**March 31, 2017**

**Mr. Steven V. King**
**Executive Director and Secretary**
**Washington Utilities and Transportation Commission**
**1300 South Evergreen Park Drive**
**Olympia, WA 98504-7250**

**Re: Comments of Climate Solutions on Docket UE-160799, Draft Policy and Interpretive Statement Describing Commission Policy Related to Utility Investment in Electric Vehicle Supply Equipment pursuant to RCW 80.28.360 and Commission Regulation of Electric Vehicle Charging Services**

Dear Mr. Steven King,

Climate Solutions appreciates the opportunity to provide comments on UE-160799, Draft Policy and Interpretive Statement Describing Commission Policy Related to Utility Investment in Electric Vehicle Supply Equipment pursuant to RCW 80.28.360 and Commission Regulation of Electric Vehicle Charging Services. Climate Solutions is a clean energy nonprofit organization working to accelerate practical and profitable solutions to global warming by galvanizing leadership, growing investment, and bridging divides. The Northwest has emerged as a center of climate action, and Climate Solutions is at the center of the movement as a catalyst, advocate, and campaign hub. For almost 20 years, we have cultivated political leadership in the Northwest under the proposition that clean energy and broadly-shared economic prosperity go hand-in-hand, building a powerful constituency for local, regional, and national action on climate and clean energy.

The transportation sector is responsible for the largest share of Washington's greenhouse gas emissions and other toxic pollutants, making electrification a critical component of addressing climate change and air quality in Washington. Utilities are uniquely positioned to catalyze electric vehicle deployment through strategic investments in electric vehicle supply equipment and other services that facilitate widespread transportation electrification.

We greatly appreciate the efforts of the Commission to provide guidance to utilities on their role in reducing barriers to electrifying the transportation system. We support the Commission's vision for utility involvement and appreciate the thought and hard work that went into this policy

statement. In these comments, we first respond generally to the draft policy statement, followed by responses to questions posed by the Commission in the Notice of Rulemaking and Opportunity to File Written Comments filed on January 13, 2017.

## I. General Comments

Climate Solutions supports the direction of the Commission and an acknowledgement that utilities will play a vital role in catalyzing the deployment of electric vehicles. The transportation sector is responsible for nearly half of the greenhouse gas emissions in the state, posing significant economic and health threats to the residents and communities in Washington.[1] In order to meet the greenhouse gas limits in statute,[2] Washington must take strong actions to adequately reduce emissions from the transportation sector. The legislature and the executive branch have both demonstrated commitment to reducing greenhouse gases and other co-pollutants in the transportation sector through a variety of mechanisms identified in the policy statement, such as the state goal of deploying 50,000 electric vehicles, the development of the Clean Air Rule, tax exemptions for electric vehicles, incentives for alternative fuels for medium- and heavy-duty vehicles, and other policies that support electrification of the transportation sector. In addition, local jurisdictions like the City of Seattle, King County, and the City of Spokane are also taking actions to increase the deployment of electric vehicles, buses, and other fleets.

There are currently three major barriers to large-scale deployment of passenger EVs: higher upfront capital costs of electric vehicles (EVs), the lack of comprehensive charging infrastructure, and low consumer awareness and understanding.[3] While utilities have limited control over the capital costs of EVs, they are well positioned to address the second two issues around lack of charging infrastructure and low consumer awareness. Barriers around range anxiety and access to charging infrastructure are equally as important as the incremental upfront cost.[4] Less than half of Americans have access to a dedicated off-street parking space in which they can install a charging station. Because of this, over 80% of passenger EV owners live in a single-family home where they are more likely to have access to a garage for charging their vehicle.[5] With EVs at only 1% adoption,[6] substantial investments in workplace charging, public charging stations, and other long-dwell locations will be critical for reaching mass adoption. Through planning, direct investments in infrastructure, innovative rate designs, and public education, utilities can facilitate greater adoption of electric vehicles in a way that benefits all

[1] Department of Ecology. Washington Mandatory Greenhouse Gas Reporting Program - Reported Emissions for 2012-2014.
[2] RCW 80.80.020
[3] NRDC, Driving Out Pollution: How Utilities Can Accelerate the Market for Electric Vehicles, June 2016.
[4] Sierzchula, W. et al., The Influence of Financial Incentives and Other Socio-Economic Factors on Electric Vehicle Adoption, *Energy Policy*.
[5] Center for Sustainable Energy, California Plug-in electric Vehicle Owner Survey.
[6] International Energy Agency, Beyond EV Outlook 2016.

utility customers, reduces carbon emissions from the transportation and electric sector, and enhances air quality and public health in Washington. This policy provides balanced guidance for utilities in Washington to begin to address some of the barriers to transportation electrification and save ratepayer dollars while doing so.

