

**OPENING TESTIMONY OF WILLIAM EHRLICH ON BEHALF OF TESLA, INC IN
THE MATTER OF PACIFCORP, dba PACIFIC POWER, REQUEST FOR A GENERAL
RATE REVISION.**

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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE FOR THE RECORD YOUR NAME, POSITION, BUSINESS**
3 **ADDRESS, AND ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS**
4 **PROCEEDING.**

5 **A.** My name is William Ehrlich. I am Senior Policy Advisor for EV Charging Policy and
6 Rates at Tesla, Inc. ("Tesla"). My business address is 3500 Deer Creek Rd, Palo Alto,
7 CA 94304. I am testifying on behalf of Tesla.

8 **Q. PLEASE DESCRIBE TESLA.**

9 **A.** Tesla's mission is to accelerate the transition to sustainable energy through the
10 development of all-electric vehicles and clean energy products including photovoltaic
11 solar and battery storage. Tesla is headquartered in Palo Alto, and all Tesla vehicles sold
12 in North America are currently manufactured in Fremont, CA. Tesla's vehicle line-up
13 includes the Model S sedan, Model X crossover vehicle, Model 3 sedan, and Model Y
14 crossover vehicle. The vehicles have all-electric range of up to 391 miles per charge, and
15 industry leading performance and safety ratings. In 2019, Tesla delivered more than
16 365,000 vehicles globally. In the coming months and years, Tesla is also planning to
17 launch the Cybertruck pickup, Roadster sports car, and a Class 8 Semi truck. Tesla also
18 owns and operates an extensive Supercharger network of direct current fast chargers
19 ("DCFC") with over 1,870 stations and nearly 16,585 Supercharger connectors deployed
20 globally.

1 **Q. PLEASE DESCRIBE YOUR EXPERIENCE AND QUALIFICATIONS.**

2 A. I have ten years of experience in the energy field, my experience spans solar
3 photovoltaics, traditional electrical construction, energy storage, and electric vehicles
4 (“EV”) with a specific focus on EV utility rates. Currently I lead Tesla’s electric vehicle
5 rate design efforts. Previous to Tesla, I provided in-house rate expertise at EVgo for
6 policy efforts related to their nationwide network of DC fast chargers. My statement of
7 qualifications is attached as Exhibit TESLA/101.

8 **Q. HAVE YOU TESTIFIED BEFORE THE OREGON PUBLIC UTILITY**
9 **COMMISSION PREVIOUSLY?**

10 A. No, I have not.

11 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

12 A. I review the legislation that led to the development of Pacific Power’s Schedule 45, the
13 current eligibility criteria for Schedule 45, and Pacific Power’s proposed Schedule 29
14 commercial time-of-use rate as described in this General Rate Case (“GRC”) from the
15 perspective of a DCFC network operator, provider of Level 2 (“L2”) charging equipment,
16 and fleet applications given the development of the Tesla Semi and fleet applications for
17 light-duty EVs. I also recommend several modifications for consideration, which I
18 believe will make the rate more palatable for DCFC charging operators and other
19 commercial charging applications.

1 **Q. WHAT ARE YOUR RECOMMENDATIONS?**

2 A. I have four primary recommendations:

- 3 • First, the eligibility language for Schedule 45 should be modified to enable
- 4 participation by all public DCFC charging stations.
- 5 • Second, the applicability language for Schedule 45 and Schedule 29 should be
- 6 adjusted in terms of the 1 MW cap to incorporate Schedule 297’s description of
- 7 “one average megawatt.”¹
- 8 • Third, the time-of-use periods proposed for Schedule 29 should be aligned with
- 9 the current time-of-use periods of Schedule 45 rather than the time-of-use periods
- 10 of Schedule 48.
- 11 • Finally, Schedule 29 should include provisions to incrementally lift the participant
- 12 cap if the 100-meter cap is reached due to increased customer interest.

13 **Q. WHY ARE YOU MAKING THESE RECOMMENDATIONS?**

14 A. As previously noted, Tesla’s mission is to accelerate the world’s transition to sustainable

15 energy. A key part of that transition is to electrify the transportation sector. Access to

16 convenient and affordable charging infrastructure that provides a great customer

17 experience is a critical component necessary for that transition. The addition of Schedule

18 29 as a commercial time-of-use rate option with my recommended modifications and

19 providing equal access to existing Schedule 45 rate option for all commercial DCFC

¹ PacifiCorp Oregon Schedule 297 Tariff Sheets.

