BEFORE THE STATE CORPORATION COMMISSION
OF THE COMMONWEALTH OF VIRGINIA

COMMONWEALTH OF VIRGINIA, ex rel .	**)**	
STATE CORPORATION COMMISSION	**)**	**CASE NO. PUR-2020-00051**
Ex Parte: Electrification of Motor Vehicles	**)**	

INITIAL COMMENTS OF THE ALLIANCE FOR TRANSPORTATION ELECTRIFICATION

The Alliance for Transportation Electrification (the "Alliance" or "ATE") is pleased to submit the following initial comments in this Docket on the Order issued by the Virginia State Corporation Commission (SCC) regarding the Electrification of Motor Vehicles issued by the Commission on March 24, 2020. We commend the Commission for recognizing that increased market penetration of electric vehicles (EVs) of all types and sizes present issues to the Commonwealth that "could affect the "affordability and reliability of electricity service delivered to consumers by regulated utilities."[1] We would also note that future Commission actions could encourage the use of EVs in the Commonwealth resulting in multiple benefits such as reduced greenhouse gas emissions and air pollution, downward pressure on utility rates, and increased mobility options for Commonwealth residents including those in disadvantaged communities. The Commission, in its Order, sets out a series of questions on various aspects of EV market development and associated regulatory issues which the Alliance addresses in these comments.

Background and Introduction

The Alliance for Transportation Electrification, a 501(c)(6) non-profit corporation, is led by utilities, electric vehicle (EV) infrastructure firms and service providers, automobile manufacturers, and EV charging industry stakeholders and affiliated trade associations. We started with 20 organizations at the launch in early 2018. By taking a "big tent" approach to advance the industry, we have grown rapidly to include about 45 national members today and are actively engaged in regulatory proceedings such as this across the country.

Our goals are to engage with state commissions and other agencies to remove barriers to EV adoption by encouraging a collaborative and open approach to accelerate the deployment of EV charging infrastructure, support an appropriate utility role by complementing the private/competitive market, and promote interoperability and open standards in all parts of the EV charging ecosystem.

We would begin by noting that first, the issues addressed by the Order's questions are often quite complex and further discussion and perhaps additional workshops following that planned for July 9,

[1] Virginia State Corporation Commission. "Order Establishing Proceeding Regarding Electric Vehicles," March 24, 2020, Richmond, VA., p. 1.

2020 are needed to fully answer, and second, there are important issues that are not addressed by the Order that should be addressed in further proceedings. These include such issues as the appropriate level of regulation of non-utility Electric Vehicle Service Providers (EVSPs), maximizing benefits versus costs of EV programs, utility cost recovery mechanisms, potential incentives for EV adoption, Education and Outreach programs to encourage the adoption by consumers of EVs, charging station standards and interoperability, medium and heavy duty and transit programs, utility planning, setting metrics and targets for utility EV programs, to name a few. We believe workshops would be a good way to address the myriad of issues that accompany new utility programs and regulatory actions to gain the benefits of EV market penetration. These issues have been addressed in many other states and their experience will be useful to Virginia. The Alliance believes that this Docket should be continued following the planned July 9th workshop and we pledge to provide input and assistance where needed.

In the following Section, the Alliance attempts to address the questions asked in the Commission's March 24th Order.

Responses to Commission's Questions

Existing Development and Projected Growth

1. How many electric vehicles are currently deployed in Virginia and what is the expected growth over the next five, ten and twenty years? What is the current level of demand being put on the electric grid by electric vehicle charging and how is that expected to grow over those time periods?

We believe that Dominion Energy is in the best position to provide detailed responses to these questions on EV deployment and growth, and we defer to their responses.

We would note that the Commonwealth has set ambitious goals for greenhouse reductions and EVs can and should be part of the solution. EVs with incentives for off-peak charging can also put downward pressure on rates and in many cases offer new mobility options particularly for disadvantaged communities. Government policies, to a large extent, can influence the rate of EV market penetration and the benefits achieved. Thus, what is perhaps most important for the purpose of this proceeding is what the SCC might and can do in terms of policy and regulation to encourage the increased adoption of EVs and their integration to the electric grid providing both system benefits as well as to all consumers.

