric company. The proposed pilot programs are designed to provide deeper insight into barriers specific to Pacific Power's Oregon customers and to test Pacific Power's ability to address these barriers through education, outreach, partnerships and deploying public infrastructure.

Use electric transportation to support a modern and efficient electrical system

If deployed correctly, electric transportation can increase electrical system efficiency and reduce costs for all Oregon customers. Through the initial proposed pilot programs and the deployment of an advanced metering infrastructure (AMI),[5] the Company seeks to gain new insight into customers' energy consumption patterns, the impacts of charging infrastructure (particularly fast charging) on the grid, and the extent to which loads can be shifted through education and economic signals. The Company also intends to test the potential for integration of advanced technologies, such as energy storage and renewable generation, into public charging infrastructure. Data collected will inform future system planning and the long-term strategy for how to ensure electric transportation is improving the efficiency of the electrical system rather than hindering it.

Partner with customers to deploy vehicle charging solutions

Pacific Power's proposed Development and Demonstration pilot program is designed to encourage innovative, non-residential, plug-in electric charging solutions through competitive grant funding. The Company is strongly committed to partnering with its customers and communities to test customer-specific solutions, support underserved populations, and gain new insight into market barriers and charging patterns that will inform future system and program planning.

To reduce the cost of operation of public DC fast charging infrastructure, the Company will also propose through a stand-alone tariff advice filing a new transitional rate to stimulate public charging infrastructure development in its communities. The proposed rate will address traditional

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[4] https://www.whitehouse.gov/the-press-office/2016/11/03/obama-administration-announces-new-actions-accelerate-deployment

[5] On April 8, 2016, Pacific Power formally announced plans to install a network of 590,000 "smart meters" in Oregon through 2019. AMI will provide a platform for two-way communication between the customer meter and Pacific power, enabling near real-time data collection and demand response capabilities.

demand charge barriers while maintaining a price signal to encourage efficient use of the electric system.

Simplify the plug-in electric vehicle charging experience

Customers new to plug-in electric vehicles and/or charging infrastructure require comprehensive and objective information to make informed decisions about desired equipment features, siting, connection to electrical service and how to find and use public charging infrastructure. Through education campaigns, technical assistance and strategic partnerships, the Company seeks to simplify the experience for customers by serving as a "one-stop shop" for electric transportation information. This includes leveraging existing information and services and developing customized resources when necessary.

Support underserved communities

Electric transportation presents an affordable solution for low and moderate income customers, however, the industry is still trying to determine how best to address the barriers for this group of customer. Barriers include upfront vehicle cost and access to capital and charging infrastructure. In 2016, Pacific Power was pleased to partner with Hacienda CDC, Drive Oregon and the City of Portland to test plug-in electric car sharing for income-qualified customers.

Much of Oregon's public charging infrastructure is located in Portland or along interstate highways, leaving other areas of the state, including much of Pacific Power's service area without convenient access to public charging options. With private investment currently focused on large urban areas, Pacific Power has a unique opportunity to support charging infrastructure development in the less-urban areas of the state. Pacific Power is an active member of its communities throughout the state, and can act as a reliable and credible transportation electrification resource to customers. Some of these areas are also air quality maintenance areas, where low- or zero-emission electric transportation could provide the added environmental benefit of reducing emissions from traditional vehicles.

The Company looks forward to partnering with its customers through the initial pilot programs to test innovative solutions for these underserved communities.

Leverage funding and lessons learned from strategic partnerships to inform future planning

On December 22, 2016, the United States Department of Energy awarded $3.9 million to PacifiCorp to support a project to accelerate the development and adoption of plug-in electric vehicles. PacifiCorp is the project lead, in collaboration with Idaho National Laboratory, the state of Utah, several universities, and regional organizations including Drive Oregon and the Rogue Valley Clean Cities Coalition. While project funds are primarily targeted at electrifying corridors in Utah, Idaho, and Wyoming, the project includes several aspects that present potential benefits to Pacific Power customers, including:

- Funding for the Rogue Valley Clean Cities Coalition and Drive Oregon to perform outreach and education in Pacific Power territory.
- Developing new tools for utility integration of charging equipment that may inform potential new policies and practices to reduce infrastructure cost and time associated with new charger installations.

