



BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON  
UM 1811

In the Matter of

PORTLAND GENERAL ELECTRIC  
COMPANY,

Application for Transportation Electrification  
Programs

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REPLY TESTIMONY  
OF  
FORTH

September 19, 2017

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## **I. Introduction and Summary**

1 **Q. Please state your names and positions with Forth.**

2 A. My name is Jeff Allen. I am the Executive Director for Forth.

3 My qualifications appear in Section IV of this testimony.

4 My name is Jeanette Shaw. I am the Director of Government Relations. My  
5 qualifications are included in Forth/100/1.

6 **Q. Is Witness Jeanette Shaw the same Jeanette Shaw who testified on behalf of Forth**  
7 **in Forth/100?**

8 A. Yes.

9 **Q. Does Witness Jeff Allen accept the written testimony of Jeanette Shaw**  
10 **as filed in Forth/100?**

11 A. Yes.

13 **Q. What is the purpose of your testimony?**

14 A. Forth's testimony responds to the August 25, 2017, ChargePoint and Electric Vehicle  
15 Charging Association ("EVCA") testimony opposing the stipulation filed in this docket.

16 And, addresses concerns that the pilot programs planned by PGE do not  
17 meet Section 20(2)(d) of SB 1547: "Widespread transportation electrification should stimulate  
18 innovation and competition, provide consumers with increased options in the use of charging  
19 equipment and in procuring services from suppliers of electricity, attract private capital  
20 investments and create high quality jobs in this state."

## **II. Stipulated Pilot Programs – Outreach and Education, Electric Avenue Network.**

1 **Q. Please provide how the recommended Electric Avenue Pilot agreed to by**

2 **by Stipulating Parties, meets Section 20(2)(d) of SB 1547.**

3 A. First and foremost, it is important to recognize that the language in SB 1547

4 Refers to stimulating innovation and competition through widespread transportation

5 electrification and increasing options for consumers. Other parties are attempting to narrow

6 this definition, to say that programs must stimulate innovation and competition among public

7 charging providers and to redefine “consumers” as site hosts. This is an incorrect

8 interpretation of the statute. SB 1547 did not say that programs must stimulate competition

9 among the site hosts to select charging vendors; it said programs should stimulate competition

10 and innovation across the entire ecosystem of transportation electrification. PGE’s pilot

11 programs – including Electric Avenue Pilot – clearly meet this criteria. They will help encourage

12 more competition and innovation among different electric vehicle types, vehicle use cases,

13 transit vehicles, and shared mobility for example.

14 **Q. Will PGE’s proposed Electric Avenue Pilot also stimulate innovation and competition in**

15 **the EV charging market, specifically?**

16 A. Yes. The best way to increase competition and innovation in the transportation electrification

17 market is to rapidly grow the size of the market. The primary purpose of SB 1547 plans, in fact is

18 supposed to be “to accelerate transportation electrification.” It has been asserted that utility



19 investment and this program design would have a chilling effect on private ownership. Forth  
20 believes the opposite is true – as more utility investment deploys more charging infrastructure,  
21 more drivers adopt electric vehicles, and more infrastructure is necessary creating more  
22 opportunities to sell and provide charging equipment and services. More vehicles on the road  
23 also creates greater utilization of charging infrastructure, which in turn improves the economics  
24 of infrastructure deployment, likely to attract more private investment. The EV charging  
25 business model will become more profitable, more competitive, and more innovative when more  
26 cars are using the charging network. However, initial investments in charging infrastructure are  
27 necessary to help drive the vehicle market's growth. This is often referred to as the  
28 “chicken and the egg” problem or more recently the “hot dog and bun” problem.  
29 Forth previously submitted a letter signed by eight of our charging company members expressing  
30 their strong support for PGE's proposed programs, including the Electric Avenue Pilot, for  
31 these very reasons. The fact that eight competitors to ChargePoint – and each other – believe  
32 this program will stimulate competition is, itself compelling evidence that this is true. In addition,  
33 Forth received a joint auto manufacturer letter (Exhibit 201), an Electrify America letter  
34 (Exhibit 202), a letter from Ford (Exhibit 203), and Vulcan (Exhibit 204) highlighting and  
35 supporting PGE's proposal and the settlement agreement submitted by PGE and Stipulating  
36 Parties on June 27<sup>th</sup> and addressing specific objections to the Commission during the  
37 August 25 round of testimony with regards to the Electric Avenue Pilot.