Perhaps first and foremost as a policy matter, Virginia needs to greatly increase the number of Level 2 and DCFC chargers. Many fully electric vehicles with large batteries are getting ready to come to market and purchases could happen much faster than it takes to deploy thousands of DCFCs. But there is another point, which is that the presence of EV charging, both Level 2 and DC Fast, causes people to think about sustainability and the benefits and enjoyment of driving EVs. So, this is not a chicken and egg question. More charging will motivate more EVs. The flipside is also true; the absence of charging conveys the impression (accurately) that there will be no place to charge, and this "range anxiety"

prevents drivers from purchasing EVs. The bottom line is that Virginia needs more chargers and needs them quickly.

In our view, these gaps are pretty clear evidence of a large market failure; and if not, a significant market gap that needs to be addressed quickly and effectively. This is true at both an aggregate assessment of the charging market, or macroeconomic level, as well as a specific EV charging use case level, or microeconomic. We do not intend to engage in an academic discussion of the factors that led to such market gaps, such as negative externalities, information failures, or other shortcomings. Suffice it to say that we believe there were many factors that led to this current situation, and the Commission should stay focused not on detailed discussions of the causes of market gaps, but instead should act on the stark facts set forth in the data. We suggest that policy and regulatory actions play a significant role in the development of nascent markets such as public EV infrastructure, and that the Commission stay focused on changing the facts on the ground in the near future.

2. What is the current level of public charging infrastructure in Virginia and how is that expected to grow?

According to the credible data source of the Department of Energy, Alternative Fuels Data Center (AFDC), there are 751 charging stations with 2,165 separate outlets (or ports) in Virginia.[2]

We know of no state level forecasts of charging stations and will not attempt them here. The number of charging stations in the future can be affected by Commission policy, as noted above.

Rate Design

3. Whether and how rate designs should be structured to incentivize the use of electric vehicles?

Rate designs themselves should not incentivize the use of EVs. They should be structured to produce minimum impacts on the utility system and maximum benefits to all utility customers. Rate designs, such as time of use rates (TOU) that encourage off-peak charging (mostly night time) of light duty vehicles will incentivize their use by making it less expensive to charge and will provide multiple benefits to all consumers – mostly by adding sales to the utility that produce incremental revenues that are greater than any added costs due to the EV charging. Over 80 percent of light-duty charging is done at home and at night, according to most consumer surveys Since rates are determined generally by revenue requirements divided by sales, adding off-peak sales to EV charging (without commensurate increases in revenue requirements) will reduce customer rates – to both EV owners and non-owners. This is in addition to the environmental and mobility benefits EVs provide. So, rate designs should encourage off-peak charging and will incent the sales and use of EVs indirectly because lower cost off-

[2] https://afdc.energy.gov/stations/#/analyze?country=US&fuel=ELEC&ev_levels=all&access=public&access=private&region=US-VA

peak electricity will increase savings to the EV owner. Most important is that rate structures do not disincentivize or penalize EV users, but as long as rates are cost-based, that is unlikely. The cost advantages of electricity over gasoline have been substantial in the past (partly dependent on rate design and off-peak rates), and this trend is expected to continue in the future. Moreover, electric fuel should provide greater price certainty to consumers over the long term compared to ICE (internal combustion engines), since the volatility of petroleum-based fuels has been influenced by global events in the Middle East and elsewhere and has been extreme at certain times.

Rate structures that will apply to medium and heavy-duty applications (MD/HD), and also to roadside and fleet DCFC present a more significant challenge because they will often need to be used during daylight hours. In many cases, without regulatory intervention, such charging would be subject to demand charges which can be significant. Demand charges may provide a deterrent to fleet use of EVs. There are numerous alternatives to dealing with this issue which range from separate metering of the EV charger with an EV specific rate, a temporary "holiday" on EV charging demand charges while increasing volumetric rates (e.g., California), rates that combine base charges and demand charges with time of use (so-called three part rates), and others. Our recommendation is that the Commission address the issue of light duty and MD/HD rate design in future workshops and proceedings. In the interim, this issue can best be addressed on a case by case basis by the utilities.

