STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

Identification of Regulatory Challenges and	)	
Opportunities Associated With the	)	**Docket No.**
Electrification of the Transportation Sector	)	**2023-121-E**
Pursuant to S.C. Code. Ann. Section 58-27-265	)	

COMMENTS OF THE ALLIANCE FOR TRANSPORTATION ELECTRIFICATION

Introduction

While not a formal party to this proceeding, the Alliance of Transportation Electrification files these comments pursuant to Option B in the South Carolina Public Service Commission's (hereafter "PSC" or "Commission") Notice of April 21, 2023 in this Docket allowing interested stakeholders to file verified comments to assist the Commission in making a determination related to electrification of the transportation sector. As an initial matter, we commend the Commission for opening this Proceeding to examine the issues raised first by legislation adopted in South Carolina (S.C. Code Ann. Section 58-27-265) and second by Amendments to PURPA Section 111(d) of the Public Utility Regulatory Policies Act of 1978 (PURPA) that were included in the Infrastructure Investment and Jobs Act (IIJA) of 2021 (16 U.S.C. 2621(d)(21)). The issues raised in the Commission's April 21st Notice are critical to ensuring the electric vehicle markets in South Carolina and the necessary accompanying infrastructure are developed in an expeditious and cost-effective manner. In these comments, we offer some specific ideas and suggestions in response to the questions posed by the Commission, based on our experiences with best practices and EV infrastructure development in other states. Some of the questions posed are best answered by our members providing electric service in South Carolina – Dominion Energy and Duke Energy – and we will defer to their responses. We also note that there is considerable overlap between the issues for which the Legislature sought study and the questions posed by the PURPA amendments. We try our best not to be too repetitive in these comments.

The Alliance for Transportation Electrification ("ATE" or the "Alliance") is a 501(c)(6) non-profit corporation established in early 2018 and is active in many state proceedings across the country. We engage with policymakers at the State and local government level to remove barriers to EV adoption and to encourage the acceleration of EV infrastructure deployment with a particular emphasis on open standards and interoperability. We currently have about 60 members that include many electric utilities, auto and bus manufacturers, EV charging and service providers (EVSPs), and related trade associations and non-profit organizations.

The Alliance states at the outset that the issues raised by the Commission in this Request are complex and have very broad implications. One of the best practices that has been used by other states is a workshop process whereby stakeholders help the Commission address specific issues and attempts at consensus are tried. The South Carolina Commission in fact used such a process to develop its state implementation plan which is still under development. The responses provided here were also provided in the workshops held by Commission staff and help inform the issues, but we believe that more discussion and airing of the issues is still needed.

Response to Issues Required to be Studied Under S.C. Code Ann. Section 58-27-265

Issue (1): grid integration and resource planning to facilitate electrified transportation

South Carolina is in the very early stages of EV market development – unlike some other states that have had much greater consumer adoption (according to the latest data from the dashboard of the Auto Innovators, the number of EVs in South Carolina, both plug-in hybrids (PHEVs) and full battery electric vehicles (BEVs), are only 17,647 light duty vehicles, which is a low percentage and places it in 39th place among states). But the number of EVs both registered in South Carolina and travelling along its highways is expected to increase rapidly soon, particularly as prices continue to come down and new models become available. Many of these vehicles and the associated batteries are planned to be produced in South Carolina and adjacent states in the Southeast. In addition, the pace of electrification for MHD (medium heavy duty) vehicles is quickening in a way that will directly impact fueling in the state with incremental electrical loads much greater than those for light-duty vehicles.

As the number of EVs in South Carolina continues to grow, utilities need to begin now to reflect EV charging demand in their integrated resource planning studies. Particular attention should be paid to those areas that are most likely to see rapid growth – for example, airport rental car areas, ports, distribution centers to name a few. The role of the Commission should be to ensure that such planning and load forecasting, both for all types of zero emission vehicles as well as the necessary TE infrastructure, is done properly with reliable sources of data and more sophisticated load forecasting at the distribution level.

Issue 2 the interaction between transportation electrification and the electric power grid

Transportation electrification is occurring rapidly across the country. Particularly as DC fast charging stations become a large proportion of the new charging stations installed, grid upgrades may often be necessary. The need for grid upgrades may be ameliorated by utilities steering potential EVSE developers and site hosts to install chargers in areas that have excess grid capacity. An emerging best practice is for utilities to provide hosting capacity maps to potential developers, so they know where such capacity is available. Such maps, however, often need to be updated on a regular basis and in many cases, a more specific analysis by a distribution engineer (and a site visit) may be required before construction commences. Developers also have a responsibility to let utilities know as early as possible, before a service request is made, during the interconnection process in a collaborative manner so that the internal utility resources can be used efficiently.

