

MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of a Commission	*	
Inquiry into Electric Vehicle	*	Docket Number E999/CI-17-879
Charging and Infrastructure	*	
	*	

COMMENTS OF THE ALLIANCE FOR TRANSPORTATION ELECTRIFICATION

The Alliance for Transportation Electrification (the Alliance) is pleased to submit the following comments in support of the exploratory docket the Commission opened on December 28, 2017 to better understand the role of electric utilities in transportation electrification. The Alliance is a broad and diverse coalition of more than thirty national utilities, automakers, EV supply equipment (EVSE) firms, and other organizations that support the acceleration of transportation electrification and is actively engaged in EV-related proceedings around the country.

The Alliance breadth and scope of the questions posed by the Commission following the March 18, 2018 workshop, which the Alliance was an active participant, exemplify the need to keep this docket open and encourage continued stakeholder engagement through additional dialogue and in-person workshops. The comments presented here will be in response to each question posed by the Commission.

Barriers to EV Adoption and Guiding Principles for EV Regulatory Policy

1. What actions should the Commission or utilities take to address these barriers and to encourage EV adoption in Minnesota (addressing sub-questions c, d, and e)?

The lack of reliable, affordable, and suitable public charging infrastructure is a critical barrier to electric vehicle (EV) adoption and is a challenge that electric utilities are uniquely qualified to help address. The auto industry is amid a transformative period where many types of mass market all-electric vehicles that can travel over 200 miles on a charge will be introduced by auto manufacturers (OEM's) within the next five years. Drivers will expect robust public charging that will accommodate their transportation needs and address the sizeable "infrastructure gap" in the state. The limited number of public-facing charging stations in Minnesota were not designed for this newer vehicle technology, however, and consumers may find that the existing public charging network does not meet their expectations in the areas of reliability and speed.

The electric utility can be play a strong role, either owning and operating, or facilitating the deployment of public fast charging infrastructure with host sites and vendors that is ready for the coming generation of EVs and position Minnesota as a regional leader. Regarding deployment facilitation, the utility could play many roles, including reliability and situational awareness, leveraging the use of data from electric vehicle supply equipment (EVSE) to ease EV-grid integration, and aligning EVSE with other grid-edge functions like demand response. Moreover, the electrification of the transportation system offers a rare opportunity to address societal challenges while also enhancing economic development by maintaining strong auto OEM's and robust supply

chain. The potential benefits to all ratepayers of this transition can be more easily realized through a robust role for the electric utility and warrant consideration of cost recovery mechanisms.

To catalyze or jump-start this nascent market of EV infrastructure, the Commission should allow for a robust and holistic approach by the electric utilities in their planning to build out such infrastructure and recover their associated costs. The Alliance believes that a portfolio approach of different charging infrastructures should be encouraged by the Commission, including Level 2 chargers, workplace charging, multi-unit dwellings (MUD), DC fast charging, and high-capacity charging for medium and heavy-duty vehicles. Such an approach has worked well to transform certain markets in the energy efficiency sector in the past decade, such as CFL's and light-emitting diodes (LED's), to improve lighting efficiency in homes and buildings. A similar approach can work here.

The electric utility should not be confined by Commission rules or policy to certain types of charging infrastructure that are more difficult to site, permit, and develop as some have argued – such as the charging for MUD in denser urban areas in Minnesota cities, or on the major intercity highway corridors. They should be allowed to develop to facilitate the building out of such infrastructure – either through a make-ready and rebate model, or an own-and-operate model – across all infrastructure types with a portfolio approach.