If the Commission wishes to incentivize the use of EVs, the Commission can consider a multitude of utility programs for which it could grant cost recovery. There are three categories of potential utility investments. The first and most obvious is allowing utilities to invest in infrastructure - which could be make ready projects that provide utility investments (in conduit, wiring, and associated equipment) from the utility pole transformer to the EVSE (charging equipment) which third parties could own and operate (often, financed through a utility rebate). The rationale for such utility infrastructure investments are discussed later in this response. Having more public and visible charging stations will help reduce the potential range anxiety of EV buyers and widen the appeal of the market, aside from the obvious convenience to EV owners of being able to charge when away from home.

Second, and also important, are education and outreach programs. Many surveys done over the years have shown that consumer ignorance about EVs and their benefits is a major factor in their decision to purchase ICE automobiles. Utilities should have a reasonable budget to engage in education and outreach programs that encourage consumers to consider EV purchases. These can include web sites and webinars, ride and drives, collateral material available for dealers and consumers, and dealer education, among others.

Third, utilities can offer rebate and incentive programs of various types and magnitudes. Incentives or rebates can be applied both to vehicle sales and to purchase or installation of charging stations. There are numerous examples of such incentive and rebate programs around the country. A summary of incentive programs (both government and utility) within each state is available from Plug In America.[3]

[3] https://pluginamerica.org/why-go-plug-in/state-federal-incentives/

4. Whether and how rate designs should be structured to incentivize charging of electric vehicles during off-peak times?

Utility customers can and should be incented to charge their cars at home through the use of time of use (TOU) pricing, which comes in many flavors. As noted above in the response to Question 3., most of the societal benefits will come from EVs if they are predominantly charged during off-peak periods, which mitigates the need for additional investments in generating plant and distribution grid infrastructure. Thus, managed charging is essential to achieving the benefits of EV investments and market penetration. If utilities don't achieve the goal of moving the load off- peak, then we all fail - collectively. Fortunately, technology in the charging station and on- board vehicles can help customers automate the process of off-peak charging. Many utilities across the country have already implemented some form of incentive to charge EVs off-peak.

5. Can and should rate regulation prevent cost shifting to consumers who do not own or operate electric vehicles?

As discussed above, utility programs that are successful in increasing the number of EVs on the road and which encourage off peak charging of those vehicles have the tremendous benefits of reducing rates to all customers whether or not they own an EV. The more EVs there are, charging in off-peak periods, the greater the contribution EVs will have to paying a share of the utility's fixed costs. This will lower rates to all customers – participants and non-participants – in the same way energy efficiency programs can lower rates for all and thus are paid for by all customers. We do have to recognize that there could be a small cost-shift in the early years of EV development from non-participants to participants as a result of utility investments, but EV users will ultimately pay back that much and more as EV market penetration increases. This rate lowering effect was amply demonstrated in a study of California's two largest utilities – Southern California Edison and Pacific Gas & Electric by Synapse Energy Economics.[4] That report found that, from 2012 through 2018, in SCE and PG&E's service territories, EVs have increased utility revenues more than they increased costs, leading to downward pressure on rates for both EV owners and non-owners. Over the seven-year period, EV drivers in PG&E and SCE territory contributed $584 million more than associated costs (in 2017 dollars.)

Rate regulation should not discourage these beneficial investments by utilities that lower rates for all customers, especially considering there are environmental and other benefits.

Storage-Specific Issues

[4] Synapse Energy Economics, "Electric Vehicles Are Driving Electric Rates Down" available at https://www.synapse-energy.com/sites/default/files/EV-Impacts-June-2019-18-122.pdf

6. How can electric vehicles provide battery storage for the electric grid and on what scale? What level of battery storage for use by the electric grid is projected to be available from EVs over the next five, ten and twenty years?