### III. Qualifications

1   **Q. Mr. Allen, please state your educational background and experience.**

2   A. I received a Bachelor of Arts with High Honors from the University of Michigan  
3       and a Master of Public Policy from UC Berkeley. I have worked in the energy and  
4       environmental field for over 25 years, including ten years as Executive Director of the  
5       Oregon Environmental Council, and I currently serve on the board of Directors of PECL.  
6       I have served as Executive Director of Forth (which was originally known as Drive Oregon)  
7       since 2011. Forth is a non-profit trade association working to accelerate the growth of the  
8       electric and “smart” mobility industry and provide great adoption of these technologies.  
9       Forth is a non-profit trade association working to accelerate the growth of the electric and  
10      “smart” mobility industry and promote greater adoption of these technologies. Forth as over  
11      120 members representing automakers, EVSE suppliers, industry partners, utilities, local  
12      governments, nonprofits and many other stakeholders within the transportation electrification  
13      “ecosystem.” (A complete membership list is included as Forth Exhibit 205). Forth is  
14      recognized as a global leader on electric mobility issues; has designed and implemented  
15      several leading demonstration and pilot projects; has been the nation’s leading recruiter of  
16      workplace charging partners through the USDOE Workplace Charging Challenge for three  
17      years running; and organizes the nation’s leading annual conference on the subject, the EV  
18      Roadmap Conference.

#### IV. Exhibits

Forth 201	Joint Auto Manufacturer Letter
Forth 202	Electrify America Letter
Forth 203	Ford Letter
Forth 204	Vulcan Letter
Forth 205	List of Forth Members



September 19, 2017

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

**Re: Automaker Support for UM 1811 Portland General Electric (PGE) Transportation Electrification Efforts**

Commissioners and Staff:

American Honda Motor Company, Audi of America LLC, BMW Group, General Motors LLC, Mitsubishi Motors R&D of America, Nissan North America, and Volkswagen Group of America support the Stipulation filed June 27, 2017 under UM1811, including but not limited to the proposed Electric Avenue DC fast charging pilot. Automakers have invested billions of dollars in electric vehicle (EV) technologies and have a strong interest in policies and programs that can help Oregon meet its transportation electrification goals. EVs ultimately have the potential to provide broad benefits for the grid and for all ratepayers, but this will require both greater EV adoption and direct utility engagement. Significant additional investment is currently needed to create an accessible, dependable charging infrastructure network that can support both retail and commercial electric vehicle applications. The programs and pilots outlined in the Stipulation would help address these needs, and for the reasons outlined below, we encourage the Commission to approve the Stipulation.

**The “Electric Avenue” fast charging pilot aligns with EV driver needs.** DC fast charging hubs such as those that PGE is proposing are a top priority for automakers and align closely with our understanding of customer perceptions and real needs for EV infrastructure. DC fast charging is a critical enabler for EV sales.

- DC fast charging hubs can serve many different types of drivers, including potential customers who may not have access to home charging (e.g. those living in apartments), or rideshare drivers who need reliable access to fast charge hubs with multiple ports.
- We’ve seen no evidence that drivers would find fault with the Electric Avenue hubs on the basis of EVSE manufacturer or network. Rather, it is the availability, reliability, cost, and convenience of these stations that is of critical importance to consumers.
- The Commission need not be concerned that the 50kW Electric Avenue stations will be rendered obsolete by future chargers and vehicles capable of 150kW+ charge rates. While costlier 150kW+ charging may be dominant on long-distance highway corridors, 50kW charging may very well be the optimal solution for urban locations long into the future as customers weigh cost/time tradeoffs. Moreover, PGE is planning for the potential to upgrade as needed in the future.