1 customers can help encourage additional charging investments in PacifiCorp's territory
2 while providing a fair playing field for all EV charging station developers, owners, and
3 operators. My recommendations are relatively minor but they do aim to ensure that
4 charging operators, charging site hosts, and fleet customers can quickly and confidently
5 scale EV infrastructure deployments.

6 **II. ABOUT TESLA'S DCFC SUPERCHARGER NETWORK**

7 **Q. CAN YOU PLEASE DESCRIBE TESLA'S SUPERCHARGER NETWORK?**

8 A. Tesla Superchargers are DCFC stations conveniently located near desirable amenities like
9 restaurants, shops and WiFi hot spots. Each station contains multiple Superchargers to get
10 customers back on the road quickly. Currently, the Supercharger network is primarily
11 composed of two types of customer facing hardware. The first are stations often referred
12 to as V2 Superchargers that currently operate up to 150 kW per charge stall.

13 The second are stations typically referred to as Urban Superchargers because of their
14 compact design with reduced clearance requirements. Urban Superchargers can deliver
15 up to approximately 75 kW per stall. For both of the aforementioned applications, two
16 charge stalls are connected to a single charging cabinet capable of 150 kW of direct
17 current output, and the two stalls share the power. For example, an 8 stall V2
18 Supercharger station has a maximum DC output of 600 kW (4 charging cabinets
19 multiplied by 150 kW per cabinet).

1 Tesla has started rolling out its V3 Supercharger product that supports up to 250 kW
2 charge rates per car and can power share across all of the stalls on the site rather than in
3 pairs like the V2 product. At 250 kW, a Model 3 can recover up to 75 miles of charge in
4 5 minutes, and charge at rates up to 1,000 miles per hour. We expect a customer's time
5 charging to be cut by 50 percent to about 15 minutes on a V3 Supercharger.

6 **Q. DOES TESLA OWN AND OPERATE THE SUPERCHARGERS?**

7 A. Yes, Tesla owns and operates the Supercharging equipment and is the customer of record
8 with the electric utility.

9 **Q. HOW MANY PUBLICLY ACCESSIBLE SUPERCHARGERS ARE**
10 **OPERATIONAL IN PACIFICORP'S TERRITORY?**

11 A. There are currently six Supercharger locations with a total of 48 Supercharger stalls in
12 PacifiCorp's territory.

13 **III. ELIGIBILITY FOR PACIFICORP'S SCHEDULE 45**

14 **Q. WHY DID PACIFICORP DESIGN SCHEDULE 45?**

15 A. According to PacifiCorp's initial utility filing in Docket No. ADV 485,² "Senate Bill
16 1547, passed in March of 2016 requires the Company [PacifiCorp] to file with the Public
17 Utility Commission of Oregon (Commission) application(s) to develop programs to

² Oregon Public Utilities Commission Docket No: ADV 485. PacifiCorp's Initial Utility Filing on December 27, 2016 at p.2.

1 accelerate transportation electrification.” PacifiCorp filed Schedule 45 in its initial utility
2 filing as a rate option for DC fast chargers in response to the legislative direction
3 provided by Senate Bill 1547.

4 **Q. ARE THE ELIGIBILITY REQUIREMENTS OF PACIFICORP’S SCHEDULE 45**
5 **CONGRUENT WITH THE DIRECTION PROVIDED BY OREGON SENATE**
6 **BILL 1547?**

7 A. No, currently the eligibility requirements for Schedule 45 are not congruent with the
8 goals put forth in Senate Bill 1547. In its original filing, PacifiCorp defined “broadly
9 available” as an eligibility requirement for Schedule 45 to mean “if it is available for use
10 by any driver and is capable of charging more than one make of automobile.”³ This
11 language currently excludes Tesla Supercharger sites from eligibility on Schedule 45.