Vehicle-to-grid (V2G) technology is simply the ability of an electric vehicle connected to a charging station to either charge taking electricity from the grid or discharge and sell or provide electricity back to the grid, in response to a command signal that is given to the vehicle batteries – usually by a software program. V2G requires communication between the vehicle (or connected charging station) and the entity that is using the vehicle's battery to buy and sell from the grid. Many Japanese and Chinese vehicles, including the Nissan Leaf, use the "ChadeMo" charging technology and protocols which are capable of such bi-directional flows and have the technology built into the vehicles. The charging standard used in most other vehicles (except Tesla which has its own) is the CCS system which has not developed as fully. A recent report by the Electric Power Research Institute (EPRI) and several other groups describes these charging standards and their capabilities in more detail.[5]

Use of the vehicle's batteries to reduce load or peak shave based on a signal provided by the utility or another entity is more common, and commonly referred to as V1G to denote one-way power flow. These programs are more common and many utilities, as well as PJM, have developed demand response programs and tariffs to encourage this type of peak-shaving. A common protocol referred to as Open ADR 2.0 has become the standardized method in which EVSE (most equipment has this capability built in now) providers, utilities, OEMs and others operate in controlling peak loads by distribution utilities. In fact, Open ADR 2.0b was approved by the official standard for use in DR programs (such as critical peak pricing, direct load control (DLC) programs such as smart thermostats, and others) by the International Electrotechnical Commission (IEC) in January, 2019. More information on this Open ADR standard is available from the Open ADR Alliance website.[6] V1G constitutes managed charging of vehicles by determining when to withdraw power from the grid to charge the battery but does not rely on the battery to provide power back to the grid operator in a bi-directional flow. The Alliance and Atlas Public Policy have published a primer on the multiple ways to manage EV loads and grid integration, which is generally called VGI or vehicle to grid integration, that explains these concepts in more detail.[7]

Once connected to the grid in a V2G arrangement, there are several services that EV batteries can provide. In some cases, power withdrawn from the batteries might be used for load reduction during peak periods or peak shaving. At other times, or even in conjunction with peak shaving, battery power can be used to provide ancillary services such as price arbitrage, frequency regulation spinning reserves and voltage regulation that are necessary components of maintaining a reliable grid. V2G not only can enhance reliability and resilience of the grid, it can provide an additional revenue stream for electric vehicle owners and fleets. But even with the potential benefits of V2G, for the reasons cited below, it is still in the testing, pilot stage and it will likely be several years before it represents a significant potential

[5] Electric Power Research institute, et. al.. Interoperability of Public Electric Vehicle Charging Infrastructure, Palo Alto, CA, August 2019. https://www.eei.org/issuesandpolicy/electrictransportation/Documents/Final%20Joint%20Interoperability%20Paper.pdf

[6] www.openadr.org

[7] Smith, Connor and Nigro, Nick. "Vehicle Grid Integration: A Review of Available Approaches and Existing Programs', available at https://atlaspolicy.com/wp-content/uploads/2019/10/Vehicle-Grid-Integration-Fact-Sheet.pdf

savings to the grid and EV owners. And vehicle owners may not want to participate in the early stages of this particular market segment for certain behavioral and other reasons cited below.

While some vehicles do have the technical capability to participate in wholesale markets, the technology for them to interact with the grid is not yet fully developed, and there are many unanswered questions as to whether such markets will be viable in the near future due to operational complexities and a challenging value proposition. At present, there are limitations on many fronts. First, some auto manufacturers void battery warranties if customers try to sell power from their EVs. Second, wholesale markets such do not currently have the capability to account for V2G power which will be transacted at the distribution level much as rooftop solar PV. Third, it will be almost impossible for wholesale markets to accept individual EV sellers – they will have to be aggregated and controlled by intermediaries at scale to be of real value to a wholesale market. Fourth is the problem of measuring input and output from individual EVs, which will have to be separately metered and with two-way meters (AMI). Such metering arrangements do not generally exist today and will be expensive to implement. Fifth, vehicles must be equipped with two-way inverters to allow the two-way flows of electricity required by V2G. None of these are insurmountable barriers, but they suggest that such capabilities will take significant time to develop and test adequately in an operational environment.

But perhaps one of the biggest questions is customer behavior and whether EV owners will be interested in having others (the wholesale market entity, third-party aggregators, or utilities) control their battery charging and discharging when their EVs are not in use and connected to chargers and the distribution grid via a Wi-Fi connection. EV owners may want to be assured that their batteries will be fully charged when they want to use their cars and not be subject to uncertainty. Some workarounds may be possible, such as owners being able to limit the hours in which their batteries are discharged, but this is an additional complication. EV owners are also likely to be concerned about degrading the life of their vehicle batteries, and whether the potential revenues achieved will outweigh these added costs. All of these limitations are reasons why experience to date around the country on V2G has been limited to pilots that are testing whether V2G sales into wholesale markets are viable.