- Investigating "smart mobility" through the integrating of electric bus service, electric taxis, e-bikes, car sharing and crowd sourced commuting service to eliminate the need for personal vehicles within urban areas.

The project presents an exciting opportunity for PacifiCorp to partner with a team of strategic partners and leading experts to accelerate transportation electrification and develop resources that can be used across the Company's six-state service area.

Phase in investments and keep an eye on the future

The Company is proposing modest three-year pilot programs to test key program concepts before making larger investments. Given the rapidly changing market, the Company believes this is critical to test the effectiveness of different means of addressing barriers while minimizing the risk of stranded investments to customers. When deploying Company-owned public charging infrastructure, Pacific Power will look for opportunities to test advanced technologies to minimize grid impacts and "future-proof" locations by ensuring the infrastructure can accommodate higher-powered chargers and new technologies as they become available.

In addition, the Company is monitoring opportunities to coordinate with other parties to leverage upcoming funding and partnership opportunities.

MARKET BASELINE ASSUMPTIONS: OAR 860-087-0030 (1) (A) (B)

Vehicle Registration

As of June 2016, there are roughly 11,000 plug-in electric vehicles registered and sited in the state of Oregon, 60 percent of which are 100 percent electric.[6] Based on ZIP code-level data, it is estimated that a third of these vehicles (3,577) are located in Pacific Power territory (Table 1). By comparison, 43 percent of all registered vehicles in the state are sited in Pacific Power territory, indicating that plug-in electric vehicle adoption is lower in Pacific Power territory than for the state as a whole.

Table 1. Oregon Vehicle Registration Summary – June 2016

Vehicle Fuel	Pacific Power *	Oregon Statewide	Pacific Power % of Statewide
Electric	1,994	6,531	31%
Plug-In Hybrid	1,583	4,305	37%
Plug-in Electric Total	**3,577**	**10,836**	**33%**
Hybrid Gasoline	35,119	87,668	40%
Gasoline/Diesel	1,910,939	4,450,807	43%
Other	831	1,389	60%
Total	**1,950,466**	**4,550,700**	**43%**
Plug-in Vehicles per 10,000 Vehicles	18	24	77%

* Estimated based on ZIP code-level data

[6] Data provided by the Oregon Department of Environmental Quality.

Figure 1 shows rates of plug-in electric vehicle ownership by ZIP code across the state of Oregon, with the boundaries of Pacific Power's service territory overlaid. As shown, most of the "hot spots" in the state are outside the Company's territory.