***Emphasis on grid benefits***

Personal vehicles, including EVs, are idle for 96% of the time, creating a considerable opportunity to use EVs as a way to more efficiently manage the grid. Surplus generating capacity is often available during off-peak hours, so strategic deployment of electric vehicle supply equipment ("EVSE") provides an opportunity for demand response, peak load-shifting, renewable integration, and mobile storage capabilities that can save avoid investments in new generating resources, thereby saving all customers money. We applaud the Commission for recognizing these grid benefits of EVSE and guiding utilities to use the infrastructure as a grid management tool. This analysis should not be limited merely to the technology in various types of meters−whether or not a meter is able to respond to variable rates or direct control from the utility−but also to the location impacts of such infrastructure. For example, abundant workplace charging, regardless of technological sophistication of the equipment, is likely to eliminate the need for vehicles to charge when they return home. Because less sophisticated chargers are also cheaper, this could be a cost-effective way to reduce the impact of EV deployment on peak demand, thereby capturing wide grid benefits for the lowest possible cost.

However, we believe the benefits of EVSE and increased electric vehicles adoption should be more broadly defined for prudence determinations. In the passage of HB 1853, the legislature provided clear direction to utilities to play a more significant role to accelerate the electrification of transportation to reduce greenhouse gas emissions and other air pollutants.[7] Furthermore, the legislature permitted utility investments to earn an incentive rate of return on certain EVSE investments, so long as the capital expenditures do not increase rates by more than 0.25%.[8] Given the legislature's emphasis on reducing climate pollution, enhancing air quality, and allowing the capital cost of the infrastructure to exceed the monetary benefits, it is clear that societal benefits were an underlying goal of the policy. Utilities should be permitted to consider the full range of economic and social benefits when evaluating the cost-effectiveness of EVSE investment. At a minimum, we believe utilities should consider the benefits of reduced greenhouse gas emissions in the transportation and electric sectors, as well as health benefits from reduced toxic air emissions, such as NOx and particulate matter. While we acknowledge the complicated nature of putting a value on social costs, we recommend that the Commission

[7] Substitute House Bill 1853, Chapter 220, Laws of 2015.
[8] RCW 80.28.360

consider analyses conducted by the federal Department of Transportation[9] on the social costs of pollution, and look to the Intergovernmental Panel on Climate Change for the social cost of carbon.[10]

***Transportation-specific rate design***

We appreciate the Commission's guidance and openness to transportation-specific rate design proposals from utilities. Giving utilities the ability to adjust electricity prices is an effective tool for encouraging smart charging behaviors that may reduce overall system costs, avoid capital upgrades to the grid, and manage the existing infrastructure more efficiently. Because we are at an early stage of deployment and have a limited understanding of which specific rate designs will be effective, the Commission should encourage utilities to offer a variety of rate structures in their programs, providing customers with additional choice and creating an opportunity for comparative analysis on the effectiveness of multiple rate designs.[11]

Transportation-specific rate design can also advance EV deployment. Fuel savings are one of the most important factors EV investment decisions, so rates that are designed to reduce operational costs for EV owners may be the deciding factor on whether or not to purchase an EV. Rates designed to compensate customers for grid services or give customers the flexibility to charge at times when energy is low-cost can save drivers on fuel costs, further increasing adoption to potentially increasing the downward pressure on rates.[12] In order to maximize deployment, Climate Solutions recommends that the Commission and utilities really examine how rate design can maximize benefits to the grid, as well as maximize fuel cost savings to drivers.

Transportation-specific rates should also consider the varying use cases of different classes of vehicles. While significant attention is paid to the electrification of single-occupancy vehicles, technology continues to evolve and prices are declining, making it is reasonable to assume that more ambitious conversions will come from fleets and large vehicles with significantly higher energy use and fuel costs. This type of heavy-duty electrification offers the significant financial benefits for the vehicle owner. King County Metro has already committed to purchasing 120 electric battery buses over the coming years, some with on-board storage capacity that is equivalent to ten Nissan Leafs, and plans to eliminate purchases of fossil fuel vehicles starting in 2020. Other transit agencies, municipal and county fleets, short haul freight operators, and

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9 U.S. Department of Transportation, TIGER Benefit-Cost Analysis Resource Guide, 2016. https://www.transportation.gov/sites/dot.gov/files/docs/Tiger_Benefit-Cost_Analysis_%28BCA%29_Resource_Guide_1.pdf

10 http://www.ipcc.ch/

11 NRDC, Driving Out Pollution: How Utilities Can Accelerate the Market for Electric Vehicles, June 2016.

12 *Ibid.*

others have expressed similar desires. Utility partnership with large fleet owners to ensure that they procure vehicle technology consistent with broad grid benefits is critical for rate stability and avoiding massive upgrades to the grid. Rate structures that effectively encourage off-peak charging could be different for these types of vehicles as compared to EVs used by individuals.