Regarding the appropriate process, the Alliance encourages the Commission to keep this Docket open for the foreseeable future to continue the exemplary stakeholder process in Minnesota that has started both by the Commission, and through the facilitated stakeholder process organized concurrently by at least one electric utility, Xcel

Energy/Northern States Power. The technology of EV's and EVSE is changing rapidly, as well as the markets in the United States and internationally, and other States are taking actions in this area. Accordingly, we believe it is sensible and timely to keep this generic Docket open. As the utilities prepare more detailed filings, there are two likely courses of action to consider such programs and filings. The first would be perhaps the most efficient and focused on the unique issues of EV adoption and the building out of EV infrastructure: the regular Agenda Meeting in which the Commission considers many types of filings on the agenda. This procedure may be the most appropriate in the early stage of EVSE development in Minnesota as electric utilities will likely propose pilot programs that are relatively small in scope but meant to either catalyze the market or test certain types of programs by charging type, consumer behavior, or rate designs. The second type of process would, of course, be the general rate case (GRC) process in which the utility would include EVSE programs along with many other programs or assets in generation, transmission and distribution where it seeks a prudence determination and some type of cost recovery. These filings are suspended for litigation and subject to the rules governing discovery, and ex parte, and will take up to ten or eleven months for a final Commission order.

As outlined well in the Washington UTC Policy Statement (Docket UE-160799), the traditional regulatory principles should apply in either type of case. Namely, will the EVSE provide services that are used and useful for the customers of the electric utilities? The utility should submit a cost-benefit analysis as well, which we comment on later, that recognizes some of the unique benefits of EV infrastructure, as well as its costs. A prudence

determination will ultimately be made, most likely in the context of a GRC, as to whether the capital investments made in EVSE meet the traditional criteria for satisfying a positive determination by the Commission.

Other tools in the “regulatory toolbox” are available as well to deal with the investments – both capital and O&M – associated with EVSE infrastructure. In general, the Alliance believes that the regulatory mechanisms available to the Commission are adequate and robust and should be fully utilized in activities related to EVSE and the imperative (both policy and economic) to assist in transforming this market rapidly. For example, the use of accounting as a regulatory asset (or called deferred accounting pursuant to accounting rules FASB 71, or ASC 980) may be appropriate for the utility to use for a make-ready and rebate type of investment program. This may be a good tool to be used in the early stages of development of the EVSE market, and the asset should be able to earn an authorized rate of return during the period of amortization. On the other hand, if the utility wishes to own and operate the EVSE infrastructure, it should be allowed to do so subject to the oversight of the Commission, and subject to an ultimate prudence determination. If the capital investments made are small in the beginning, base rates will not need to be tried up until the next rate case, which has been the case for Avista Utilities in Washington (refer to Docket UE-160082, Order 02, in which the Commission granted an extension of its EVSE pilot program subject to conditions). If capital investments are larger in the future, however, the utility would likely want to include such an EVSE component in a GRC.

The Alliance encourages the Commission to adopt as much regulatory certainty as possible in providing a stable regulatory environment in this nascent stage of the EVSE

market. More specifically, we encourage the Commission not to try to “micro-manage” the different types of charging infrastructure by regarding one as “more subject to competition” and “one more challenging to site and develop” and apply different rates of return (ROE) or cost recovery mechanisms to specific components. The Alliance prefers a more certain and holistic approach to the various types of infrastructure and applying a common cost recovery treatment to all capital investments. While certain states have provided an “incentive” for utilities to engage in EVSE (such as the Washington Legislature did in June, 2015, by enacting ESHB 1853 which allowed a 2 percent incentive rate of return on certain investments subject to a rate cap), the Alliance does not necessarily advocate for such mechanisms in every state. But the Alliance believes that the Commission should consider consistent treatment on recovery to be applied to all capital investments by the utilities, including considering the treatment of rebates (offered to residential and commercial customers) as a regulatory asset with a return, along with the make-ready investments on both sides of the meter, the customer side as well as the utility-facing side. By doing so, the Commission would send a positive signal to both the utilities and the EVSE vendors, as well as the auto OEM’s and medium and heavy-duty vehicle sector, that it is serious about assisting in the development of the EV market in a consistent and predictable way.

2. Is there an existing set of guiding principles around EVs that has been issued by an organization or adopted by other state utility Commissions that this Commission should adopt? Why or why not?

To assist the Commission with the rate recovery process, the Alliance recommends referring to the Transportation Electrification Accord,¹ a set of guiding principles developed by a diverse set of organizations, including non-profit organizations and private businesses. The Accord addresses many of the key policy questions, including the potential for significant societal benefits from transportation electrification and the importance of greater utility engagement. We also refer you to the Final Guiding Principles of the Alliance for Transportation Electrification, which are similar and listed on our web site:

<https://evtransportationalliance.org>.