Figure 1. Oregon Plug-in Electric Vehicle Ownership Rates by ZIP Code

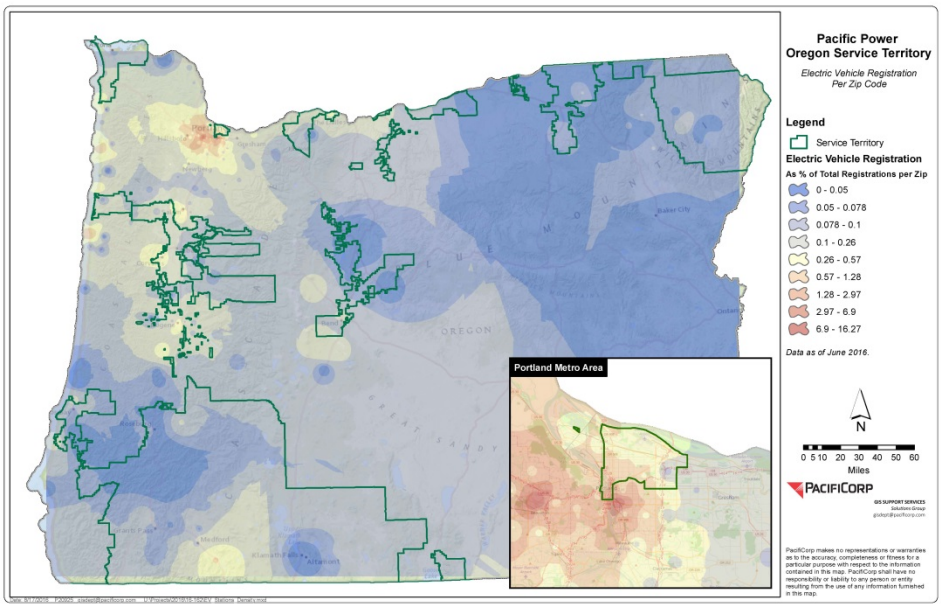
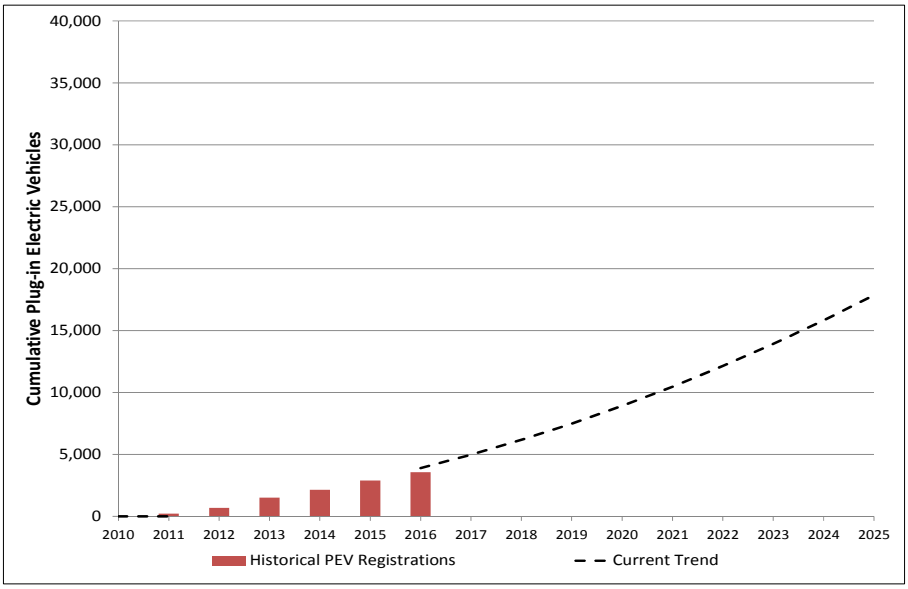


Figure 2 shows the cumulative plug-in electric vehicle registrations in Pacific Power's Oregon service territory from 2010 through June 2016 and forecasted adoption based on this historical trend. As discussed above, there are an estimated 3,600 plug-in electric vehicles in Pacific Power's Oregon service territory as of June 2016. If the adoption trend from 2010-2015 continues, it is estimated that there will be about 18,000 plug-in electric vehicles registered in Pacific Power territory by the end of 2025.

Figure 2. Historical and Forecasted Pacific Power Oregon Plug-in Electric Vehicle Registrations*



* 2016 historical registrations through June 2016

Through its program evaluation efforts Pacific Power will investigate the extent to which its pilot programs contributed to accelerated transportation electrification, either by encouraging plug-in electric vehicle adoption or increased electric miles travelled by existing vehicles.

Public DC Fast Charging Infrastructure

There are currently three competing fast charging standards:

- CHAdeMO: Primarily used by Japanese automakers, including the Nissan Leaf. Tesla vehicles can also use these stations with an adapter.
- SAE Combined Charging System (CCS): Primarily used by American and European automakers.
- Tesla Supercharger: Can only be used by Tesla vehicles.