Other components of rate design, such as non-coincidental demand charges and line extension policies, often impede large-scale deployment heavy-duty EVs rather than incentivize increased electrification. While there is value in incentivizing off-peak charging, a non-coincidental demand charge may do very little to shift a fleet operator's charging behavior to off-peak. Utilities should emphasize beneficial charging behaviors based on off-peak hours, rather than an individual customer's peak demand. Especially for large fleets and other heavy-duty vehicle operators, we recommend that utilities consider demand charges and line-extensions tariffs when designing any transportation specific rates to be consistent with the broader goal of facilitating electrification.

***Importance of planning***

As noted in our previous comments, Climate Solutions supports the inclusion of transportation electrification planning scenarios in utility IRPs. To optimize the full range of potential benefits of transportation electrification, we believe that utilities should actively examine commute patterns and incorporate various electrification penetration scenarios to determine the optimal locations of infrastructure. The policy statement acknowledges that local governments and private entities have announced major plans and roadmaps for electrification. These policies and plans for electrification will happen regardless of whether the EVSE deployed by the utility as a regulated service, so planning for electrification should be more broadly incorporated into utility planning processes. While the Commission will require some level of planning from the utility as they design programs for EVSE investments, there will be benefits left unrealized if strategic planning is limited to utility investments. Transportation electrification planning is not specifically required by statute, but the Commission should encourage utilities to proactively plan for various electrification scenarios that consider local policies, state policies, and private company plans to electrify. We believe that proactive plans to optimize the benefits and reduce system costs would be a useful tool for the Commission to reference during prudency determinations.

***Low-income carve-out***

We applaud the Commission for acknowledging the importance of ensuring that benefits flow to low-income communities and support the requirement for utilities to include a low-income carve-out. Low-income communities have the greatest need for air quality improvements and the greatest need for cost savings associated with increased electrification. Because of the higher

upfront capital costs, light-duty EVs are generally concentrated in wealthy neighborhoods, providing fewer benefits to these communities. While EVs have depreciated more rapidly than internal combustion engine vehicles, we see a greater opportunity for benefits to flow to low-income communities through broader medium- and heavy-duty transportation electrification, such as mass transit, port drayage trucks, and garbage trucks. Medium- and heavy-duty vehicles are one of the largest sources of harmful pollution that leads to poor air quality. For example, heavy-duty vehicles emit nearly 40% of the particulate matter in California, despite making up only 7% of the vehicles.[13] Additionally, charging infrastructure that increases electrification for low-income services, such as vanpools and public housing services can greatly benefit air quality in low-income communities while increasing access to vital services.

Given the large variety of ways that low-income communities can benefit from transportation electrification, Climate Solutions believes the Commission should provide additional guidance to utilities on how the carve-out should be structured. There is currently no minimum size of the carve-out nor guidance of the types of benefits that utilities should prioritize. Benefits could be measured in a number of ways, such as improved air quality, increased number of registered EVs, better access to electric mass transit, or fuel savings for households. With such a wide range of potential benefits, we strongly encourage utilities and the Commission to directly engage with low-income communities in order to identify the most beneficial projects for each utility service territory. While we support program flexibility, a low-income carve-out will be more effective at achieving intended goals with additional guidance from the Commission and a requirement to directly engage with low-income communities and advocates.

***Education and Outreach***

Finally, education and outreach is a major barrier to increased electrification that should be part of all utility electrification programs. Charging initiatives and workplace challenges have been very effective at increasing electric vehicle adoption.[14] Additionally, it is critical that customers understand the impacts of their charging behaviors and any understand new rate designs that encourage optional charging behavior and customer compensation. As utilities design transportation electrification programs, the Commission should encourage an active engagement and outreach strategy that encourages EV adoption and clearly communicates changes to rate design.

[13] Union of Concerned Scientists & Greenlining Institute, Delivering Opportunity: How Electric Buses and Trucks Can Create Jobs and Improve Public Health in California, October 2016. http://www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf

[14] Department of Energy, Workplace Charging Challenge - Progress Update 2014: Employers Take Charge, 2014.