**The Electric Avenue pilot program will provide valuable information for all stakeholders.** As industry leaders, policymakers, and other stakeholders consider how best to achieve policy goals, there is a clear need for additional information on many aspects of EV infrastructure and vehicle-grid integration. An important highlight of the PGE pilot is that it is structured to provide the key data and lessons learned for all stakeholders. For example, the pilot will allow for the testing of customer responses to time-variant pricing. This is valuable industry knowledge and is needed to inform future vehicle electrification efforts in Oregon.

**It is too early to determine the best model for utility engagement in transportation electrification.** There is broad agreement among stakeholders that additional charging infrastructure is needed and that the utility has an important role to play in building out this infrastructure. There is only disagreement – particularly within the EV charging industry – as to whether or not utilities should actually own EV charging infrastructure. At this early stage in the market, we believe



utility ownership is one of many valid models to explore as a potential solution for the shortage of EV charging stations. We note that the Oregon legislature declined to bar utility ownership of charging infrastructure in SB 1547, reflecting a recognition that it is too early to be prescriptive regarding the role of the utility in pilot programs. We remain supportive of a broad array of infrastructure models and agree with the Stipulating parties that PGE's investments will support, rather than harm, Oregon's transportation electrification goals.

In conclusion, the below-signed automakers believe that the Stipulation represents a well-balanced portfolio of investments that will provide benefits for the grid and for ratepayers. The proposed Electric Avenue DC fast charging pilot is well-designed to advance transportation electrification and lay the groundwork for future efforts. The outreach and education program outlined in the Stipulation should directly address key market barriers and complement existing efforts. Looking ahead, we are encouraged that PGE has agreed to propose future programs focusing on other market needs such as residential and workplace charging.

Sincerely,

Ryan Harty  
Manager, Environmental Business Development Office  
**American Honda Motor Co., Inc.**

Tom Baloga  
Senior Director, Government Affairs  
**Audi of America, LLC**

Richard Steinberg  
Head of Electromobility  
**BMW Group**

Britta Gross  
Director, Advanced Vehicle Commercialization Policy  
**General Motors LLC**

Manabu Kuroda  
President  
**Mitsubishi Motors R&D of America**

Brian Maragno  
Director, EV Marketing & Sales  
**Nissan North America**

Nicole Barranco  
Director State Government Relations  
**Volkswagen Group of America**



September 19<sup>th</sup>, 2017

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

**Re: Electrify America Support for UM 1811 Portland General Electric (PGE) Application  
for Transportation Electrification Programs**

Commissioners and Staff:

Electrify America supports the proposed Electric Avenue DC fast charging pilot included in the Stipulation filed June 27, 2017 under UM 1811. Electrify America, a new LLC within the Volkswagen Group, is investing \$2 billion over the next 10 years in Zero Emission Vehicle (ZEV) infrastructure and awareness, representing the largest commitment of its kind to date. We are building a nationwide network of workplace, community, and highway chargers that are convenient and reliable. Our investment will enable millions of Americans to discover the benefits of electric driving. Our first cycle of expenditures through June 2019 includes significant investment in Portland and elsewhere in Oregon. The DC fast charging pilot outlined in the Stipulation would complement our investment in Oregon.

Portland's Electric Avenue DC charging bank is a model for other U.S. metro areas to follow in developing fast charging that is available, easy to use, and very visible to the local residents and visitors to the Portland downtown area. In fact, we have encouraged stakeholders in other metro areas to follow Portland's Electric Avenue example, especially in combination with the new Forth EV showroom adjacent to the chargers.

Electrify America analysis has demonstrated that the growing number of electric vehicles in Portland will require investment from many parties to meet the coming charging demand. New electric vehicles with larger batteries and longer ranges will require faster and more prevalent charging infrastructure. We have concluded that meeting the demand for charging will likely require investment from a variety of sources.

In conclusion, the expansion of the Electric Avenue pilot represents an important opportunity to increase the availability and awareness of DC fast charging in Portland's growing market for electric vehicles. We encourage the Commission to support the pilot.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark C. McNabb'.