An interesting potential pilot has been proposed by Dominion Energy in Virginia and Duke Energy in North Carolina. These pilots would use electric school buses for V2G operation after morning and afternoon runs of the vehicles. This may be a fruitful area of research as the buses have low utilization rates and can be available for discharge during system peaks of the utilities. Both of these Pilots are pending before the respective state commissions at this time. We encourage the Virginia SCC to give full consideration to the Dominion pilot proposal. Moreover, the Commission may also want to monitor the progress of the rapidly growing school bus program proposals and deployments (which all include a significant V2G component with the regulated utility) in states like Minnesota, Washington, and Colorado.

In summary, V2G, while technically feasible, is not quite ready in either an organized market structure like PJM or for vertically integrated utilities. The systems needed to be successful are still being developed, and it will take some time for PJM and other ISOs to develop the capability for these resources to bid into the wholesale market. And, as mentioned earlier, we still know little about whether individual EV or fleet owners will be willing to have the charging and discharging of their vehicles controlled by third parties. But it should be an issue that remains on the radar of the

Commission, and the Commission should give due consideration to pilot projects that begin to test specific end use cases.

7. What, if any, technological impediments exist to the use of electric vehicles as battery storage for the electric grid at scale? For example, are any technological grid modifications necessary to facilitate the use of EVs as battery storage for the grid? How does cycling (charging and discharging) of an electric vehicle's battery (associated with discharging the battery into the grid) affect the life of the battery? Do manufacturers of electric vehicles have concerns regarding the use of EV batteries for grid storage?

Technical impediments are discussed above. Whether or not grid modifications would be necessary depends both on the scale of use of batteries for the grid, and the locations where they would be utilized. Further study will definitely be required.

Cycling will certainly affect the life of the battery, but as technical improvements are made, the degree of impact will lessen. Moreover, great progress has been made in battery technologies and chemistries over the past decade both by the private sector as well as by USDOE and the national laboratories, such as Argonne, INL, and Pacific Northwest Laboratories which are exploring alternatives to lithium-ion chemistries. The Commission may want to stay abreast of these technology trends in batteries, including both research and lessons learned from operations and cycling impacts on battery materials and duration, by referring to the resources of U.S. Department of Energy.[8] Cite to USDOE resources: https://www.energy.gov/public-services/vehicles/batteries

Most manufacturers do have concerns and will void the battery warranty if used in V2G schemes. Again, these concerns will be dealt with by continuing technical improvements to batteries and it should be a temporary limitation.

8. What technical studies, if any, should be undertaken to ensure the safe interconnection of electric vehicles to utility distribution systems for purposes of providing grid storage? What potential impacts of such interconnection should be studied?

For light duty vehicles and Level 1 or Level 2 charging, probably nothing is required, particularly if they are charging off peak and dis-charging on peak, and particularly until there is significant market penetration. Unless there is a large concentration of vehicles on a single circuit, there are unlikely to be problems. In cases where significant penetration appears, upgrades to lines and transformers may be needed.

For MD/HD and DCFC, interconnection studies may be required to ensure safe interconnection and two-way flows on the system as greater penetration occurs. Again, grid modernization tools currently being developed will help control these flows.

[8] https://www.energy.gov/public-services/vehicles/batteries

9. What, if any, legal impediments exist to the use of electric vehicles as battery storage for the electric grid at scale? For example, does discharging an electric vehicle's battery into the grid potentially void its warranty? Are there homeowner association or homeowner insurance limitations that restrict deployment?

As noted above, battery warranties may be voided if used in V2G schemes.

In addition, HOA or insurance limitations could exist, but are case specific.

