April 24, 2017

Via Electronic Submission

Oregon Public Utility Commission
Attention: Filing Center
PO Box 1088
Salem, OR 97308-1088

RE: Docket UM 1811 – In the Matter of Portland General Electric Company, Application for Transportation Electrification Programs

Enclosed for electronic filing is the following:

Exhibit 100-Ashley

/s/ *Thomas Ashley*
Thomas Ashley
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UM 1811
Witness Ashley

Before the Public Utility Commission of Oregon

Greenlots

Exhibit 100

Reply Testimony

Q. Please state your name, occupation, and business address.

A. My name is Thomas Ashley. I am the Senior Director, Government Affairs & Public Policy for Greenlots. My business address is 925 N. La Brea Avenue 6th Floor, Los Angeles, CA 90038.

Q. What is the purpose of your testimony?

A. The purpose of this testimony is to provide Greenlots' perspective on the value to accelerating the market of Portland General Electric's Application for Transportation Electrification Programs filed December 27, 2016 and revised March 15, 2017.

Q. Why is accelerating the market, even with a limited pilot, so critical?

Central to the Commission's consideration of PGE's application is the objective to accelerate the market for transportation electrification. This objective underlies PGE's application and program design, and is emerging as the central theme in the development and evaluation of utility filings in this and other jurisdictions.

Recognizing that the business model for ownership and operation of charging stations with the intent of developing a sustainable revenue model around charging for charging has resulted in limited private investment, it is reasonable to conclude that thus far, this has resulted in market failure. A primary element in this equation is the level of utilization of charging infrastructure—a data point inherently affected by the level of adoption of electric vehicles. Lower utilization equals a more

challenging business case, higher utilization equals a more attractive business case. A useful analogy, at least as it regards DC fast charging, is one of load factor. System efficiency (or in this case, business case viability) is only achieved at a load factor of X%. In this case, while the load factor most critical to the charging station owner's end calculus is the utilization of the charge station, the pool of vehicles in a given geography that could use the charge station is the baseline.

Although often seen as a chicken v. egg situation, emerging industry experience recognizes the need for a volume of infrastructure to be available in advance of the purchase decisions of many drivers. As greater infrastructure in advance of utilization decreases load factor—at least in the near term—at each charging station, private investment to this end has been limited. This cycle of inadequate investment in infrastructure to accelerate adoption, leading to inadequate adoption of electric vehicles to attract investment in infrastructure, must be broken. Although just a limited scale pilot, PGE has identified a strategy of breaking this cycle in metro Portland by proposing to install, own, and operate a modest backbone of visible, available, and reliable charging infrastructure to accelerate electric vehicle adoption, and thereby move the market forward. In so doing, PGE will signal (visibly) to prospective drivers that there is adequate (even if there isn't in reality) visible charging infrastructure to positively inform their purchase/lease decisions.

Accelerating adoption and breaking the infrastructure/adoption cycle referenced above will help lead to greater opportunity for all market participants: from prospective private owner/operators to service providers, installers, O&M providers, etc. Intrinsically, greater market opportunity will lead to increased competition for owning and operating charging infrastructure, as well as between software providers, hardware manufacturers, installers, etc.

Also essential to accelerating the market is repairing the perception of inadequate reliability—locally stemming largely from the demise of Ecotality and the proprietary communications of the Blink units and lack of uniformity of maintenance agreements. In its application, PGE has taken steps to address this by ensuring interoperable communications between software and hardware via the Open Charge Point Protocol (OCPP), and installing multiple DC fast chargers. This strategy will ensure that hardware assets will never be stranded due to software challenges, and drivers will never be stranded due to one or even multiple chargers in a given location requiring service. Additionally, as an extension of its distribution system, PGE will strive to ensure reliability at a similar level to all other utility owned grid assets.