12 Senate Bill 1547 is rather explicit in its desire to foster a dynamic, innovative and
13 competitive environment. There are two specific areas in the legislation that clearly
14 define this. Under the heading “Transportation Electrification Programs,” Section
15 20(2)(d)⁴ provides:

16 *Widespread transportation electrification should stimulate innovation and*
17 *competition, provide consumers with increased options in the use of charging equipment*

³ Ibid.

⁴ Oregon Legislative Assembly – 2016 Regular Session. Enrolled Senate Bill 1547 (SB 1547-B), p.13 (ORS 757.357).

1 *and in procuring services from suppliers of electricity, attract private capital investments*
2 *and create high quality jobs in this state;*

3 Further direction is provided directly to the Public Utility Commission when considering
4 programs proposed by electric utility companies. The legislation goes on to say “the
5 commission shall consider whether the investments and other expenditures:⁵

6 *Are reasonably expected to stimulate innovation, competition and customer*
7 *choice in electric vehicle charging and related infrastructure and services.*

8 In light of the language included in SB 1547 the eligibility requirements for Schedule 45
9 are inconsistent with the direction provided in SB 1547, which was the impetus for
10 Schedule 45 being proposed in the first place.

11 **Q. ARE THE ELIGIBILITY REQUIREMENTS OF PACIFICORP’S SCHEDULE 45**
12 **CLEARLY WRITTEN?**

13 No, currently the eligibility requirements for Schedule 45 are not well defined and
14 potentially discriminatory because in practice, the rate is not available to all EV drivers.

15 If the intent is to “stimulate innovation, competition and customer choice in electric
16 vehicle charging and related infrastructure and services,” any rate designed in response to
17 the direction provided in SB 1547 should be equally available to all EV charging
18 infrastructure deployed in PacifiCorp’s territory.

⁵ Ibid. Section 20(4)(f), p.13.

1 The eligibility language is infeasible to meet because there is no DCFC connector in
2 North America that is “for use by any driver” given there are three different connector
3 standards in the market – Combined Charging Standard (“CCS”), CHAdeMO, and Tesla.
4 Even a DCFC station with a CCS and CHAdeMO connector will not be available “for
5 use by any driver” because there are many Tesla drivers in Oregon who would not be
6 able to charge at these DC fast chargers. There is a CHAdeMO to Tesla adapter that
7 enables Tesla vehicles to charge on CHAdeMO connectors but it comes at a cost of \$450
8 to the EV driver and only a small percentage of customers have purchased these adapters.

9 The current interpretation of the eligibility requirements has enabled CCS and
10 CHAdeMO DC fast chargers to be enrolled on Schedule 45 despite not technically being
11 available “for use by any driver” while Tesla Superchargers have been excluded.

12 **Q. WHAT IS YOUR RECOMMENDATION FOR SCHEDULE 45’s ELIGIBILITY**
13 **LANGUAGE?**

14 A. I recommend modifying the language of Special Condition 4 from the Schedule 45 tariff
15 sheet and allowing Schedule 45 to be open to all separately metered DCFC accounts
16 regardless of the connector type utilized at the site. I have provided a proposed redline of
17 Schedule 45 in Exhibit TESLA 102 with recommended language for Special Condition 4
18 as “An electric vehicle charging site is considered to be broadly available to the general
19 public for the purposes of eligibility on this rate schedule if it is in a location accessible
20 by members of the public.”

Q. WHAT IS THE CURRENT PARTICIPATION LEVEL ON SCHEDULE 45?

A. As of May 7, 2020 there were 18 customers receiving service on Schedule 45.⁶ If Tesla Superchargers were made eligible for Schedule 45 it would bring the number of sites on Schedule 45 to 24 total sites which indicates that currently there is ample room on Schedule 45 for inclusion of Tesla without nearing the 200 meter participation limit.

IV. RECOMMENDED MODIFICATIONS TO SCHEDULE 29 AND SCHEDULE 45

A. DEMAND CAP MODIFICATION RECOMMENDATION

Q. WHAT IS THE CURRENT DEMAND CAP APPLICABILITY LANGUAGE FOR SCHEDULE 29 AND SCHEDULE 45?

A. Both Schedule 29 and Schedule 45 describe in their applicability language that these schedules are for electric service “whose loads have not registered 1,000 kW or more, more than once in the preceding 18-month period.”⁷

Q. HOW DID PACIFICORP ARRIVE AT THE “MORE THAN ONCE” THRESHOLD AND THE TIME PERIOD OF 18 MONTHS?

⁶ Ex. TESLA 103, PacifiCorp Response to ChargePoint Data Request 2 May 20, 2020. ⁷ PacifiCorp Oregon Schedule 29 and Schedule 45 Tariff Sheets.