10. What rate designs should be employed to compensate EV owners for power delivered to the grid?

Regulators have a lot of experience with this issue as it relates to DER and rooftop solar. The SCC will likely need to set the policy by which such V2G operators are compensated. EVs or aggregation of EVs could also sell directly into wholesale markets and get the wholesale rate, if permitted by state and FERC regulation. FERC's current policy allows for such sales and asserts jurisdiction, but that policy is currently being reviewed in the Courts.

11. What utility equipment damage liability considerations, if any, should be taken into account in the development of policy for EV storage?

Liability considerations of all types should be dealt with in tariffs or for larger projects in interconnection contracts. These considerations are not unlike those in place for any customer-owned generation or installation.

12. What utility-sponsored programs (such as peak shaving programs) could be implemented to permit a utility to reliably call on electric vehicles to provide power to the grid?

Utilities could call on EVs for peak shaving programs. Such programs applied to fleets could be particularly substantial. But as above, we need to know more about consumer or business willingness to have their chargers controlled by a third party. And reliability of such programs would need to be tested.

13. What aspects of storage and discharge to the electric grid are subject to regulation at the state level? What aspects are subject to regulation at the federal level? Are there some areas subject to overlapping jurisdiction?

There are lots of unanswerable questions here. Charging rates for chargers owned by utilities, and the rates that utilities sell at to third party charging companies would certainly be subject to the retail rate jurisdiction of the SCC. Charging rates by non-utilities may or may not fall under the Commission's jurisdiction depending on whether it considers such sales to be a regulated service. And regulation of sales from EV batteries could depend on whether the power is being sold back to the utility or to the PJM (or other) wholesale market. The answer could also depend on the result of the Courts' current review of FERC's battery storage policy.

Public Charging Stations

We believe that Questions 14 and 15 are inter-related and we answer them together.

14. Is the market for providing public charging stations competitive or should it be considered a natural monopoly with service provided exclusively by regulated utilities? If the market is competitive, to what extent is utility ownership of charging stations appropriate and are there specific geographic areas where utility ownership of charging stations may be appropriate?

15. What is the proper role, if any, of utility investment in the deployment of public charging stations?

The market for public charging stations for some use cases is somewhat competitive, but not nearly to the point where the competitive market acting alone will install a sufficient number of chargers to meet expected future demand. And there are certainly some market segments, such as for multi-family properties and low and moderate-income disadvantaged communities where there is little to no competitive activity. Also, DC fast chargers may not be profitable at this nascent stage of market development so a competitive market will likely not materialize in the near term. But the Alliance believes that utility infrastructure investment, including ownership and operation, should not be dependent on the competitiveness of the market nor be limited to specific geographic markets. Utilities can ably and effectively complement the private or non-utility market and ensure successful EVSP deployment throughout their service territories – both in the near- and long-terms.

One fact is clear. There are an insufficient number of charging stations in Virginia as noted above. If experience in other states is any indicator, Virginia will continue to experience a deficit of charging due to longstanding reluctance by the private market to step in and deploy infrastructure, as evidenced by the very small number of developers (particularly for DCFC) and the overall inadequate number of plugs (both DCFC and Level 2). Instead, the Commission should consider a more robust utility role, perhaps an ownership model with a turnkey approach with qualified vendors, as being an important accelerator of EV charging infrastructure in the state. Moreover, if ratepayer funds are invested, logic dictates that the utility retain the opportunity to be involved with the resulting infrastructure to ensure continuous and reliable utilization. In other words, the uptime of charging stations is a key issue for the consumer experience, and there is nothing worse for a new EV owner to arrive at a charging station and discover that it is under repair or not working properly.

A robust role for the utility including utility ownership and operation of charging stations as an option (with the burden of proof to demonstrate cost-effective investments with prudency) will provide numerous benefits including:

- Going to scale quickly
- Strong capital base {equity and debt)
- Ability to take the long-term view

- Obligation to serve all customers and classes, rich and poor, urban and rural
- Ability to address some of the market gaps today- like rural, multi-unit dwellings, low moderate income
- Flexibility in rate design and ratemaking, and the ability to spread costs in a portfolio of approaches
- Avoiding vendor lock-in – some EVSPs do not use open standard or interoperable software and thus the consumer is locked into their service unless they buy new hardware
- Allowing the utility to demonstrate new approaches perhaps with vendors on a turnkey basis

Other jurisdictions have also discovered that EV charging stations that were built in the last decade, often with government grants and incentives, are not well maintained and experience poor uptime and availability. Obviously, there can be reliability issues with all the various business models and charging infrastructure. But especially with ratepayer funding for these investments, the utility would retain the primary responsibility for maintaining this distribution infrastructure, subject to the oversight and accountability of the Commission.