Given that grid upgrades can often take years to accomplish, the Commission should also consider allowing utilities to build in advance of need, particularly around those areas where it is known EV growth will occur. These "hot spot sites" may include airports, ports, major highway interchanges, concentrated logistics centers and similar areas. If the grid is not upgraded in advance of need, the path for growth in EVs in South Carolina could be delayed, also delaying the benefits that electrification provides to the state's citizens.

Finally, in areas where grid upgrades will take time, but the demands are now, utilities and their customers should look for temporary solutions, which could include partial service during peak periods,

or storage and renewables to provide power at the site. Again, the Commission should be flexible in allowing these alternative arrangements.

Issue 3 regulatory policies to support efficient and cost-effective transition to electric transportation

There are three major areas where the Commission can and should support the cost-effective transition to electric transportation. The first, discussed above, is assuring cost recovery for the necessary grid upgrades for ensuring that capacity is sufficient for the growth in charging stations that will accompany electrification. Second is guiding the utility role in electrification, which may include TE planning efforts, direct investments or rebates for make-ready infrastructure, utility ownership and operation of charging stations, investments in education and outreach, workforce development efforts, equity investments to ensure disadvantaged communities, rural areas and other potentially underserved areas are duly considered. The Commission's role will be evaluating proposed utility programs in these and other areas and approving appropriate investments.

Without explicit guidance from regulators, the utility would be responsible only for needed distribution system upgrades which would be part of normal business to meet customer loads. Utilities would provide connections up to a meter that would measure service to the charging installation but would often require contributions in aid of construction (CIAC) from the EVSE developer or operator or the host site for such construction. Other expenses would be covered by the developer, operator or host site. Line extension policies should also be reviewed and assessed and can be used as an incentive to accelerate the deployment of charging infrastructure.

More recently, utilities in many states (with approval of public service commissions) have been offering to cover "make-ready" investments which cover all or part of the expenses of all electrical infrastructure both on the utility and the customer side of the meter required between the utility system and the charger itself. Such investments are offered primarily to incentivize the development of charging stations by private third parties. In some cases, the utility will contract for the work – in other cases they will offer make-ready incentives or rebates paid to the third-party EVSP (EV service provider) or host site who will then be responsible for the work. In most all such cases, the third-party or host site will be responsible for owning, operating and maintaining the charger itself. There is some opposition to

utility make-ready investments, often from consumer groups or advocates who believe it is inappropriate for utilities to invest in areas where at least on the surface, not all customers will benefit. We address these arguments below.

But many states have also supported a utility own and operate (O&O) model where the utility builds (or more likely contracts for) all of the infrastructure and owns, operates and maintains the charging station. There will be parties to this Docket that strongly oppose the utility having a role in ownership and operation of charging stations. They will argue that utility ownership constitutes unfair competition and will dampen the role of private investors in the infrastructure market. The Alliance believes their arguments are self-serving and that a utility O&O role is absolutely vital to ensuring that potential gaps in the market are adequately served and that the utility's customers can gain the benefits that come from a robust TE market. The Alliance published a white paper last month (June 2023) addressing these issues, and we attach it for your review ("Driving for Benefits: The Utility Role in Transportation Electrification")[1].

The primary opponents of utility ownership are consumer groups and advocates who view it as an unwarranted subsidy (as they do for make-ready) and certain third-party EVSE developers, convenience store and gas station operators, and gasoline wholesalers and marketers. The primary argument of these third-party EVSEs is that utility O&O amounts to unfair competition – that being able to place costs in rate base gives utilities an economic advantage in building charging stations and additionally the ability to undercut the prices that may be charged by non-utility EVSE owners. Some suggest that they will not invest in chargers if even the threat of utility competition exists and thus, they seek regulatory or legislative prohibitions on utility ownership of charging stations and other constraints on regulated utilities (e.g., requiring the utility to transfer such assets and operations to an unregulated subsidiary under a holding company structure subject to complex affiliate entity transaction rules).

Yet the Alliance believes that at this nascent stage of market development, competitive markets are not meeting all of the nation's or State's infrastructure needs. Most utilities do not necessarily want to be in the business of owning, operating, and maintaining public charging infrastructure, and would be glad to

[1] Available at https://evtransportationalliance.org/wp-content/uploads/2023/06/Utility.role_.OO_.whitepaper.FINAL_.6.6.23.pdf

let private entities develop and transform this emerging market. This is because the real benefit of charging station deployments to utilities (and their customers) is from the development of the EV market, not ownership of charging stations. However, the needs for charging station development over the next decade are so significant relative to current deployment levels that action is needed now and the overall market size should allow many firms – both utilities and third parties - to invest. More importantly from a public policy perspective, there are potentially many use cases – rural areas, underserved communities, multi-unit dwellings, on-street charging, etc., where private investment is difficult, and deployment is lagging. Utilities are uniquely well positioned to fill those gaps in these challenging market segments. Utilities can also work with private entities to help them get stations built – it is not in any way an either-or situation. Both utilities and non-utility entities have key roles to play. Indeed, early utility investment can help kickstart the market leading to more EVs on the road and better economics for private investment. A rising tide lifts all boats.