## II. Issues raised by the Commission

### *Definition of "Electric Vehicle Supply Equipment"*

There are strong legislative findings that utility investments in EVSE can provide significant benefits to the utility, its customers, and the public at-large. In defining EVSE, we believe it is important that the Commission first adopt a definition of an "electric vehicle". Because light-duty electric vehicles represent only a small portion of the benefits to be realized in electrifying the transportation sector, we recommend that the Commission adopt a broad definition of an electric vehicle. We do not believe EVs should be limited to vehicles used that are used for on-road transportation, but should include other vehicles as well, such as industrial vehicles or marine vessels.

Similarly, in defining "electric vehicle supply equipment," we believe there should be a wide range of flexibility at this stage of development for utilities to determine what types of investments will be most beneficial to their customers and most beneficial for managing the grid. We support broadly defining EVSE to include, but is not limited to, conductors, connectors, plugs, line extensions, software, or other equipment necessary to provide electricity charging services to an electric vehicle.

### *Utility as a provider versus manager*

The policy statement provides two frameworks for utility investments, one in which the utility is a provider and owns the actual charging station, and a second model in which the utility owns everything up until the charging station and provides grid management services. We recognize and support the Commission's flexibility for exploring various business models and ownership structures in order to identify effective frameworks, while preserving customer choice. Alternative business models will inevitably provide a unique range of benefits to customers and site hosts, so flexibility in ownership structure can provide important data and analysis for determining best practices. While we interpret the policy statement to give utilities the authority to have management capabilities regardless of ownership, we want to highlight that management capabilities around load control and grid management should not be limited to the provider model.

Given the scale of EVSE necessary to achieve deep greenhouse gas reductions and the current barriers to deployment, we would not recommend strict requirements for utilities to have a balance of the ownership structures. In order to truly promote competition in this industry, we must first and foremost ensure that the industry reaches a critical level of adoption in order to survive long-term. As experienced in California and Oregon, too great of an emphasis on balancing the provider versus manager approach can complicate programs in a way that could

stall progress. Because best practices are not yet well understood, we believe it is important to maintain flexibility at this time. We further note that additional features in program design−such as choice in charging station vendors or the ability to select from a variety of rate design options−can also help facilitate a competitive market and customer choice in transportation electrification.

***Determining a balanced portfolio***

Climate Solutions supports the Commission's desire for utilities to have a balanced portfolio. However, we also recognize the risks of overcomplicating program design at this stage of deployment and are hesitant to recommend strict guidelines on defining a balanced portfolio. Below, we recommend possible considerations for determining a balanced portfolio, but do not foresee portfolios considering all of the criteria below.

- *Geographic location* – portfolios may be geographically balanced by distributing EVSE across the utility's service territory, reducing range anxiety and avoiding a concentration of benefits in a select region;

- *Dwelling location* – portfolios may be balanced by the distribution of EVSE across different types of dwellings, such as multi-family units, workplace buildings, community centers, commercial locations, or public buildings, so that benefits can be distributed and analyzed at a variety of locations;

- *Income-levels* – portfolios may be balanced by distributing the benefits of EVSE and transportation electrification across a wide range of income levels to ensure that benefits are not concentrated in wealthy neighborhoods;

- *Business models* – portfolios may be balanced by providing a range of rate designs and ownership structures, providing customers with additional choice and the utility with the ability to analyze the effectiveness of various business models;

- *EVSE technology* – portfolios may be balanced by a mix of projects that meet the requirements of the incentive rate or return, projects that do not meet the requirements for the incentive rate of return, and other emerging technologies, such as inductive charging stations, that may provide a unique range of benefits;

- *Charge times* **–** portfolios may be balanced by installing EVSE that are likely to be utilized at different hours of the day, providing insight into charging habits and customer behaviors;

- *Projected grid impacts* – portfolios may be balanced by the projected benefits to the grid, such as peak demand control, renewable energy integration, or storage capabilities so that all types of benefits may be analyzed;

***Addressing interoperability of EVSE***

Reducing unnecessary hassle and inconvenience for drivers is important for reaching widespread adoption of passenger electric vehicles. One of the biggest challenges with EV adoption is persuading drivers that they will be able to do virtually everything they could do with an internal combustion engine vehicle. Drivers need to be able to locate an available charging station that is compatible with their vehicle with relatively little hassle. When it comes to passenger vehicles, there are two main issues around interoperability: ensuring that the charging station plug connects to your vehicle and requiring network memberships with each charging station operator.