Some of the commenters in this Docket are sure to state that the utility role should be limited, either temporally (that is only until the market "matures") or by certain use cases such as low-moderate income and disadvantaged community investments. We disagree strongly. The level of market maturity or exhaustion of alternatives is not and should not be a factor in deciding whether utility ownership should be permitted. There is nothing that fundamentally makes utility investment, ownership or operation of charging stations more costly, or more likely to exhibit any anti-competitive effects. And while the maturity of a market may be an indicator of the degree of ratepayer support that is required, it has no bearing whatsoever on program design or ownership structures. In fact, we believe a policy that eliminates or reduces utility involvement, either through legislation or regulation, removes an important competitive alternative and reduces customer choice in the overall EV ecosystem.

It's also important to note that utility ownership can not and will not overwhelm the competitive market as some commenters may claim. The Commission will dictate how many charging stations utilities can add, and the substantial number of charging stations needed suggest an all-hands-on-deck approach.

This leaves EDCs as the only viable option for vast swaths of infrastructure, particularly make-ready but also charging hardware in cases where the private sector will not invest. And the Alliance points out that there are a variety of ownership, or joint venture or leasing of equipment, possibilities that are currently being explored in EV infrastructure The utility may want to put its brand on certain charging stations it rolls out, and a vendor may be fine supplying the solutions on a turnkey basis including all back-office and network management systems.

There are multiple ways in which the utility can be involved in infrastructure investment. One is a make-ready approach where the utility installs or upgrades equipment up to the point where a charging station would connect. At that point, either the utility or a third party might install the charging station. Another approach might be for the utility to contract with third party vendors for charging stations to be installed. Joint ventures are also possible where a private EVSP firm can bring technology, software and network management experience (such as vehicle to grid know-how) to the table, while the utility can bring its scale, engineering experience and detailed knowledge of the grid.. Or there could be a different division of responsibilities where the parties partner in various ways on hardware, software, value

propositions and so on. The point is that a variety of business structures are possible in order to develop the EVSE market, and the particular solution will differ from state to state, utility to utility, and case to case. And most cases will involve a hybrid model. In some cases, utilities might also have rebate programs for the installation of either home chargers or public charging stations.

The Alliance thus believes that a "hybrid" market development model at this nascent stage is both possible and likely, allowing various market models to develop. In fact, the Alliance believes that a "portfolio approach" is the best way for regulated utilities to proceed with respect to improving charging infrastructure to prepare for future demands from EV growth. The idea behind the portfolio approach is that the utility will not own and operate every segment of the market and "crowd out" potential non-utility service providers. And the utility will support third-party development of infrastructure through make-ready programs, possible rebates, and technical assistance.

In other words, the Commission need not worry that utility-owned and operated programs in TE, which is properly scoped and overseen by the Commission with a viable stakeholder process, result in a zero-sum outcome. Regulated utilities necessarily take a long-term view of both planning and deploying infrastructure in the distribution grid, and adequate access to the capital markets to ensure that these investments can be made to catalyze the overall market. The results should be complementary and benefit all ratepayers, and participants in the EV ecosystem.

Experience over the past few years has shown that involvement by expert and trusted utilities as a complement to the private sector is important because the electric vehicle charging landscape is complex and challenging to the vast majority of the population, and especially for a new EV owner as the market moves in to an "early majority" phase. While certain residential consumers and commercial landlords invest the time and resources to learn and execute on the options, unfortunately a more common outcome is the "do nothing" approach. One way to jump-start the market is for the utility to offer to shoulder the burden in this early phase of market development by providing, installing, operating, and maintaining infrastructure, both public and private. Utility involvement may not be as critical further down the road as the market reaches maturity, but still may be needed where the private sector does not venture, such as in multifamily communities, low and moderate income neighborhoods, and for publicly accessible DC fast charging.