Moreover, some of the arguments by opponents of utility make-ready and O&O investments tend to misunderstand how utility investment works and the regulatory protections in place to that preclude utilities from taking anti-competitive actions. The following is a brief summary, although not all-inclusive, of the regulated utility paradigm and how programs are approved, and rates are set.
First, while utilities do place the costs of make-ready or charger investments in rate base once approved by public service commissions, customers do receive substantial benefits in return. There is likely no subsidy, or cost shift, required from other customers to pay for charging stations, particularly in the long term.

- Utilities do not and cannot give away charging service for free. They are required by long-standing regulatory practices to recover the cost of service from such investments. So, when utilities charge EV drivers for charging at utility-owned stations, those revenues go to offset the costs, both fixed and variable, that utilities have invested on behalf of ratepayers.
- Utilities will make every effort to ensure that the bulk of EV charging takes place in off-peak hours when there is excess capacity in the system. Increased revenues from such sales will be greater than any incremental costs, meaning average rates for all customers should see

downward pressure. This argument means that utility investment in make-ready and O&O, which will serve to grow the EV market, will benefit all electric consumers – not just EV owners[2].

- There are other substantial benefits to the development of the EV market which can be driven in part by utility investment. These benefits include environmental, local economic development, public health, and national security (geostrategic) benefits.

Second, at this early stage of market development, the utilization of public charging stations is often insufficient to provide an attractive return to private investors, particularly for DC fast charging with high upfront costs. This is especially true in areas that may not currently have much EV market penetration. Utilities can bring benefits simply owing to quite different time horizons for capital investments in EVSE as a grid-edge asset: namely, while third parties often take a shorter term (less than five years) to achieve the return on investment required by their equity investors, the regulated utility takes a much longer view toward investments in utility assets in the distribution grid (often in the 10 to 40 year timeframe). And many EVSE investments – particularly DC Fast Chargers will take longer than five years to recoup costs.

Third, proposed utility investments are small relative to the total need that any arguments that utility investment will overwhelm the market or push out competition reflects a disregard for the sheer scale of the need, or a tendency by vendors and certain advocates to want to "lock in" certain business models and proprietary systems. There are numerous examples around the country where even a proposal to build small numbers of new charging stations receives opposition from private companies when the identified needs for clean transportation and net zero carbon goals by 2035 or 2040 are usually estimated to be in the tens of thousands of chargers for each state. In other words, the Commissions need not worry that utility-make-ready or O&O programs, which are properly scoped and overseen by the commissions 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 and have 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 not only all ratepayers, but also EVSE developers and operators and other participants in the EV ecosystem.

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[2] This effect has been proven out in California, the nation's largest EV market. See Frost, Jason, Whited, Melissa, and Allison, Avi. "Electric Vehicles Are Driving Electric Rates Down." Synapse Energy Economics White Paper, February 2019.

Fourth, experience has shown that involvement by a trusted utility as a complement to the private sector is important because the electric vehicle charging landscape is challenging to most of the population. 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. Many landlords of multi-unit dwellings and property owners simply lack the time, resources, and motivation needed to move forward with installing, owning, and operating charging infrastructure. One way to jump-start the market is for the utility to complement private third-party investment in this early phase of market development by providing, installing, operating, and maintaining infrastructure, both public and private. Direct utility investment in developing charging stations (make-ready and O&O) may not be as broadly needed 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, rural areas, on-street charging and for publicly accessible DC fast charging where there is no third-party EVSE offering charging.

The Alliance emphasizes that there are a wide variety of ownership, or joint venture, possibilities that are currently being explored in EV infrastructure where a private EVSE firm can bring technology, software, and network management experience to the table, while the utility can bring its scale, engineering experience and detailed knowledge of the grid. The utility may want to put its brand on certain charging stations it rolls out, and a vendor may prefer to supply the solutions on a turnkey basis including all back-office and network management systems. A variety of business structures are possible to develop the EVSE market. The optimal solution will differ from state to state, utility to utility, and case to case. That is why the Alliance supports a portfolio approach where all options for expanding infrastructure are examined and deployed where investment is feasible. But at this stage of market development, the Commission should not rule out any options that can ensure sufficient infrastructure gets built. All options should remain on the table.