3. How should the Commission consider the effects of increased electrical sales from EV adoption on other electric policies (for example, energy efficiency goals)? Are there already existing regulatory policies or mechanisms that may need to be modified to better align utility interests with the public interest in increased electrification of the transportation system?

As transportation electrification expands in Minnesota, the Commission will face a new challenge that, at first glance, push against the long-held priority of encouraging energy efficiency. In fact, vehicles with an electric drivetrain are significantly more efficient than their conventional counterparts resulting in noticeable improvement in energy

¹ <https://www.theevaccord.com>

efficiency from an economy-wide perspective. The Commission should recognize this important energy savings to the public, as other states have done who faced similar challenges. For example, the Washington State Legislature expanded their policy principle of energy conservation from the electric power sector to the transportation sector through a law enacted in 2015.² Washington made this move following significant market growth and enjoys one of the most successful EV markets in the country.

At this time, impacts on the electrical grid from EVs will be very small, as Minnesota has fewer than 10,000 EVs on the road. The Alliance recommends the Commission employ a planning process that keeps an eye on the market and anticipates any impacts while considering the lessons learned from other states who were early market leaders. For example, another market leader on the west coast, the Oregon PUC has a docket open today (Docket AR 599 to consider how forecasted EV charging load in the future fits into the existing planning process. At this time, the Alliance recommends the Commission undertake a separate, but parallel planning process to an integrated resource plan (IRP), since traditional load forecasting using production cost modelling, and analyzing simply household and population growth will be unlikely to predict electrical load from EVs. In the near term, the EV market can be expected to grow unevenly, requiring more sophisticated adoption models to be employed to accurately predict electrical grid impacts. In addition, stakeholders new to the electrical grid planning process, like Minnesota Department of

² <https://www.afdc.energy.gov/laws/11610>

Transportation and transportation groups within the Minnesota Pollution Control Agency should be consulted.

The Alliance believes that EVs are a vital component of comprehensive clean energy strategy for Minnesota. But EVs cannot do it on their own and require a thoughtful approach to energy efficiency and the deployment of zero carbon power sources. The parallel planning process for EVs that the Alliance recommends should give the Commission insight when these resources should be incorporated in to the existing planning processes, and any new distribution system planning process (specific to circuits and feeder locations) which may be considered in the future

Some questions have been raised about the impact of increased EVSE loads on existing regulatory mechanisms to encourage (or make the utility neutral to the “throughput” of electric load) more energy efficiency measures, such as full (revenue per customer) decoupling. At this time, the Alliance believes that the penetration rates of EV’s are sufficiently small that these should not have an impact on the utility’s aggregate load, and therefore, such mechanisms should be kept in place. Moreover, the Alliance believes that strong energy efficiency measures will continue to be necessary, as a least-cost, flexible demand side resource, and if a Commission has adopted certain policies to encourage efficiency, it should be considered a settled matter for the time being, consistent with Minnesota state policy, and kept in place. However, the Alliance encourages the Commission to be flexible on these issues in the future as EV penetration increases in Minnesota from the 10,000-vehicle level to perhaps a level of 700,000 or 800,000 vehicles by 2030. Allowing the utility to keep some of the increased margin associated with the

increased load associated with EVSE, while returning these increased revenues to ratepayers as well, should be a consideration for the Commission going forward. Moreover, several other states (such as Michigan, California, and others) have been studying performance-based regulation (PBR) schemes as a means of providing metrics and incentives to utilities as they continue to adjust to this new era of emerging technologies, relatively flat loads, and more third-party competition. As the utility programs move from the pilot scale to greater scale, the Commission may want to consider a more formal and disciplined process to examine various PBR mechanisms, recognizing the “devil will be in the details” and that other jurisdictions have learned from PBR that getting utility and stakeholder consensus on benchmarks, data, performance metrics and measurement, and third-party verification are challenging and time-consuming.

