BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON
UM 1811

In the Matter of	)
	)
PORTLAND GENERAL ELECTRIC COMPANY,	)
	)
Application for Transportation Electrification Programs	)

REPLY TESTIMONY
OF
FORTH
September 19, 2017

I. Introduction and Summary

Q. Please state your names and positions with Forth.

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

My qualifications appear in Section IV of this testimony.

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

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

A. Yes.

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

A. Yes.

Q. What is the purpose of your testimony?

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

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

III. Stipulated Pilot Programs – Outreach and Education, Electric Avenue Network.

Q. Please provide how the recommended Electric Avenue Pilot agreed to by by Stipulating Parties, meets Section 2(2)(d) of SB 1547.

A. First and foremost, it is important to recognize that the language in SB 1547 Refers to stimulating innovation and competition through widespread transportation electrification and increasing options for consumers. Other parties are attempting to narrow this definition, to say that programs must stimulate innovation and competition among public charging providers and to redefine "consumers" as site hosts. This is an incorrect interpretation of the statute. SB 1547 did not say that programs must stimulate competition among the site hosts to select charging vendors, it said programs should stimulate competition and innovation across the entire ecosystem of transportation electrification. PGE's pilot programs – including Electric Avenue Pilot – directly meet the criteria. They will help encourage more competition and innovation among different electric vehicle types, vehicle use cases, transit vehicles, and shared mobility for example.

Q. Will PGE's proposed Electric Avenue Pilot also stimulate innovation and competition in the EV charging market, specifically?

A. Yes. The best way to increase competition and innovation in the transportation electrification market is to rapidly grow the size of the market. The primary purpose of SB 1547 plans, in fact is supposed to be "to accelerate transportation electrification." It has been asserted that utility

investment and this program design would have a chilling effect on private ownership. Fourth believes the opposite is true – as more utility investment deploys more charging infrastructure, more drivers adopt electric vehicles, and more infrastructure is necessarily creating more opportunities to sell and provide charging equipment and services. More vehicles on the road also creates greater utilization of charging infrastructure, which in turn improves the economics of infrastructure deployment, likely to attract more private investment. The EV charging business model will become more profitable, more competitive, and more innovative when more users are using the charging network. However, initial investments in charging infrastructure are necessary to help drive the vehicle market's growth. This is often referred to as the "chicken and the egg" problem or more recently the "hot dog and bun" problem.

Fourth previously submitted a letter signed by eight of our charging company members expressing their strong support for PG&E's proposed programs, including the Electric Avenue Pilot, for these very reasons. The fact that eight competitors to ChargePoint – and each other – believe this program will stimulate competition is itself compelling evidence that this is true. There is also collaboration (Exhibit 202-205) amongst Webasto and manufacturers, and Electrify America

II. Qualifications

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

A. I received a Bachelor of Arts with High Honors from the University of Michigan and a Master of Public Policy from UC Berkeley. I have worked in the energy and environmental field for over 25 years, including ten years as Executive Director of the Oregon Environmental Council, and I currently serve on the board of Directors of ELCI.

I have served as Executive Director of Forth ((which was originally known as Drive Oregon)) since 2011. Forth is a non-profit trade association working to accelerate the growth of the electric and "smart" mobility industry and provide great adoption of these technologies.

Forth is a non-profit trade association working to accelerate the growth of the electric and "smart" mobility industry and promote greater adoption of these technologies. Forth has over 120 members representing automakers, EVSE suppliers, industry partners, utilities, local governments, nonprofits and many other stakeholders within the transportation electrification "ecosystem." ((A complete membership is included as Forth Exhibit 201)). Forth is recognized as a global leader on electric mobility issues, has designed and implemented several leading demonstration and pilot projects, has been the nation's leading convener of workplace charging partners through the EVITP Workplace Charging Challenge for three years running, and organizes the nation's leading annual conference on the subject, the EV Roadmap Conference.

List of Exhibits –

Forth 201	List of Forth Members
Forth 202	Vulcan Letter
Forth 203	Ford Letter
Forth 204	Joint Automaker Industry Letter
Forth 205	Electrify America Letter

Exhibit 201

FORTH

Empowering Mobility

Forth Members

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

Natural Resources Defense Council (NRDC)
Nissan North America
Northwest Energy Efficiency Alliance (NEEA)
Northwest Environmental Business Council (NEBC)
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

Exhibit 202

September 18, 2017

Public Utility Commission of Oregon
201High 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 27th. 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.

505 Fifth Ave S Suite 900
Seattle, WA 98104

206 342 2000 Tel
206 342 3000 Fax

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,

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

Exhibit 2003

September 18, 2017

Jeff Allen, Executive Director
Forth
1782 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, Energy 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 changing 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 sbenders@ford.com or 313.322.4775.

Sincerely,

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

Exhibit 204

September 19, 2017

Public Utility Commission of Oregon
201 High Street SE, Suite 1000
Salem, OR 97301

Re: Automaker Support for UW UE/PGE 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 UW 183, 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 ride-share 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 changes 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 ban 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 Fallon
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

Wanatsu 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

electrify america

September 19th, 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 areas. 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,

Mark C. McNabb
President & CEO
Electrify America, LLC