Another argument made by opponents of utility O&O relates to pricing – both the wholesale price charged by the regulated utility to the EVSP, and the retail prices to consumers that are charged by EVSPs, host sites, or utilities that own and operate these assets. The argument is that utilities will price charging service in a manner that will undercut charging services by third-party charging stations. Again, this argument represents a misunderstanding of the utility ownership model and the regulatory

paradigm. Utility retail service – including charging services provided at utility-owned charging stations – are fully regulated by the Commission (unlike prices charged by non-regulated entities, which are deregulated). Under all states' current regulatory practices, utilities can recover their costs of service from their investments – no more and no less. This includes both the direct costs of investment plus the costs of associated debt and equity. When utilities are required to recover their cost of service, they are unlikely to be able to undercut prices of third-party charging stations. Furthermore, in many states, because the cost of service for charging stations is not very well known at this nascent stage of market development, state commissions are using an average of market prices as the price at which utilities are allowed to charge. So, there are reasonable protections against a utility trying to unfairly undercut the price of non-utility charging stations. And in any event, those worried about unfair competition may intervene in these utility rate proceedings.

There are other advantages of utility investment (Make-ready and O&O) in the market that should be considered. These include:

- Increasing the pace and scale of infrastructure development by opening the market to utility capital, expertise, and other resources. Restricting either through legislation or Commission actions impedes rapid and needed market transformation;
- Utilities can fill immediate market needs which may take longer for third parties to fill;
- Maintaining reliability, minimizing negative grid impacts, and optimizing required distribution and transmission system upgrades by coordinating with existing utility investment and planning processes;
- Utilities are more likely than others to place value on off-peak charging and achieving system benefits;
- Lowering the cost of infrastructure development through coordination with the distribution grid and building on utility experience with infrastructure development;
- Experience in working with fleets, transit systems, and school buses in assessing their energy/transportation needs. These are called Fleet Advisory Services (FAS) by the utilities, and ATE recently published a paper on these highlighting best practices;
- Utilities are well positioned to smooth a key pain point in operating charging stations, namely ensuring reliability. Utilities have an obligation to reliably serve all customers and are accountable to regulators creating strong incentives to maintain reliability;

- Proven ability to communicate with and educate customers through existing channels and creating incentives to promote vehicle charging at times that provide grid benefits—including load balancing and integration of renewable energy sources; and
- Providing more equitable access to charging infrastructure for all ratepayers and communities and increasing mobility for all through utility partnerships with transportation programs focused on serving disadvantaged and rural communities. For example, many best practice utility programs will double or expand the rebates for both the chargers and the installation costs in these neighborhoods to promote this infrastructure.

Utility investment and proposed ET programs of course must be (and will be) carefully considered by Commissions to ensure that the benefits to customers outweigh the costs, that competition in the market will not be significantly affected, and that rates associated with utility programs are just and reasonable. Utility TE investments have been proposed in many states around the country. In all states where it has been considered, either make-ready or the utility own and operate model or both have been approved. To date, according to Atlas Public Policy, there has been over $4 billion in utility TE investments approved in 34 different states, including about $1.9 billion for the use case of public charging stations (EVSE). With the pending utility filings and revisions to previously approved make-ready and other programs, this number rises to over $5 billion. The Alliance expects this number to increase further in the months ahead with TE Plans and other filings in Colorado, California, Arizona, Texas, Washington, Illinois, and many other states. Clearly, state commissions have recognized that utilities have an important role to play in developing the EV markets through strategic and beneficial infrastructure investments.

In addition to make-ready and O&O investments, there are other roles that the utility can importantly fulfill in striving towards gaining the benefits of TE. Again, we believe that the Commission should support utility investments in these areas. They include:

Transportation Electrification (TE) Planning

In many states, utilities are required, either by statute or Commission Order, to develop TE plans (called "TEPs") that lay out how transportation electrification will play out in the utility's service area. These plans often include distribution system planning elements, utility investment needs, ensuring a smooth

customer experience in getting and using an EV, how service to underserved communities will be addressed, and other elements. These plans, which the Alliance views as a best practice, can be used by Commissions to ensure that proposed investments and programs meet state goals and consumer needs.

Education and Outreach (E&O)

Despite having purchase incentives and other supportive policies for EVs, unless consumers understand EVs, adoption will not advance from the early adopter phase in which a limited number of buyers are willing to try out this new technology quickly, to an EV mass market in which EVs are owned by a majority of consumers. A report published in October 2020 by Resources for the Future showed that while 57% of future car buyers are willing to consider buying an EV, they have significant misperceptions about charging, the maintenance on an EV, battery issues, acceleration of the EV and EV mechanics. Utilities are well positioned to respond to this challenge and correct the many misperceptions and myths, given their expertise, direct access to consumers and their role as a respected voice in their communities on matters pertaining to energy.

Workforce Development

Utilities have and will continue to play an important role in developing the workforce needed for expansion of transportation electrification. Utilities work with and fund programs at technical schools, community colleges and universities to train workers to install and maintain charging infrastructure and for building and maintaining electric vehicles. Such investment is critical to ensuring that the workforce is available to meet the needs of a rapidly expanding industry.