This fragmented market limits driver access to a portion of the available public charging infrastructure and reduces driver confidence that a compatible charger will be available when needed. For example, stations along the West Coast Electric Highway only have CHAdeMO connections, BMW/Volkswagen's Express Charging Corridors use only CCS connections and Tesla's supercharger network is only compatible with Tesla vehicles.

Based on data from the United States Department of Energy's Alternative Fuel Data Center,[7] there are currently 99 public fast charging locations in Oregon, one-third of which (33) are located in Pacific Power's service area. However, because of the competing charging standards discussed above, this number overstates the number of stations a given electric vehicle driver can use, as shown in Table 2. For example, a Nissan Leaf driver can only use 21 of the 33 stations and a driver of a vehicle with a CCS connection can only use 10 of the 33 stations.

[7] Data pulled on November 11, 2016: http://www.afdc.energy.gov/locator/stations/

Table 2. Public DC Fast Charging Stations by Connection Type

Connection Type	Stations	Ports
CHAdeMO	18	19
CCS	7	7
Dual-Standard (CHAdeMO and CCS)	3	8
Tesla	5	36
Total	**33**	**70**

Table 2 also illustrates that many of the public DC fast charging stations in Pacific Power's Oregon service territory only have one port, which will reduce driver confidence that a port will be available when needed, particularly as plug-in electric vehicle ownership continues to increase.

It is unknown how many public DC fast charging stations would be deployed in Pacific Power's Oregon service area absent any new Pacific Power initiatives, however, the current state of the market suggests that private actors are not installing many dual-standard DC fast charging stations in Pacific Power communities. Through its proposed pilot programs, Pacific Power will seek to stimulate innovation, competition and customer choice by increasing the availability of public charging infrastructure in these communities to improve the viability of electric transportation adoption.

ONGOING PLANNING

The pilot programs represent Pacific Power's initial efforts to accelerate transportation electrification in its Oregon service area. The Company will monitor the progress of these initiatives and report annually on pilot status and outcomes. Pacific Power looks forward to continuing collaboration with its customers and stakeholders to investigate additional opportunities to accelerate transportation electrification in a manner consistent with its guiding principles.

APPENDIX B –

STAKEHOLDER AND STATE PROGRAM COORDINATION

PACIFIC POWER
A DIVISION OF PACIFICORP

Appendix B – Stakeholder and State Program Coordination

STAKEHOLDER INVOLVEMENT IN PROGRAM DEVELOPMENT: OAR 860-087-0030 (1) (c) (A)

Pacific Power's initial proposed pilot programs were developed through an extensive stakeholder process. Throughout the program development process, Pacific Power staff had ongoing conversations about barriers and potential solutions with customers, state agencies, advocates, auto manufacturers, electric vehicle charging companies, and other organizations working to accelerate transportation electrification in Oregon.

In August and September of 2016, Pacific Power held Electric Transportation Public Input Workshops to solicit input on program concepts. Public inputs workshops were held in the following locations and dates:

- Portland: August 3, 2016 (over 30 attendees)
- Medford: August 18, 2016 (11 attendees)
- Bend: September 7, 2016 (8 attendees)

These public input workshops were an invaluable tool to gain insight into barriers for electric transportation in general and in Pacific Power's Oregon service territory specifically. Key themes included:

- Lack of awareness of electric transportation options and benefits;
- Need for a robust network of public charging infrastructure;
- High cost of plug-in electric vehicle options;
- Importance of off-peak charging;
- Need and desire for electric transportation in underserved communities, but barriers to adoption in these areas are not well understood; and
- Current electric rates with demand charges create a barrier to DC fast charging infrastructure development.

Based on feedback received, Pacific Power developed initial pilot programs and a new transitional rate and emailed a four-page overview of these initiatives to interested parties on October 31, 2016, requesting feedback on proposed initiatives. The document was emailed to roughly 150 individuals and the Company received feedback from only three parties, including Commission staff. Comments received focused indicated:

- The overview document did not provide sufficient detail to fully evaluate the merits of the proposed pilots and rates
- The Company should look to coordinate outreach and education efforts with Portland General Electric and other entities working on customer education around electric transportation.
- The on-peak period of the transitional rate should align with Pacific Power's peak demand periods.
- The public DC fast charging transitional rate is an innovative way of addressing demand charge barriers and can serve as a model for other utilities.