1 A. It is unclear. As noted in PacifiCorp's discovery response to Tesla Data Request 04, the
2 language was set decades ago and the company "...does not have a record as to why
3 specifically 'more than once' or '18 months were chosen.'"⁸

4 **Q. DO YOU AGREE WITH PACIFICORP'S INTENTION TO DEFINE AN**
5 **APPLICABILITY RULE FOR THE LARGEST CLASS OF CUSTOMERS WITH**
6 **SERVICE AT OR OVER 1,000 KW ON A CONSISTENT BASIS?**

7 A. Yes.

8 **Q. DO YOU SUPPORT THE 1,000 KW DEMAND CAP APPLICABILITY**
9 **LANGUAGE FOR SCHEDULE 29 AND SCHEDULE 45 AS CURRENTLY**
10 **STATED?**

11 A. No, I do not support the applicability language as currently stated.

12 **Q. WHY DO YOU NOT AGREE WITH THE APPLICABILITY LANGUAGE AS**
13 **CURRENTLY STATED?**

14 A. I agree with the intention of having applicability language that captures the largest class
15 of customers with service at or over 1,000 kW on a consistent basis. Furthermore, I agree

⁸ PacifiCorp response to Tesla Data Request 04 May 29, 2020. "Specifically the condition requiring that the customer register more than 1,000 kW more than once in the preceding 18-month period is intended to capture the largest class of customers with service at or over 1,000 kW on a consistent basis in order to properly assign costs to this class of customer. A single exceedance of 1,000 kW in an 18 month period does not establish a consistent load over 1,000 kW. This language was established many decades ago and PacifiCorp does not have a record as to why specifically "more than once" or "18 months" were chosen."

1 with PacifiCorp's assertion in their data request response that "a single exceedance of
2 1,000 kW in an 18 month period does not establish a consistent load over 1,000 kW."⁹

3 The applicability language as currently written could inappropriately place customers
4 without a consistent load over 1,000 kW into this largest customer class which is not the
5 intention according to PacifiCorp.

6 **Q. DOES LANGUAGE CURRENTLY EXIST IN PACIFICORP'S TARIFF SHEETS**
7 **TO MORE ACCURATELY DESCRIBE A LOAD THAT IS OVER 1,000 KW ON**
8 **A CONSISTENT BASIS?**

9 A. Yes, the language included in Schedule 297 to define "one average megawatt"¹⁰ more
10 accurately describes a load that is over 1,000 kW on a consistent basis. Schedule 297
11 states:

12 *"A consumer shall be considered to have a load greater than one average*
13 *megawatt if during a twelve month review period the consumer has registered usage for*
14 *the period greater than or equal to 8,670 megawatt-hours."*

15 **Q. WHAT APPLICABILITY LANGUAGE MODIFICATION DO YOU**
16 **RECOMMEND FOR SCHEDULE 29 AND SCHEDULE 45 TO MORE**
17 **ACCURATELY REFLECT A LOAD THAT IS OVER 1,000 KW ON A**
18 **CONSISTENT BASIS?**

⁹ Ibid.

¹⁰ PacifiCorp Oregon Schedule 297 Tariff Sheets.