EV and Charging Incentives

While not as common as the other programs discussed in this report, some utilities provide incentives (usually rebates) for the purchase of electric vehicles, or more commonly for the accompanying needed charging stations. In many cases, such incentive payment schemes can be tied to public policy requirements, such as the ability to gather data, or a requirement that the station be ready for interoperability. Incentives may take the form of direct payments, rebates, special tariffs (such as a waiver of demand charges) or other options. Such incentives, along with state or federal tax incentives

have been proven to be an effective means of encouraging early development of the EV market and should be considered as part of a portfolio of utility programs.

Issue 4 the need for data management and coordination among a number of energy system participants

Data management and coordination is very important, particularly with respect to ensuring the utility's ability to maintain reliability in the face of a growing EV market. As a first matter, it is important from both a consumer satisfaction perspective and a data management and coordination perspective that EV charging networks use open access protocols currently available. The Commission can help ensure that such protocols are utilized by including the requirement in its utility programs decisions and when providing incentives, such as make-ready investment, to third-party operators. In the same manner, the Commission can ensure that utilities are provided with the data they need to properly operate the system by third parties.

Issue 5 grid investments that support electric vehicle deployments as part of a planned modernization efforts to enable an efficient and cost-effective transition to electric transportation

As we noted above, it is critical that growth in EV markets and accompanying charging infrastructure be accounted for as utilities plan, modernize and upgrade the grid. The Commission can and should ensure that such robust planning is occurring within the utilities in its jurisdiction either in traditional IRP plans or in TE plans, as mentioned above. These efforts should include more sophisticated load forecasting and modelling of the distribution system at a granular level, and especially trying to assess where the "hyperlocal demand" is going to appear especially for medium- heavy-duty loads.

Issue 6 increased electric vehicle adoption and the development of their charging infrastructure and how those advancements align with grid modernization efforts

Again, it should be a responsibility of utilities in South Carolina to demonstrate in their resource planning how the development of charging infrastructure and how those advancements align with grid modernization efforts. Thus, we defer to the utilities response to this question.

Issue 7 whether rate designs and other load management strategies are appropriate to mitigate potential negative grid impacts and maximize potential grid benefits and maximize potential benefits of transportation electrification

It is essential that rate designs and other load management strategies are developed to encourage off-peak charging, which in turn will mitigate potential negative grid impacts and maximize potential benefits of TE. In fact, utilities and state regulators should keep in mind several critical objectives when examining rate design for transportation electrification (TE). Of course, the primary objective of TE rate design should be to fairly recover costs to serve customers while optimizing the use of the electric system and providing overall benefits to customers. Utilities and state regulators should also keep in mind the impact of rate design on TE. In particular, cost-reflective rate design should also have the ability to: (1) support beneficial electrification, such that all customers can benefit from transportation electrification from both an economic and environmental perspective; (2) support state environmental, economic, and electric and transportation system policy goals; (3) allow individuals, fleets, mass transit, school districts, and medium and heavy-duty truck operators to make economic decisions on electrification based on their needs; (4) support equitable cost recovery based on class cost of service and, (5) encourage optimal management and use of the electric grid and power supply system.

To encourage off-peak charging, the Alliance supports the development and use of time differentiated energy supply rates. Utility energy supply costs vary by time within a day and by month or season, so to properly reflect CoS, rates should be differentiated by time-period within the day and by season and/or month. TOU rates can be real-time (potentially based on organized market price signals), hourly, based on distinct time periods (usually two to four time periods over the day), or by offering discounts or rebates for use during off peak periods (overnight usually).

- Whatever form of time differentiated rate is used, it should be reflective of utility supply costs and resource availability during the relevant time-period. In some cases, TOU rates can also facilitate the use of what would otherwise be surplus energy from low or zero-carbon non-dispatchable resources by encouraging EV charging usage to occur during periods outside of peak times, that is, during periods of otherwise comparatively lower loads.

- Most EVs and all smart chargers have the means to automatically set times to charge based on user (and sometimes third-party) input, making it easy to correlate charging with off-peak and super off-peak rates.

There are questions that always arise as to whether time differentiated rates that apply to the whole household should be used or whether such rates should be developed that apply to EV charging only. While we do not take a position on EV-only vs. whole-house time-differentiated rates, there are some pros and cons.