4. What other efforts and initiatives should the Commission be aware of relating to EV deployment in Minnesota? What goals or purposes are these other initiatives attempting to accomplish?

The Alliance recommends the Commission closely follow the work of the stakeholders involved in the March 2018 workshop, including vehicle manufacturers, charging service providers, non-profit organizations, and Minnesota-based groups.

Passenger EVs have received much of the attention in transportation electrification to date, but recent developments in the medium-duty and heavy-duty (MD and HD) vehicle space have revealed a growing opportunity to electrify more segments of the sector. Notably, the California Public Utility Commission recently approved programs to advance electric MD and HD vehicles for all the investor-owned utilities, totaling nearly \$600 million

for the programs of Southern California Edison (SCE) and Pacific Gas & Electric (PG&E). These groundbreaking programs will provide charging infrastructure and demonstrate new applications of electric drive throughout the state, which sends a strong signal that MD and HD electric vehicles are crossing into the market-ready stage. These MD and HD programs are being implemented now and attracting the attention of vehicle manufacturers and EVSE vendors around the country, and as we suggest later, the Commission may wish to refer to these learning experiences, such as the development of commercial fleets, in a possible future workshop as we suggest later.

Within the state of Minnesota, many ongoing activities are worth noting for the Commission to follow. Drive Electric Minnesota, facilitated by the Great Plains Institute, brings together many of the key stakeholders in the state to encourage EV deployment and deploy charging infrastructure. In addition, Xcel Energy is actively convening stakeholders to discuss each element of their transportation electrification strategy. These workshops have provided a great forum to discuss and share information on issues local to Minnesota along with developments in the policy and technology arenas from outside the region. This important, collaborative process hosted by Xcel is a valuable way for the utility to understand its role in transportation electrification and consider a variety of viewpoints before the company moves any plans forward.

Another important effort for the Commission to follow is the funding from the Volkswagen Environmental Mitigation Trust. The fund, which totals over \$47 million for Minnesota can be used to mitigate emissions from mobile sources through a variety of measures. The state's current mitigation plan, which only covers 25 percent of the \$47

million, includes \$1.8 million for light duty EV charging infrastructure and \$1 million to pilot heavy-duty EVs.³ These are important investments and exemplify good practice for use of the settlement funds by balancing the need to reduce mobile source emissions today and invest in transformative technology for tomorrow. The other major component of the Volkswagen Settlement, Electrify America currently intends to make modest investments in the Minneapolis area, according to their website.⁴ The Commission should keep a close eye on spending on transportation electrification from the Volkswagen Settlement, as it will result in relatively sizeable investment in the technology in Minnesota.

Evaluation Criteria and Regulatory Treatment of EV Filings

5a. Should the Commission provide guidance around cost recovery options for EV related investments, and if so, what factors should the Commission consider?

Yes, as mentioned above, regulatory certainty around the potential “regulatory tools in the toolbox” (or refining them slightly based on experience with energy efficiency programs or developing revised tools in the future such as PBR) is critical for the utilities, EVSE firms, host sites, and local governments which plan to make capital or operating investments in this nascent market. As stated earlier, the Alliance believes in a strong and robust role for electric utilities in this phase of market development, and we provide several ideas and options above in response to Questions 1c and 1d. The Commission has several options, in our view, in terms of the process: develop a broad Policy Statement

³ <https://www.pca.state.mn.us/sites/default/files/aq-mvp2-32c.pdf>

⁴ <https://www.electrifyamerica.com/locations>

short of a rulemaking (like the Washington UTC), issue Commission Orders after one or a series of technical workshops (like the Michigan PSC has done), or issue policy guidance to the utility in the context of a specific filing by one utility for a pilot program for EV adoption and EVSE deployment.

5b. What guidance could the Commission give to facilitate additional pilots? Are there ways to provide flexibility that would allow small changes during a pilot? What types of pilots could provide scalable learnings for expanding EV infrastructure, rate offerings, and broader EV adoption?