1 A. I have provided a proposed redline for Schedule 45 in Exhibit TESLA/101 with the
2 recommended modification to incorporate the definition of “one average megawatt” from
3 Schedule 297 into the applicability language for both Schedule 29 and Schedule 45 so
4 their applicability language reads:

5 . . . *electric service whose load is not greater than one average megawatt over the*
6 *preceding 12-month period. A consumer shall be considered to have a load greater than*
7 *one average megawatt if during a twelve month review period the consumer has*
8 *registered usage for the period greater than or equal to 8,760 megawatt-hours.*

9 I do not believe it is appropriate to move a customer who may hit a peak above “1,000
10 kW or more, more than once in the preceding 18-month period” to Schedule 48 when that
11 customer may have a load factor as low as 2% and would not represent a significant
12 contribution to the monthly system peak. In the context of Schedule 45 (and Schedule 29)
13 this could result in prematurely moving DCFC sites onto Schedule 48 and thereby
14 introducing rate uncertainty that could unnecessarily stymie investment in EV charging
15 infrastructure. The transition schedule certainty provided in Schedule 45 through May 15,
16 2026 is one of its attractive qualities as a rate option for DCFC investments and any
17 additional rate uncertainty would work against the SB 1547 goal of attracting private
18 capital investments. It is for this reason that I do not think the current applicability
19 language is appropriate for Schedule 29 or Schedule 45 and I am recommending the
20 modification to use the “one average megawatt” designation.

1 **Q. DO YOU HAVE DATA TO SUPPORT YOUR RECOMMENDED**
2 **MODIFICATION FROM A 1,000 KW CAP TO A ONE AVERAGE MEGAWATT**
3 **CAP?**

4 A. Yes, there is further support for this modification in the data put forth in the testimony of
5 PacifiCorp witness Robert Meredith and in the 2018 report from PacifiCorp on customers
6 currently enrolled on Schedule 45. In the testimony of PacifiCorp witness Robert
7 Meredith, he states that “when the load factor, a measurement of a customer’s energy
8 utilization relative to peak demand, is very low, it becomes less likely that the customer’s
9 peak demand will coincide with the same time that the Company’s system peaks.”¹¹

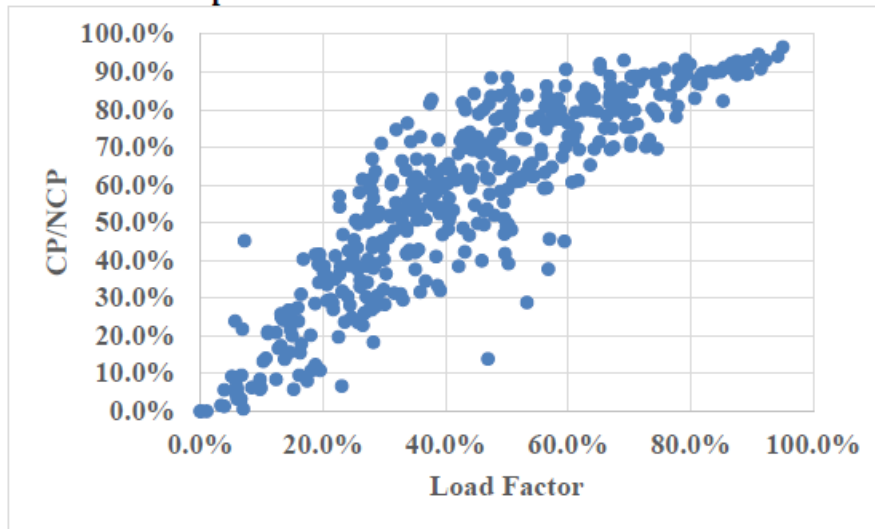
10 **Q. PLEASE COMPARE CUSTOMER LOAD FACTOR WITH LIKELIHOOD TO**
11 **COINCIDE WITH SYSTEM PEAKS.**

12 A. The testimony of Robert Meredith compared system peaks to individual customer load
13 factor.¹² As seen in Figure 2 of his testimony, the customer’s monthly peak is less likely
14 to be coincident with monthly system peaks at lower load factors.

¹¹ Direct Testimony of Robert M. Meredith, PAC/1400 at Meredith/57.

¹² Ibid. Figure 2 at Meredith/57.

Figure 2. Schedule 23, 28 and 30 Coincidence with Monthly System Peaks as Compared to Individual Customer Load Factor



1

2 **Q. HOW MANY KW WOULD A 1,000 KW CUSTOMER WITH A 2% LOAD**
3 **FACTOR BE EXPECTED TO CONTRIBUTE TO THE MONTHLY SYSTEM**
4 **PEAK?**

5 A. According to Figure 2 from PacifiCorp witness Robert Meredith's testimony it appears a
6 1,000 kW customer with a 2% load factor would be expected to contribute about 20 kW
7 to the system monthly peak. (PAC/1400).