- *Whole House Rates*
  - Pros: Where automated meters have been deployed, whole-house time differentiated rates have the advantage of being fairly easy to implement. Many utilities across the country already offer voluntary whole-house TOU rates and have already installed such interval meters capable of measuring hourly or time period consumption at a residence.
  - Cons: If rates are whole house only, EV owners could be discouraged from selecting time differentiated rates if their overall non-EV use occurs during peak periods, or if they are just nervous about the impacts on their overall bills.
- *EV Only Rates*
  - Pros: Participation may be higher, as homeowners could be more flexible with EV charging than with other household uses of electricity. The key here is technology, which is evolving quickly to allow measurement of EV use without separate meters. For example, where utilities have interval meters (AMI infrastructure), customers have smart chargers, or where in-vehicle telemetry is available to the utility, utilities can possibly use data gathered from those sources, if deemed sufficient, to have a separate EV rate without the necessity for a separate meter, although more research and pilots are likely warranted to test such data gathering and use.
  - Cons: If an EV-only rate relies on an additional meter at the EV charger, this program model can increase customer costs and lead to lower customer participation. Utilities, EVSPs, and regulatory commissions are exploring multiple methods for lowering overall costs and administrative complexity of offering EV-only rates, although multiple technical issues involving communications protocols, telemetry, and data quality need to be resolved in many jurisdictions.

As discussed below, there may be other methods of rewarding customers for off-peak EV charging that may not require changes to rate design. For example, managed charging programs can be implemented alongside current rate designs with rebates or other incentives for off-peak use. Many utilities, including Duke Energy in North Carolina and Xcel Energy in Minnesota, are beginning to offer subscription rates to residential customers, which while still based on CoS principles at their core, allows for cost recovery by the utility and requires or rewards off-peak use while providing convenience and increased cost certainty to customers.

It is also important that rate design be developed with technological advancement in mind and consider technology's role in meeting TE objectives. The hardware and software associated with EV charging, and the vehicles themselves, are continually changing and adapting to the needs of the market. As managed charging becomes more widespread, rate designs can become increasingly sophisticated to make the most of charging capabilities. Incorporating technology can also enable more benefits to be achieved from utility rate design.

Thus, although foundational, changes to rate design may not be the only answer to meeting TE objectives. Utilities can and have developed EV programs that provide the same support (or the removal of hurdles) for TE that are more consumer friendly, targeted and easier to implement for the utility, often relying on advancing technology. An example might be utility programs that offer rebates or credits to EV owners for charging their vehicles off-peak, without the EV owner having to be on a whole-house or EV-only time-of use-rate, both of which may be currently unattractive to the EV owner for cost reasons. Utilities will be able to ensure compliance either through several existing or emerging technologies – including an interval (time of use meter) on the home (if there is one), smart chargers, or on-vehicle telemetry.

And managed charging, which is an active measure compared to the passive characterization of rate design, can be used to help ensure that EV charging occurs during beneficial time periods even without changes to rate design. Both smart chargers and many on-vehicle software systems can be set (managed) to provide off-peak charging independent of rates for on- versus off-peak charging. These capabilities can obviate the need for customers to adopt time-differentiated rate plans but still provide the same benefits to the electric grid. Managed charging can also work as a complement to rate design, for example helping to smooth charger peaks.

Thus, while it is critical that rate design encourage off-peak charging to minimize the incremental costs of TE, there are other technological solutions that may be used as well that compliment time of use rates. The Commission should consider innovative rate design proposals from utilities and others that accomplish the goals of encouraging off-peak use while minimizing burdens on customers.

Another area of rate design that is critical to the growth of TE is consideration of the effects of demand charges on commercial EVSE customers. The Alliance generally supports traditional Cost of Service (CoS) rate design based on the Bonbright principles. However, a rigid application of these traditional CoS ratemaking principles may sometimes conflict with a state's public policy objectives in the short term. While CoS ratemaking may provide optimal efficiency and equity, there may be instances where transitional relief is needed to meet state policy goals during a transitional period of EV market development. We believe that the key metric for the Commission to use is station utilization, which is usually the average monthly electric load for the customer at that site, usually calculated per month and per port. The basic problem is that utilization of charging stations during this nascent period of EV development will be low, and when demand charges are applied to charging stations, the necessary per kWh price for charging service will be so high as to make charging uneconomic in some cases. However, as station utilization increases with higher EV adoption, the EVSP or host site will likely prefer to pay more predictable demand charges (per kw-month) rather than the electricity consumption or commodity charges (per kwH).

State regulators must carefully examine if such transitional relief is warranted and whether it can be implemented without unduly harming other electric customers and whether the overall benefits exceed the costs. For example, states might consider temporary elimination (so-called "demand holidays") or discounts to some types of demand charges that are charged to EV charging station owners on general service tariffs, as discussed further below. State regulators also must, of course, evaluate the best ways to recover costs, whether through base rates, riders, DSM or energy efficiency programs, or adjustment clauses.

- Such transitional relief should recognize that it results in short-term subsidies, should be targeted for specific use cases, and should provide a plan for transitioning back to CoS-based rates.