- Utilities have a significant role to play in spurring electric vehicle adoption, such as providing consumer education, however, utilities would not best serve customers by owning public DC fast charging stations.

The Company appreciated the limited feedback it received on its overview document and considered stakeholder input in developing its pilot program applications. On December 1, 2016, Pacific Power presented a high-level overview of its proposed pilot programs and transitional rate at Drive Oregon's Energize Oregon Coalition Meeting.

EFFORTS TO COORDINATE WITH RELATED STATE PROGRAMS: OAR 860-087-0030 (1) (c) (B)

The proposed pilot programs and transitional rates are designed to support and complement other ongoing transportation electrification efforts in the state, including:

- Oregon's Zero Emission Vehicle Mandate
- Oregon's Clean Fuels Program (see below for additional information)
- State tax credits for residential and business vehicle charging equipment and alternative fuel fleet vehicles
- Portland General Electric's proposed transportation electrification programs
- Drive Oregon's efforts, including the development of the EV Showcase
- Local communities' climate and/or transportation action plans
- Potential involvement by the Northwest Energy Efficiency Alliance, the Energy Trust of Oregon, or other organizations
- Outreach and education efforts and infrastructure development that may stem from the Volkswagen Clean Air Act Partial Settlement

Oregon's Clean Fuels Program, administered by the Department of Environmental Quality ("DEQ"), requires a 10 percent reduction in the average carbon intensity of Oregon's transportation fuels by 2025 (relative to 2015 levels). Regulated parties are required to register with DEQ and must comply with the standard by balancing credits and deficits for 2016 and 2017 by the end of the 2017 calendar year and yearly by the end of each calendar year starting 2018. Deficits are generated when the carbon intensity of a specific fuel exceeds the clean fuel standard and credits are generated when the carbon intensity of a specific fuel is lower than the fuel standard. Providers of clean fuels may choose to participate in the program as "credit generators" and sell credits to regulated parties with deficits.

The program rules establish a hierarchy of entities that may opt-in to the program as credit generators. For residential electric vehicle charging, the electric utility has the first option to generate credits, followed by a broker (a third-party market participant), and then the owner of the electric-charging equipment. For residential charging, an electric utility must register by October 1st of the current year to generate credits for the following calendar year.

In the fall of 2016, Pacific Power worked with DEQ staff to assess the opportunity to generate residential credits in 2017. Prior to the October 1, 2016 deadline, no electric companies had registered as credit generators. DEQ's rules do not clarify the methodology or process for electric

companies to generate and verify credits associated with residential charging. For example, it is unknown how specific customers with electric vehicles will be identified and how their energy use (fuel consumption) will be measured or estimated. In addition, as of October 1, 2016, no transactions had been recorded under the Clean Fuels Program. At the time, the only public information available with respect to the value of any credits generated was associated with California's low carbon fuel standard credit market. Though a reasonable benchmark, the California market and program is significantly different from the Oregon market and program and therefore it is unclear whether California credit prices are a good indicator for Oregon's program.

In addition to the uncertainty around the magnitude and value of credits, there is a significant lack of clarity with respect to how the Company would use any revenue generated from the sale of credits. Though the Company is eligible to register to generate credits associated with residential electric vehicle charging, it is the individual customers who invested in the vehicles making such credit generation possible. It is unclear whether any revenue generated from credit sales should be credited back to those customers, all customers, or applied to other proposed programs. The Company understands that the Public Utility Commission of Oregon (Commission) has jurisdiction to determine how the revenue is spent; however, to date the Commission has not opined on this issue. The Company is interested in further dialogue with Commission staff and stakeholders on these issues to gain greater clarity and certainty with respect to the disposition of any credit revenue.