8 **Q. WHAT IS THE AVERAGE LOAD FACTOR FOR CUSTOMERS ON**
9 **SCHEDULE 45?**

10 A. From PacifiCorp's Schedule 45 Annual Program Report filed October 19, 2018¹³ an
11 average load factor of 1.9% is reported across the 12 DC fast charging sites enrolled in

¹³ Oregon Public Utility Commission UE 328/Advice 16-020—Compliance Filing—Annual Program Report filed October 19, 2018.

1 the rate at that time. Combining this 1.9% load factor operational information with Figure
2 2 at Meredith/57 shown on the previous page, one can conclude that DCFC sites are not
3 expected to contribute their nameplate kW values to system peaks and therefore should
4 not be prematurely moved to Schedule 48 if they happen to peak above 1,000 kW one
5 time in 18 months.

6 **B. TIME-OF-USE PERIOD MODIFICATION RECOMMENDATION**

7 **Q. IS IT APPROPRIATE TO APPLY THE SAME TIME-OF-USE PERIODS FROM**
8 **SCHEDULE 48 TO SCHEDULE 29?**

9 A. No, I do not believe the 1 p.m. to 11 p.m. Summer On-Peak period¹⁴ is an appropriate or
10 actionable price signal. Additionally, the Non-Summer On-Peak period from 4 p.m. to 12
11 a.m. is similarly problematic.

12 Regarding the Summer On-Peak period, the middle of the day is increasingly a low-cost
13 period thanks to solar production and that is not reflected in these time-of-use periods.

14 The length of the on-peak window for both summer and winter is very long – 10 hours
15 and 8 hours respectively. A shorter on-peak period would not only send a stronger price
16 signal and make it easier for customers to shift their behavior, but also could better focus
17 on the times of highest stress for the grid.

18

¹⁴ PacifiCorp Oregon Schedule 29 Tariff Sheets.

1 **Q. IS THERE ANY BASIS TO SUPPORT A MODIFICATION OF THE SCHEDULE**
2 **29 TIME-OF-USE PERIODS?**

3 A. Yes, from the testimony of Robert Meredith:¹⁵

4 “... nighttime is not the only low cost period. The middle of the day is also a very
5 low cost period. The greater prevalence of solar on the western grid has increasingly
6 lowered wholesale power prices in the middle of the day. Modernizing the time periods
7 for large non-residential customers to prioritize a shorter on-peak window has many
8 benefits for the Company and its customers. With a shorter on-peak period, conservation
9 and load shifting can be more targeted to the most stressful times for the grid. Moving
10 load from the late afternoon to the middle of the day may also help to better align
11 consumption with renewable output.”

12 **Q. WHAT WOULD BE MORE APPROPRIATE TIME-OF-USE PERIODS TO USE**
13 **FOR SCHEDULE 29?**

14 A. To better align with the data provided in Robert Meredith’s testimony,¹⁶ I recommend
15 PacifiCorp use the same time-of-use periods from Schedule 45 for Schedule 29. Schedule
16 45’s On-Peak periods are 4 p.m. to 8 p.m. Monday through Friday in the Summer months
17 and 6 a.m. to 10 a.m. and 5 p.m. to 8 p.m. Monday through Friday in the Winter

¹⁵ Direct Testimony of Robert M. Meredith, PAC/1400 at Meredith/52 Line 22 to Meredith/53 Line 6.

¹⁶ Ibid.

months.¹⁷ These time-of-use periods are reasonable, actionable, and reflect the low cost period during the middle of the day.

C. PARTICIPATION LIMIT MODIFICATION RECOMMENDATION

Q. DO YOU SUPPORT THE CURRENT PARTICIPATION LIMIT FOR SCHEDULE 29?

A. No, with limited data on what types of customers could be attracted to Schedule 29, I am concerned a 100-meter participation limit could be overly restrictive. It would be helpful if there were a provision by which the participation cap for Schedule 29 could be incrementally increased if demand is higher than expected from customers. Reaching the 100-meter participation cap on Schedule 29 would indicate success by PacifiCorp in their innovative rate design efforts and I would not want to see customer's enthusiasm to switch onto the new rate prevented by an arbitrarily low participation cap.

