



November 5, 2018

Mrs. Judith Whitney, Clerk
Vermont Public Utility Commission
112 State Street
Montpelier, VT 05602

Filed electronically on e-PUC

Re: **Case No. 18-2660-INV** Investigation into promoting the ownership and use of electric vehicles in the State of Vermont

Dear Mrs. Whitney,

Please accept for filing the *Comments of Sierra Club* filed in response to the Commission's *Order Commencing Next Step of Investigation* dated October 24, 2018.

If you have any questions about the material in the comments, please do not hesitate to contact me at 415.200.9778 or nathaniel.shoaff@sierraclub.org.

Respectfully submitted,

Nathaniel Shoaff
Senior Attorney
Sierra Club Environmental Law Program
2101 Webster Street, Suite 1300
Oakland, CA 94612
(415) 200-9778
nathaniel.shoaff@sierraclub.org

STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 18-2660-INV

Investigation into promoting the ownership and use of electric vehicles in the State of Vermont	Filed: November 5, 2018
---	-------------------------

I. Introduction

The Sierra Club and its Vermont Chapter jointly submit this response to the questions posed by the Commission in its *Order Commencing Next Step of Investigation*, issued October 24, 2018. We appreciate the opportunity to comment on these important matters and look forward to continued participation in the Commission’s investigation into accelerating the use and ownership of electric vehicles (EVs) in Vermont.

II. Responses to Commission Questions

a. Usage Fees

1. *Describe how usage fees would be calculated for Vermont customers using public EV charging stations. Please identify each component used in determining the final fee, and if a component is not always used in determining the final fee, explain the circumstances under which it is used and the reasons why.*

Sierra Club has no response at this time.

2. *Are usage fees variable based on factors such as time spent at the charging station, time of day when charging occurs, type of vehicle charging at the station, etc.? For example, if a kWh charge applies to the first hour of charging and a vehicle remains at the station charging beyond that hour, could or would an additional fee above and beyond the kWh fee apply to all subsequent hours? Please explain your company’s approach to setting and applying fees at charging stations.*

Varied approaches exist for the pricing of EV charging services to EV drivers.¹ The appropriateness of a given pricing scheme often depends on the specific “use case” (that is, the type of charging need, based on vehicle type, location and charging technology). For example, a pricing scheme that incorporates escalating fees to encourage drivers to move their vehicle may be appropriate at a busy public location where EV drivers are only “topping-off” with day-time charging, but wholly inappropriate at a multi-unit dwelling where EV drivers will exhibit “home

¹ See, e.g., Post-Workshop Comments of ChargePoint at 6 (filed October 15, 2018), Case No. 18-2660-INV, Vermont Public Utility Commission.

charging behavior”—that is, plugging in to fully charge overnight. In the latter case, not only are EV drivers unlikely to get out of bed in the middle of the night to unplug, but the price signal is not tailored to the “use case.”

As a general matter, Sierra Club believes that pricing for EV charging should be premised on a volumetric, per kWh basis that reflects actual electricity consumption. This approach promotes several policy objectives. First, volumetric pricing supports price transparency, as the kWh is the common metric for electricity consumption. Second, because volumetric pricing reflects actual energy consumed by a vehicle and not, for example, the time spent plugged in, it supports fair treatment of EV drivers (see question 7 for additional detail). Finally, the use of volumetric pricing can support pricing schemes that vary by time-of-day to reflect grid conditions and encourage EV drivers to plug in at the right times.

By contrast, other schemes can frustrate these objectives: free charging fails to incentivize optimal charging behavior and can result in inefficient allocation of resources,² while fixed rate pricing (e.g., per-minute charging or a single “session” fee) does not promote price transparency or fairness. At a minimum, the Commission should remove barriers to per kWh pricing, in order to enable pricing schemes that are good for EV drivers and for the grid.