As a result of the above-described layers of uncertainty, PacifiCorp did not register as a credit generator for 2017. By choosing not to register as a credit generator for 2017, Pacific Power did not forgo the option to generate credits in the future. In addition, Pacific Power is engaged with DEQ and other stakeholders to develop rules and policy guidance to reduce uncertainty. DEQ initiated a rulemaking in early November 2016 to clarify and improve the rules and fully implement the Clean Fuels Program. The Clean Fuels Program 2017 Rulemaking Advisory Committee has been convened to provide stakeholders with an opportunity to comment on technical and policy issues, as well as the fiscal and economic impact of the proposed amendments when compared to the existing rule. Pacific Power is participating as a committee member and expects some procedural clarity in 2017 regarding how the residential credits will be generated and how the revenue from credits sales will be used. Committee meetings will occur through the spring of 2017. DEQ is scheduled to propose rule changes to the Environmental Quality Commission in November 2017.

Pacific Power intends to register to generate credits associated with public charging infrastructure proposed through the Public Charging Pilot and owned by the Company. Although, as noted above, there is not currently sufficient information to estimate the revenue potential associated with these credits, any revenue that is generated from these credits can be used to directly buy down the cost of the proposed pilot program.

APPENDIX C –

EXAMPLE TARIFF FOR COMPANY OPERATED PUBLIC CHARGING SERVICE

FOR ILLUSTRATIVE PURPOSES ONLY

Available

In all territory served by the Company in the State of Oregon.

Applicable

To electric vehicle charging service provided from Company operated electric vehicle charging equipment.

Billing

Any individual using Company operated electric vehicle charging equipment for the purpose of recharging the battery of an electric vehicle shall pay for such service at the rates described below:

Charging Stations under 19.2 kW (Level 2)

On-Peak, per minute	To Be Determined
Off-Peak, per minute	To Be Determined

Charging Stations over 19.2 kW (DC Fast Charging)

On-Peak, per minute	To Be Determined
Off-Peak, per minute	To Be Determined

On-Peak Period

Winter
Monday through Friday 6:00 a.m. to 10:00 a.m. and 5:00 p.m. to 8:00 p.m.
Summer
Monday through Friday 4:00 p.m. to 8:00 p.m.

Due to the expansions of Daylight Saving Time (DST) as adopted under Section 110 of the U.S. Energy Policy Act of 2005, the time periods shown above will begin and end one hour later for the period between the second Sunday in March and the first Sunday in April and for the period between the last Sunday in October and the first Sunday in November. At such time as updated DST programming is available and has been applied to a Consumer meter, the time periods shown above will apply on all days for that Consumer. Consumers will be notified of their change to updated DST programming in a timely manner.

Off-Peak Period

All non On-Peak Period plus the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Seasonal Definition

Winter months are defined as November 1 through March 31. Summer months are defined as April 1 through October 31.

Provisions

1. Operation, repair and maintenance of electric vehicle charging equipment on this rate schedule will be responsibility of the Company.
2. Inoperable electric vehicle charging equipment will be repaired as soon as reasonably possible, during regular business hours or as allowed by Company's operating schedule and requirements, provided the Company receives notification from a Consumer or a member of the public by notifying Pacific Power's customer service (1-888-221-7070).

(continued)

3. The Company may at its discretion install, relocate, modify, or remove electric vehicle charging locations. Potential modifications to Company operated electric vehicle charging locations may include adding, removing, or changing electric vehicle supply equipment available for charging service.

CERTIFICATE OF SERVICE

I certify that I served a true and correct copy of PacifiCorp's Application for Transportation Electrification Public Charging Pilot Program on the parties listed below via electronic mail as a courtesy to interested parties.

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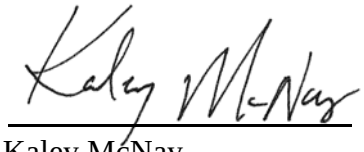
Dated this 27th of December, 2016.



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