IV. CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY RECOMMENDATIONS.

A. I recommend changing the eligibility language of Schedule 45 to better align with Senate Bill 1547 and several minor modifications to improve Schedule 29 and Schedule 45 based on the data that is currently available from PacifiCorp. The recommendations include:

¹⁷ Pacific Power Oregon Schedule 45 Tariff Sheets.

- 1 • First, the eligibility language for Schedule 45 should be modified to enable
2 participation by all public DCFC charging stations.
- 3 • Second, the applicability language for Schedule 45 and Schedule 29 should be
4 adjusted in terms of the 1 MW cap to incorporate Schedule 297's description of
5 "one average megawatt."¹⁸
- 6 • Third, the time-of-use periods proposed for Schedule 29 should be aligned with
7 the current time-of-use periods of Schedule 45 rather than the time-of-use periods
8 of Schedule 48.
- 9 • Finally, Schedule 29 should include provisions to incrementally lift the participant
10 cap if the 100-meter cap is reached due to increased customer interest.

11 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

12 **A. Yes it does.**

¹⁸ PacifiCorp Oregon Schedule 297 Tariff Sheets.

EXHIBIT 101 - STATEMENT OF QUALIFICATIONS FOR WILLIAM EHRLICH

William Ehrlich is Senior Policy Advisor for North America Charging Policy and Rates at Tesla. William provides expertise for Tesla's charging infrastructure policy, rate design, energy procurement and electric utility engagement efforts. He conducts quantitative analysis of electricity markets and utility rate designs for tariff optimization and to determine opportunities for electric vehicles, charging infrastructure and distributed energy resources. He serves as an expert witness in electric vehicle and rate design utility regulatory proceedings. Prior to Tesla, he was Technology Development Manager at EVgo and previously Senior Analyst at Strategen Consulting. William began his energy career ten years ago at a commercial solar company. He has contributed to reports and journal articles about energy topics including utility planning, energy storage, and renewable energy. William has a bachelor's degree in finance from the University of Notre Dame.

EXHIBIT 102 - SCHEDULE 45 RECOMMENDED MODIFICATION REDLINES



**PUBLIC DC FAST CHARGER OPTIONAL TRANSITIONAL RATE
DELIVERY SERVICE**

**OREGON
SCHEDULE 45**

Page 1

Available

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

Applicable

To Nonresidential Consumers taking service for electric vehicle charging stations separately metered from other electric service whose ~~loads have not registered 1,000 kW or more, more than once in the preceding 18-month period and who are not otherwise subject to service on Schedules 47 or 48.~~ Consumer charging sites must be broadly available to the general public and must include at least one direct current (DC) fast charger as defined in the special conditions below. Deliveries at more than one point, or more than one voltage and phase classification, will be separately metered and billed. Participation in this schedule and Schedule 745 will be limited to a combined 200 metered points of delivery on a first-come, first served basis.

Monthly Billing

Consumers taking service under this Schedule shall be billed under the provisions of Schedule 28 of this tariff and shall pay all applicable rates under Schedule 28 plus the following adjustments:

On-Peak Energy Charge, per on-peak kWh 10.738¢

Transition Discounts

The following percentage discounts will be applied beginning on the date shown and ending when the next discount period begins:

Recommended replacement applicability text:		On-Peak Energy Charge	Demand Charge
		Transition Discount	Transition Discount
<i>load is not greater than one average megawatt over the preceding 12-month period. A consumer shall be considered to have a load greater than one average megawatt if during a twelve month review period the consumer has registered usage for the period greater than or equal to 8,760 megawatt-hours.</i>	May 15, 2017	10%	90%
	May 15, 2018	20%	80%
	May 15, 2019	30%	70%
	May 15, 2020	40%	60%
	May 15, 2021	50%	50%
	May 15, 2022	60%	40%
	May 15, 2023	70%	30%
	May 15, 2024	80%	20%
	May 15, 2025	90%	10%
	May 15, 2026	100%	0%

The On-Peak Energy Charge Transition Discount will apply to the On-Peak Energy Charge specified above in this Schedule. The Demand Charge Transition Discount will apply to demand charges applicable to Schedule 28 including Transmission & Ancillary Services Charges, Distribution Demand Charges and Schedule 80 per kW charges. Discounts do not apply to Load Size Charges or any other Schedule 28 charges.