- Where transitional relief to achieve public policy objectives is warranted, EV customers should pay, at a minimum, the short-run marginal costs (including energy or commodity costs) they impose by their usage and some contribution to fixed costs. However, over the long term, rates should be determined using a more proportional allocation for the total embedded costs included in a utility's rate base.

As noted later in this response, the Alliance has developed more detailed issue papers on rate design that go into the above issues in considerably more detail. We commend those papers to the Commission's attention.

Issue 8 other critical issues related to transportation electrification, such as service reliability, privacy, affordability, and security

The Commission is most likely aware that the reliability of charging stations has been less than ideal in these early years of market development. We don't believe that the subject can be adequately discussed within these comments, nor does the Alliance have special expertise with regard to the issue. This may be an area where a special workshop might be organized to discuss the issue and how the Commission might be able to help ensure that consumer needs are met.

Privacy is of course critical, and the Commission should do all it can to ensure that individually identifiable consumer data is protected.

With the exception of prices charged by utility-owned stations, the price of charging service (and hence affordability) is not within the Commission's jurisdiction. However, we do believe there will be a competitive market for charging services that will ensure affordable pricing. And normal consumer protection tools are available to the State to oversee bad actors.

Finally, security and cybersecurity are important issues which the Alliance is unable to comment on. We are in the process of forming a Cybersecurity Task Force and we may have more to say in the future.

Issue 9 any other issues the commission determines relevant.

We are not aware of other issues that the Commission must address.

Response to Questions Related to PURPA Section 111(d) Amendments

ATE will focus its comments on the third question in the IIJA of 2021: "Appropriate measures to promote greater electrification of the transportation sector." We will respond with a focus on the measures specified in these PURPA Amendments to promote greater electrification of the transportation sector, including the establishment of rates that –

> (A) promote affordable and equitable electric vehicle charging options for residential, commercial, and public electric vehicle charging infrastructure;
> (B) improve the customer experience associated with electric vehicle charging, including by reducing charging times for light-, medium-, and heavy-duty vehicles;
> (C) accelerate third-party investment in electric vehicle charging for light-, medium-, and heavy-duty vehicles; and
> (D) appropriately recover the marginal costs of delivering electricity to electric vehicles and electric vehicle charging infrastructure.

Each of these PURPA Standards which the Commission is asked to evaluate are discussed in the Section below.

Appropriate Measures to Promote Greater Transportation Electrification

(A) promote affordable and equitable electric vehicle charging options for residential, commercial, and public electric vehicle charging infrastructure;

The best way for the Commission to ensure that rates for electric vehicle charging are affordable and equitable is to continue to rely on cost of service ratemaking based on just and reasonable standards. Regulated utilities, per direction from the Commission, perform extensive CoS (cost of service) studies every few years, and these studies should provide the foundational data and analysis to set rates for EV charging. Moreover, rates can reflect the public policy priorities of the state by reflecting the need for encouraging charging during off-peak hours to the extent practicable, and for commercial station

charging customers, consider the need for relief from demand charges during the early years of EV market development when utilization of these stations may be very low (generally, an average monthly utilization rate of about 5 percent or less).

Rather than providing a detailed answer here, we refer the Commission to two white papers developed and published by ATE (also referenced above) which discuss in detail the ratemaking issues with respect to EV charging and makes recommendations on ensuring the efficient development of charging infrastructure. In these papers, we argue that regulated utilities, with Commission approval, can provide affordable and equitable programs and rates for the transition to EVs, while at the same time being consistent with the traditional Bonbright CoS principles. The first of these papers consists of an overview of both residential and commercial rates – "Electric Transportation Rate Design Principles for Regulated Utilities " (July 2021) and is available at https://evtransportationalliance.org/wp-content/uploads/2022/02/ATE-Rate-Design-Principles-Final-July-202194.pdf. The second paper focuses in on commercial charging stations and the impact of demand charges – "Rate Design for EV Fast Charging: Demand Charges" (May 2022) available at https://evtransportationalliance.org/wp-content/uploads/2022/06/Rate.Design.TF_.Demand-Charge-Paper-Final-5.25.22.pdf.

These papers offer several alternatives to traditional rate design and demand charges, for commercial customers like EVSPs but argue that such rates should be sustainable and fair over time as well. The rate-setting process will depend heavily on the specific circumstances of the utility, its cost of service, its distribution grid, and the use case proposed either by the private developer or the utility. In summary, these papers conclude that EV charging can best contribute to the development of EV markets if first, residential rates are either based on time of use or utilize managed charging to ensure that most charging occurs in off-peak hours. Second, with respect to rates charged by utilities to commercial public charging stations, demand charges might be temporarily mitigated with reductions to demand charges or more permanent rates without demand charges focused on low load factor customers. ATE stands ready to respond to any questions the Commission may have on these papers and their conclusions.