Mark C. McNabb  
President & CEO  
Electrify America, LLC





September 18, 2017

Jeff Allen, Executive Director  
Forth  
1732 NW Quimby Street, Suite 240  
Portland, OR 97209

RE: Public EV Charging Facilities

Dear Mr. Allen

Ford Motor Company believes in the future of Electrified transportation. Since the introduction of the Escape Hybrid in 2004 there has been steady progression in both public awareness and adoption of EV technology, and in the technology itself. The full lineup of Ford Electrified vehicles now includes Hybrids, Energi Plug-In Hybrids, and our Focus Electric EV.

At Ford, we believe the future of transportation electrification is promising, and we must be prepared for customer growth. Unfortunately, the outlook for public charging facilities to serve the needs of EV customers is less promising: Currently available public charging is insufficient to adequately serve the needs of existing EV drivers, and the situation will deteriorate if EV adoption rates outstrip charger installation rates.

We believe that both private and public participation is needed to fully address this issue. Public and private concerns bring unique skillsets and focus, and participation by both is necessary to address all of the distinct, varied needs of the charging market.

Forth/Drive Oregon has exhibited great leadership in fostering the installation of innovative urban charging solutions, and we are glad to see that plans are being made to further expand their availability.

If you have any questions, please feel free to contact me at [shenders@ford.com](mailto:shenders@ford.com) or 313.322.4475.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Henderson".

Steve Henderson  
Manager, Vehicle Electrification Infrastructure, Programs and Policy  
Ford Motor Company





September 18, 2017

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

Re: UM 1811 Portland General Electric (PGE) Transportation Electrification Program Application

Dear Commissioners:

Vulcan Inc. is a private company based in Seattle, Washington working to solve some of the biggest global issues. The projects and investments we pursue are inspired by the ideas of our founder Paul G. Allen and tethered to a simple principle; we use data to inform our efforts and seek out opportunities that can make a positive impact and share what we learn.

One of our key philanthropic focal areas in the climate and energy portfolio is transportation, where we seek to accelerate the adoption of electric vehicles and low-carbon energy sources to significantly reduce greenhouse gas emissions. With this objective in mind, we created the Smart City Challenge, where we committed to grant up to \$10 million to a mid-sized U.S. city to catalyze an aggressive transition to a clean electrified transportation system.

Vulcan, Inc. supports PGE's proposal and the settlement agreement submitted by PGE and Stipulating Parties on June 27<sup>th</sup>. We recommend that the Commission approve all program elements in the settlement (TriMet Pilot, Education and Outreach, Six Electric Avenue Charging Stations).

Community awareness and availability of charging infrastructure are well documented barriers to electric vehicle adoption and are not expected to be adequately addressed in the near future without an active role from electric utilities. Research indicates the nascent markets for both electric vehicles and charging infrastructure are still highly dependent on publicly funded incentives and subsidies. In particular, geographic gaps in charging infrastructure are likely to persist in low-income neighborhoods where currently utilization might be low; it is in these locations where regulated utilities can help deliver the backbone infrastructure necessary for a reliable and equitable charging network that serves all future users in a city and metro region.

Considering SB1547 requires utilities to submit plans "...for programs to accelerate transportation electrification," PGE's \$8 million proposal is, in our opinion, just a first small positive step forward. Much more will be needed in the coming months.

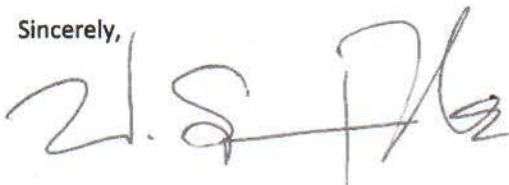
To: Public Utility Commission of Oregon  
Re: UM 1811 PGE Transportation Electrification Program  
Date: September 18, 2017  
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In particular, we would like to address specific objections submitted to the Commission during the August 25 round of testimony with regards to the Electric Avenue Pilot:

1. In our view, *six* charging stations would not "dampen innovation, competition, and customer choice" in the charging infrastructure market. Furthermore, it is inconceivable that this small pilot would have any negative impact on EV sales or private capital investments. For context, the Smart Columbus program has the objective of installing 1,685 charging stations (25 of them DC Fast Charge) by 2019 to serve approximately 2% of the overall vehicle fleet (about 4,000 vehicles). In other words, many more charging stations will be needed in the Portland metropolitan region if Oregon is to reach its objective of accelerating transportation electrification. As charging infrastructure increases, from both public and private investment, overall EV penetration will be increase thus increasing utilization rates of *all* stations, *encouraging* private capital investments. While a balance between the roles of utilities and other EV infrastructure providers needs to be struck, seeding the market with a few strategically placed stations, as PGE has proposed, can only help the overall EV ecosystem in our view.
2. Concern was expressed that these six charging stations will remain in place for many years to come. Whether or not these stations are eventually upgraded seems to us immaterial to the purpose of this proposal. For EV drivers that demand "the latest and most innovative technology" in charging infrastructure, the private sector will continue to have an opportunity to fill this need profitably.
3. PGE, an investor owned utility with over 800 thousand customers, is well suited to serve the needs of the broad range of EV drivers throughout the full geographic scope of their service territory.

If there is anything else we can do to assist in your deliberations, please do not hesitate to reach out. We would be happy to discuss any of the issues mentioned above.

Sincerely,

A handwritten signature in dark ink, appearing to read 'S. Reeder', with a stylized flourish at the end.

Spencer Reeder  
Director, Climate & Energy  
Paul G. Allen Philanthropies  
Vulcan, Inc.





## Forth Members

A&R Solar	EMI Consulting
ABB	Energy Systems Group, Oregon State
Alliance of Automobile Manufacturers	University College of Engineering
American Honda Motor Co.	Enhabit
Amtek Research International	Environment Oregon
Apparent Energy	Eugene Water and Electric Board
Arcimoto, Inc.	EV 4 Oregon
Atomic Auto	EV Connect
BMW Group	EV Safe Charge
Brammo Inc.	EV Supercars
Brazell & Company	EV Support, a Division of Puget Sound Solar
Burns & McDonnell	EVgo
BYD Motors	EVSE LLC
CALSTART	Fiat Chrysler Automobiles
CarCharging Group	FIER Automotive
Cascade Systems Technology	FleetCarma
Case Forensics Corporation	Ford Motor Company
Center for Sustainable Energy	Gabel Associates
ChargeHub by Mogile Technologies Inc.	General Motors
ChargePoint	Greenlots
City of Ashland	Hawthorne Auto Clinic
City of Hillsboro	IBEW 48
City of Portland	Jaguar Land Rover
Clean Power Research	KersTech
CleanFuture	Lane Regional Air Protection Agency
CleanTech Alliance	Linn-Benton Community College
CLEAResult	Mahindra GenZe
Climate Solutions	Mast Collaborative
Columbia River People's Utility District	McCoy Russell LLP
Commuter Cars	Mentor Graphics
Cynergy E-Bikes	Mercedes-Benz
D+R International	Natural Resources Defense Council (NRDC)
Efacec	Nissan North America
Electric Vehicle Options	Northwest Energy Efficiency Alliance (NEEA)
Electrification Coalition	Northwest Environmental Business Council
eluminocity US	(NEBC)
Emerald People's Utility District	NW Energy Coalition



OnTo Technology  
OpConnect  
Oregon Automobile Dealers Association  
Oregon Department of Administrative  
Services  
Oregon Department of Environmental  
Quality  
Oregon Electric Vehicle Association (OEVA)  
Oregon Entrepreneurs Network  
Oregon Environmental Council  
Oregon SAE  
Oregon Solar Energy Industries Association  
(OSEIA)  
Ornelas Enterprises  
P3 North America  
Pacific Power  
Paired Power  
Plug In America  
PlugShare  
Portland Development Commission  
Portland General Electric  
Premium-US  
Puget Sound Energy  
Railplane  
ReachNow  
Research Into Action  
Rinehart Motion Systems  
Seattle City Light  
Second Gear  
SemaConnect  
Shorepower Technologies  
Sierra Club - Oregon Chapter  
Smart Grid Northwest  
Social Enterprises Inc.  
Solar Oregon  
Tacoma Power  
Tech-I-M  
Telefonix  
Thorn Run Partners  
Toyota Motor North America  
TriMet  
Uber  
Volkswagen Group of America  
Westside Transportation Alliance

Workhorse Technologies