(continued)

P.U.C. OR No. 36

Issued April 20, 2017
R. Bryce Dalley, Vice President, Regulation

Original Sheet No. 45-1
Effective for service on and after June 1, 2017
Advice No. 16-020



**OREGON
SCHEDULE 45**

**PUBLIC DC FAST CHARGER OPTIONAL TRANSITIONAL RATE
DELIVERY SERVICE**

Page 2

On-Peak Period

The kWh shown by or computed from the readings of the Company's energy meter during on-peak hours. The on-peak period is

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.

Special Conditions

1. At the option of the Consumer, service may be provided under the otherwise applicable General Service Schedule.
2. The Consumer shall not resell electric service received from the Company under provisions of this Schedule to any person, except by permission of the Company or as otherwise expressly provided in Company tariffs. The sale of electricity for fuel to a motor vehicle is expressly allowed as described in Rule 2.E of this tariff.
3. A DC Fast Charger is defined for the purposes of eligibility on this rate schedule as a charging station with a Direct Current (DC) connection that has been designed to recharge the battery of an electric vehicle.
4. An electric vehicle charging site is considered to be broadly available to the general public for the purposes of eligibility on this rate schedule if it is ~~available for use by any driver and is capable of charging more than one make of automobile.~~ Eligibility and acceptance of a customer for service under this rate schedule is subject to review and approval by the Company.
5. Prior to receiving service under this rate schedule, the Consumer must disclose to the Company the number of chargers to be installed at the station, the type and capacity of each charger installed, and the maximum number of vehicles that can simultaneously use the station to recharge batteries.
6. The company reserves the right to terminate service under this schedule if it finds that excessive fees imposed by the charging station owner result in the charging station not being broadly available, per the requirements of this schedule.

*Recommended replacement text for Special Condition 4:
in a location accessible by members of the public.*

(continued)

P.U.C. OR No. 36

Issued April 20, 2017
R. Bryce Dalley, Vice President, Regulation

Original Sheet No. 45-2
Effective for service on and after June 1, 2017
Advice No. 16-020



**PUBLIC DC FAST CHARGER OPTIONAL TRANSITIONAL RATE
DELIVERY SERVICE**

**OREGON
SCHEDULE 45**

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Term of Schedule

This transitional rate schedule will be limited to a nine year period from the initial effective date.

Rules and Regulations

Service under this Schedule is subject to the General Rules and Regulations contained in the tariff of which this Schedule is a part and to those prescribed by regulatory authorities.

Tesla Data Request 04

Refer to Exhibit PAC/1401, Meredith/10, (proposed tariff sheet of Schedule 29) under the section titled “Applicable”:

- a. How did Pacific Power arrive at the determination of Schedule 29 ineligibility for a customer who registers “more than 1,000 kW *more than once in the preceding 18-month period*” – specifically how did Pacific Power arrive at the “more than once” threshold and the time period of 18 months?

Response to Tesla Data Request 04

The usage criteria placing customers on Schedule 48 for Large General Service 1,000 kW and Over has long been established in PacifiCorp’s tariffs. In accordance with the applicability of Schedule 48, all electric service loads which have registered 1,000 kilowatt (kW) or more, more than once in a preceding 18-month period are to be served under Schedule 48 (with the exception of Partial Requirement loads of 1,000 kW and over which are served under Schedule 47 with rates tied to Schedule 48). Customers who are required to take service under Schedule 48 cannot take service under any other tariff, including the Schedule 29 pilot.

Specifically the condition requiring that the customer register more than 1,000 kW more than once in the preceding 18-month period is intended to capture the largest class of customers with service at or over 1,000 kW on a consistent basis in order to properly assign costs to this class of customer. A single exceedance of 1,000 kW in an 18 month period does not establish a consistent load over 1,000 kW. This language was established many decades ago and PacifiCorp does not have a record as to why specifically “more than once” or “18 months” were chosen.