*Charging station plugs* - Electric vehicle drivers first need to locate and reserve a station with a plug that will connect to their vehicle. For Level 2 charging stations, many automakers have agreed on a widely used standard J1772 that is capable of charging the most common passenger EVs on the market today, including the Nissan Leaf, Ford Focus, and Chevy Volt. For fast chargers, there are currently three main standards: the CHAdeMO, the Tesla super-charging equipment, and the SAE Combo charging system. Because the CHAdeMO and SAE Combo charge most of the vehicles on the market (except Tesla), utilities should include at least one plug that is interoperable with one of these standards. However, in order to maintain flexibility for future advances in technology, we do not recommend adopting a specific protocol with which utilities are forced to comply, but rather guidance to invest in charging stations that will facilitate charging by the public.

*Charging networks* - Currently, many electric vehicle charging companies require a user to be a member of a mobile service network, which are often not transferable between the various charge point operators. With multiple service providers and operators, electric vehicle owners are often forced to carry multiple cards−and sometimes pay multiple fees−for those memberships, making vehicle charging a more burdensome process. The development of common standards may reduce the burden for drivers, but unfortunately one has yet to be established and agreed upon by the industry. As suggested by Greenlots, we recommend that the Commission instead identify specific characteristics that should be present in any standard or protocol in the future, rather than requiring a specific standard or protocol at this time. For example, PG&E requires a minimum of two forms of payment, such as access codes, phone operation, or RFID cards.[15] We

[15] PG&E, EV Charge Network Technical Requirement Review, presentation on March 23, 2017.

support a similar requirement for utilities to provide a means of payment that does not require a network membership. Furthermore, we recommend that Commission and utilities engage with the industry and other stakeholders that are currently working on developing standards−such as the Open Charge Alliance [16] or the ROEV Association[17]− and apply pressure for a more rapid development of interoperability standards between charging stations.

There are also interoperability issues on the backend, with regards to ensuring that the software and hardware are interoperable. We believe the Commission has a role in encouraging and engaging with the industry on common standards and protocols that will facilitate interoperability, but do not recommend adopting specific protocols at this time. Below, we highlight two main concerns with interoperability on the backend and recommendations to address concerns.

*Software* - Proprietary software and hardware may impose limitations on future procurements to one particular vendor, increasing the risk of stranded assets. Alternatively, software that uses open source communications are compatible with a wider range of vendors, allowing for greater flexibility for the site host to switch between vendors. This feature is useful for entities that may want to change between service companies at a later date and reduces the risk of stranded assets in the event that a company goes out of business. To reduce this risk, we recommend that the Commission require utility investments to use open source communications−such as software compliant with the Open Charge Point Protocol−but do not recommend requiring a specific protocol at this time.

*Data collection* - Tracking data on charging behaviors and vehicle use patterns can provide valuable information to the utility at this stage of deployment. In order to effectively use of electric vehicles a grid resource and incentivize driver behavior change, the utility must have in-depth insight into customer use patterns of electric vehicles. Some vendors maintain ownership of the data, but having the ability to access and analyze data is critical when ratepayer dollars are being spent. As a part of settlement negotiations, California recently required all utility programs to collect data for analyzing customer charging behavior, responses to various rate design, estimating fuel cost savings for customers, deployment in disadvantaged communities, and other data that would be useful as programs are further developed.[18] We recommend that the Commission require a similar collection of data in order to have the capability to fully analyze and understand driving patterns and customer behavior.

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16 http://www.openchargealliance.org/

17 https://www.roev.org/How-It-Works/Overview

18 Application of SAN DIEGO GAS & ELECTRIC COMPANY (U902E) for Approval of its Electric Vehicle-Grid Integration Pilot Program. April 2014.

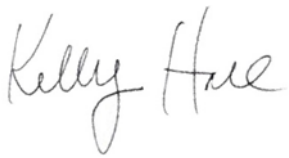
***Stakeholder engagement***

Climate Solutions places great value on transparent stakeholder engagement as we venture into new frameworks for transportation electrification infrastructure. There is significant expertise in a rapidly changing field that can add value as utilities design new programs. We support a single stakeholder group, but recommend that it remain open and flexible to allow for additional participants to join the process at a later date.

**Conclusion**

Thank you again for the opportunity to provide comments on the draft policy statement for utility investments in EVSE. Climate Solutions greatly appreciates the efforts of the Commission to examine policy issues and other frameworks to increase the adoption of widespread transportation electrification. We are excited by the significant opportunity posed by RCW 80.28.360 to maximize efficiencies of the grid, reduce costs to customers, and reduce greenhouse gas emissions and other pollution in the state. We look forward to further engagement as the Commission finalizes this policy statement.

Sincerely,



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