(B) improve the customer experience associated with electric vehicle charging, including by reducing charging times for light-, medium-, and heavy-duty vehicles

The Commission can best meet this objective by creating an environment in which both non-utility and utility-owned DC fast charging ("DCFC") sites (which are faster than public AC (Level 2) stations) can be developed and charge rates that reflect savings over the equivalent cost of gasoline.

As discussed above, ensuring that EVSPs can provide economical charging stations may require adjusting demand charges for low-load factor DCFC charging stations or providing them commercial rates that don't include demand charges -on a temporary basis until utilization of these stations improves. South Carolina will get DCFC charging stations under funding from the IIJA through the National Electric Vehicle Infrastructure (NEVI) program, for which its plan has been approved, but the Commission will be responsible for overseeing the electrical infrastructure to the EVSE at certain sites as well as determining the proper rate design for utility sales to the host sites or EVSPs.

It is also important that rates for regulated utility sales to EV charging stations need to reflect the use case involved. One clear lesson we are learning is that consumers want to be able to charge their vehicles quickly while on the road. They do not want to wait for a lower cost time period, so managed charging, for example, may not make sense for highway charging. But fleets have more flexibility for charging during off-peak times than do highway-located chargers, as they usually return to a fixed base between trips. Moreover, one should not forget the importance of the cost-effective public AC Level 2 chargers that many host sites, utilities, and EVSPs are offering to the public in many states. These stations offer longer dwell time charging at either heavily discounted or cheaper rates (although often regulated utilities must fully reflect the CoS studies in such rates) which may apply to some important charging use cases, such as workplace charging, park-and-ride sites by public transit authorities, and other public authorities such as cities and of course regulated utilities as well.

(C) accelerate third-party investment in electric vehicle charging for light-, medium-, and heavy-duty vehicles

The utility can help enable the transformation of electric transportation, as it has done with other technologies such as energy efficiency measures, in multiple ways working with private technologists and EVSPs. The Commission can best encourage the development of charging infrastructure investment

through its ratemaking authority as discussed above, but also by encouraging and allowing utility investment where it's needed particularly to fill in gaps not being met by private investment. Also, it is important to recognize that third-party EVSPs have multiple business models that have implications for rate design, uptime and maintenance, and data reporting. Many EVSPs locate on property leased from site hosts. Some EVSPs own and operate the chargers with full responsibility for operations and maintenance (O&M) to ensure adequate uptime. Others provide equipment and networking but let the site host own and operate the EVSE. With respect to maintenance, some companies provide the service but some delegate this maintenance responsibility to other parties through service level agreements (SLAs), of which there is a mixed record. And finally, some of the EVSPs have developed capabilities to partner with regulated utilities (usually co-branded) on a turnkey basis, where the utility owns and operates the station but most of the development work and operations of the charging station is done by the EVSP.

The Alliance believes that multiple models should be allowed by the State and Commission to accelerate the development of charging infrastructure, and that in these early days of market development, each model should develop until greater maturity. As stated above, each project will depend on unique factors and be very use-case specific. But particularly in these early years of market development, the Commission should not preclude any source of investment where it makes sense. Utilities have an important role to play, particularly in areas where non-utility EVSE development is unlikely to occur. We discussed the utility role in detail in our response to Issue 3 above.

(D) appropriately recover the marginal costs of delivering electricity to electric vehicles and electric vehicle charging infrastructure

While it is essential that rates for delivering power to EV charging infrastructure at a minimum recover marginal costs to preclude other customers from being harmed by such service, we do not think marginal cost-based rates are sufficient. Marginal cost pricing is a complex topic that involves many choices of whether to use short-run costs or long-run costs, and many other factors in a capital-intensive industry such as electric utilities. While their use may assist certain new technologies and help new market entrants, the Alliance does not necessarily believe that this is the right metric to use compared to embedded cost ratemaking. Most Commissions use cost-of-service (COS) studies based on actual

embedded costs, and use averages among the commercial and residential classes, to develop J&R (just and reasonable) rates in the public interest. As is the case with all rates charged by regulated public utilities, traditional cost of service regulation which is utilized by most every state regulatory commission requires that all customers pay their fair share of the costs that utilities have incurred in providing safe, reliable service to customers at the lowest reasonable cost.

EVs should not be exempt from paying their fair share of historically incurred costs without which they could not be served. This does not mean that some accommodations to traditional rate design are not appropriate to meet public policy objectives. For example, temporary mitigation of demand charges for the EVSPs may be appropriate to allow DC fast charging stations to be economically feasible during periods of low utilization or for a certain period of time. But, under such rates, the EVSPs are still required to make a contribution to embedded costs of the utility system using the rate spread and cost allocation rules developed by the Commission.

Respectfully submitted this 27th day of July, 2023

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