We encourage the Commission to look at the following as examples of States that have approved utility infrastructure investment and can be considered best practices.

<u>Arizona</u>

The Arizona Corporation Commission (ACC) issued policy guidance and a draft implementation plan for TE in July 2019. The plan demonstrates a best practice for States tasked with providing direction and guidance for regulated utilities to file a plan, as in Colorado, and providing greater certainty in Arizona about what infrastructure can be developed and advanced by regulated utilities, along with the private EVSE providers (which were "deregulated" or not subject to specific cost-based regulation as the other utilities in a separate Arizona Order). Both are attached.

Maryland

The Maryland PSC approved a portfolio of programs, including E&O, a sub-metering pilot, and others, in January of this year for the operating utilities of Exelon. The Commission approved utility investment in customer-funded public charging stations: 500 for BGE, 100 for Delmarva, 250 for Pepco, and the 59 proposed by Potomac Edison. Their Order is attached. It is being implemented and the early results are positive. Since the Maryland Legislature did not provide explicit statutory authority, the Commission conducted its workshops (called PC44) within a grid modernization stakeholder process that produced good results, with a multi-party settlement for a portfolio of programs.

Michigan

As in Maryland, the Commission did not have explicit legislative authority for EV infrastructure, and therefore acted under its own authority to set J&R rates and oversee grid modernization. Several workshops were held, with the Commission issuing Orders for further reviews. In parallel, the utilities (CMS Energy and DTE Energy) developed proposals taking in to account the concerns of the stakeholders. The proposals were considered in the context of larger GRCs for both utilities. But earlier this year, the Commission approved a significant portion of each proposal (they were modified and changed, of course, during the litigation process) and a good series of pilots were approved. They include E&O activities, residential charging, workplace charging, public infrastructure, and others. Cost recovery was done through deferred accounting, and the Commission approved the capitalization of rebates.

Minnesota

Another case where the Commission did not have explicit statutory authority (beyond a broadly worded bill from 2012 that allowed the Commission to approve residential charging programs from the regulated utilities, if submitted, but no mandate to develop anything beyond that like comprehensive TE plans). The Commission showed leadership, under Com. Lipschultz, to establish a series of workshops with stakeholders to develop policy guidance (Order is attached). The Commission focused on the "filing guidelines" or what the Commission expected regulated utilities to file. At the same time, Xcel Energy/NSP was developing a series of 7 pilot programs, using the portfolio approach that were filed in parallel with the Commission's filing guidance. Since the normal regulatory process takes significant time (9-11 months for a GRC, perhaps 18 months for a rulemaking), it is a best practice to allow utilities to do their own work in parallel with other Commission-led work, so that the ultimate deployment of charging infrastructure is not unduly delayed. The Order approving the Xcel proposal is attached.

Oregon

Oregon has been proceeding with both specific programs (by Portland General Electric (PGE) especially) in TE, as well as planning requirements and the submittal of comprehensive TE plans by the three regulated utilities (PGE submitted in October, Idaho Power submitted in November, and the Commission allowed Pacific Power additional months to file until January 2020). Oregon has specific legislation on this topic passed in 2016 in a section of a clean energy bill, HB 1547. The PGE comprehensive TE plan is attached. Oregon PUC Order approving the process for reviewing the PUC Order is attached, with the agreement of the Parties.

In summary, utilities can and should play a strong role, either owning and operating, or facilitating the deployment of EV charging infrastructure with host sites and vendors that is ready for the coming generation of EVs and position Virginia as a regional leader. Regarding deployment facilitation, utilities could play many roles as discussed above, and also including providing 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 utility functions like demand response. The potential benefits to all ratepayers of this transition can be more easily realized through a robust role for utilities.

16. Under what utility tariffs do public charging stations take service from the electric utility and what adjustments to rate design or additional tariffs might be needed to support additional deployment of public charging stations?

We once again defer to Dominion Energy on this question.

Respectfully submitted this 23rd day of June 2020,

Philip B. Jones

Philip B. Jones, Executive Director
Alliance for Transportation Electrification
1402 Third Avenue, Ste. 1315
Seattle, WA 98101