Pilot programs are an essential tool to preparing for and assessing market acceptance of new technologies. For pilot programs to be successful, they should be dynamic and adjust to changing needs in the market. This is especially true for transportation electrification because the technology is evolving so rapidly. It is essential that any pilot program involving a utility be able to adapt to changing needs, iterate, and dynamically grow as appropriate in the future. The EV market is poised for considerable growth in the near term and the market could demand scale to be achieved more quickly than a pilot program could accommodate at the outset. The Alliance believes the Commission should provide the utility this level of flexibility and believes a regular reporting mechanism should be required to provide suitable accountability to the utility.

6. Is it feasible to assess the systemic benefits of new load in relation to EVs? Should the Commission use any type of cost benefits test or societal benefits test currently used by other states or programs when considering utility EV proposals? In such a benefits test, what considerations should be included?

As mentioned above, the benefits of transportation electrification may not fit in the current model for evaluating utility programs. This is because the many of those benefits are accrued to EV drivers in the form gasoline cost savings and to society through reduced environmental and health impacts from mobile sources and increased regional economic activity. As such, the Alliance believes that this Commission, and others, should give serious consideration to a version of the Societal Cost Test (SCT), but the quantification of the non-energy benefits, and potential costs, will require a good deal of analytical work and stakeholder involvement.

For specific studies on benefits and costs, the Commission can refer to several studies that have been done in the states of Illinois and Michigan (released July, 2017), Maryland by M.J. Bradley and Associates, as well as other states. These reports are available at: www.mjbradley.com. Such studies use similar methodologies to quantify the benefits from certain aspects of transportation electrification, such as avoided gasoline savings, the quantification of GHG reduction benefits, the benefits of grid integration through managed charging, as well as estimates of VMT (vehicle miles traveled) based on certain EV penetration rates. In addition, the National Renewable Energy Laboratory (NREL) has developed an excellent tool (called EVI-Pro model) for estimating the size of the infrastructure gap in a state or region, and estimating the benefits and costs on an NPV basis for each type of charging infrastructure. The Commission should refer to this

particular analysis and tool for modelling in the context of the needs of Minnesota, and may wish to consult with NREL analysts who have most recently performed such detailed, state-specific analysis for the states of California (California Energy Commission, or CEC), or for Maryland in the context of the PC 44 Working Group process which published its final report on January 19, 2018 (for the NREL modelling tool, refer to Wood, Eric et al, National Plug-in EV Infrastructure Analysis, NREL, September, 2017; Mr. Wood also presented to the ERE Committee of NARUC at its 2018 summer meetings in Scottsdale AZ in July).

Regarding the specific cost-benefit test to be used in utility filings, there is insufficient space in these Comments to explore this topic fully. This is a complex area since several of the key benefits (and costs) of EVSE deployments engage the utility, and the Commission, in new areas which have not been addressed with such tests in the past. Those areas include important things to attempt to quantify, such as avoided gasoline savings (under the control of the ICE or EV driver, not the utility), the avoided GHG reduction benefits, potential economic development benefits, benefits of grid integration through off-peak managed charging (again, under the control of the utility ratepayer and EV driver subject to rate design and utility incentives). The traditional cost-benefit tests may still be utilized by the utility, such as: ratepayer impact measure (RIM), utility cost test (UCT), total resource cost (TRC) test. The utility may wish to perform such cost-benefit tests, in any case, as it makes a specific EVSE filing or in the context of a GRC cost recovery filing. Yet as stated above, such methodologies will have important and inherent limitations, and both the utilities and Commission will have to broaden their horizons when utilizing such tests.

A useful starting place for the Commission to consider would be: the National Standard Practice Manual (NSPM), for assessing cost-effectiveness of energy efficiency resources, published by NESP (an Executive Summary of this May, 2017 report is available at: <https://nationalefficiencyscreening.org>). Although this Manual focused on the criteria and assumptions to be used in cost-benefit tests for energy efficiency measures, the authors of the study believe that this screening tool and methodologies can be applied to distributed energy resources (DER's), including EVSE infrastructure.

Moreover, the authors of this Manual have recently launched a new effort to update specifically this Manual, and its screening and methodologies, for use in assessing DER's and EVSE, and the Alliance will participate in those planning committee efforts. Also, EPRI is working with certain stakeholders on assessing the appropriate cost-benefit methodologies for use by its member utilities when they prepare EVSE filings. Accordingly, the Commission should follow the progress of these efforts in the future as these bodies and organizations hopefully develop better planning tools and cost-benefit methodologies which utilities and Commissions can use in Minnesota and other states.

Accordingly, as stated below in answer to Question 8, we urge the Commission hold a workshop at the appropriate time in the future on these specific issues, perhaps as some of these organizations develop further findings and recommendations.

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7. Are there any other clarifications or guidance that the Commission could provide that would be helpful for utilities and stakeholders as they work to develop EV program proposals?

The Alliance believes charging interoperability and open standards is an essential requirement for a robust EV market. Charging interoperability can greatly improve the customer experience and can reduce the cost EV-grid integration by reducing the number of systems the utility must accommodate. In addition, open standards reduce the risk of technological obsolescence and stranded assets if charging hardware components and networking management systems can be swapped out without requiring a wholesale replacement. There are several proprietary systems being used today by various players in the EV ecosystem – EVSP with network management systems, host sites for the charging stations, auto OEM’s – which don’t necessarily work well with other systems. It is not easy for the EV owner to roam easily, for example, at the front end of the system among the different host sites and EVSP operators. Plug compatibility, or lack thereof (although several auto OEM’s are providing plug adapters) can be a frustrating issue for the first-time EV driver.

Most importantly, the Alliance believes that the issue of open protocols for network management systems can be resolved through the adoption of Open Charge Point Protocol, or OCPP, developed by the Open Charge Alliance. The utilities can provide clear guidance in their RFP’s, as Electrify America has done in its National ZEV Investment Plan, that OCPP should be required of the EVSE and other vendors. If not adopted, the often-cited risk of “technological obsolescence” (or simply if the equipment does not work to its promised specifications) can be mitigated since the utility or EVSE vendor does not need to replace

the entire system of hardware and software – just that specific component can be replaced. Such open standards also reduce the real possibility of “vendor lock-in” that are being promoted in the business model and practices of certain EVSE companies. The Alliance believes that such open protocols, if adopted by the utilities and vendors over time, will lower the ultimate costs of the entire EV charging ecosystem, and offer real consumer benefits. The Commission should study this issue in more depth, perhaps in a future workshop, and should consider issuing policy guidance to the regulated utilities to require using OCPP or a similar open protocol as it issues RFP’s from vendors under EVSE programs which may be approved by this Commission.

8. To the extent not already identified above, identify any next steps stakeholders believe the Commission should take in this proceeding.

The Alliance recommends the Commission keep this Docket open and consider new issues while allowing and encouraging utilities to file in separate filings with separate Dockets on the EV market. Below are ideas for future workshops or work sessions:

1. **Rate Design and Cost-Benefit Studies:** Explore good practices for estimating the costs and benefits of transportation electrification, as described in our answer to Question 6 above.
2. **Tariffs:** Use of time-varying rates, such as whole-house time-of-use or separately-metered EV rates. In this case, the commission could explore lesson learned from other states (e.g., California, New York, Michigan, and Georgia). In addition, this workshop could investigate the potential effects of demand

charges on DC fast charging. Another example is a beneficial electrification tariff, which could be used for public transit and heavy-duty buses.

3. **Medium and heavy-duty vehicles:** Convene the major users of these vehicles, including public transit agencies, school districts, ports and off-road vehicles, and major commercial fleets.
4. **Planning for EVs and EVSE load:** Explore good practices on planning for changes in electrical load from EVs, as described in our answer to Question 3.
5. **Interoperability and Open Protocols:** as cited above in answer to Question 7, the Commission could explore the several protocols for interoperability, such as OCPP, in the EVSE market today, and assess the pros and cons of various approaches and the benefits to consumers with increasing EV penetration.

Respectfully submitted,

Philip B. Jones, Executive Director

Executive Director

Alliance for Transportation Electrification

1402 Third Avenue, Ste. 1315

Seattle, WA 98101