3. *Describe any limitations imposed on the fee structures for EV charging station use in states other than Vermont.*

When enabling third party, non-utility providers of EV charging services to set their own pricing, state utility commissions have often been careful to articulate remaining authority. For example, in examining this issue, the California Public Utilities Commission noted that although it does not regulate EV charging service providers as utilities, it nonetheless has jurisdiction over the sale of electricity from an investor-owned utility to an EV charging service provider, and that therefore the Commission “can set the rate that the provider pays to the utility.”³ The Commission explained that rate design in the state could include various components, such as “volumetric charges (dollar per kilowatt-hour), demand charges (based on peak usage during a specific time period), and fixed charges” and that rates can be designed separately for generation, distribution, and transmission to reflect how a customer’s use impacts the specific cost category.⁴ The Commission also noted, consistent with comments Sierra Club filed previously in this docket, that the Commission’s “rate design authority may be a tool to address

² At first glance, free charging would seem appealing, but it can lead to EV drivers who could charge elsewhere occupying spaces that would be better reserved for EV drivers who really need the charging stations, necessitating the deployment of more charging stations than would otherwise be needed. See Michael Nicholas and Gil Tal, *Charging for Charging: The Paradox of Free Charging and Its Detrimental Effect on the Use of Electric Vehicles*, October, 2013 (University of California—Davis).

³ California Public Utilities Commission, Decision 10-07-044, Rulemaking 09-08-009, *Decision in Phase 1 on Whether a Corporation or Person that Sells Electric Vehicle Charging Services to the Public Is a Public Utility*, at 27 (July 29, 2010).

⁴ *Id.*

how electric vehicles impact the electric grid and can help integrate renewable energy resources.”⁵

As a second example, Maryland’s Public Service Commission has pursued a stakeholder investigation process on EV rate structures after previously approving a time-of-use rates for two utilities in the state geared toward EV users. The Commission noted a range of options that it would be willing to consider as part of that process, including extending the existing EV tariff to other utility territories, authorizing other EV-only time-varying rates, planning for limited utility investment in EVSE, evaluating EV tariffs for corporate fleets and workplace charging stations, and partnering with state and auto industry groups on public education related to cost savings and other benefits of EVs and EV rates.⁶

4. *Do or should the fees charged to consumers at public EV charging stations vary based on the electricity rates charged by the utility that serves the charging station?*

The answer to whether fees will vary based on applicable utility electricity rates often turns on what price signals are embedded in the underlying rate and the particular use case.⁷ We submit that the Commission should focus attention on whether the rates offered by its regulated entities are optimized for EV charging and will incentivize charging behavior that minimizes grid impacts.

To take one example, time variant rates are a foundational tool to manage EV load. When properly designed, time-of-use rates create effective and efficient price signals for energy consumers.⁸ To both ensure EV customers are adequately motivated to charge during off-peak hours and to maximize fuel cost savings relative to gasoline, we suggest rates with at least a 2:1 on-peak to off-peak price ratio, and no more than three time-of-use periods (e.g., on-peak, off-peak, super-off-peak) that remain constant throughout the year, even if the prices during those time-of-use periods vary to reflect differences in seasonal costs. Shifting time-periods or introducing new time-periods seasonally will confound consumer understanding and undermine the associated response. Off-peak periods should be of sufficient length to accommodate the regular charging needs of EV drivers, even at lower power levels, while on-peak periods should be concentrated into as few hours as possible, in order to ease the burden on customers,

⁵ *Id.* at 28.

⁶ Maryland Public Service Commission, Case No. PC 44, *In the Matter of Transforming Maryland’s Electric Distribution Systems to Ensure that Electric Service Is Customer-Centered, Affordable, Reliable and Environmentally Sustainable in Maryland*, Notice at 8-9 (January 31, 2017).

⁷ For example, transportation “use cases” might include (1) at-home charging of passenger EVs; (2) public charging at Level 2 or Direct Current Fast Charging stations; (3) charging of medium- and heavy-duty vehicles/fleets that are publicly or privately owned, among others.

⁸ See, e.g., the Department of Energy’s EV Project, which has tracked the charging behavior of thousands of EVs since 2011, has shown that in areas with time-of-use (“TOU”) rates and effective utility education and outreach, the majority of EV charging occurs during off-peak hours. This was not the case in areas without TOU rates, where EV demand generally peaked in the early evening, exacerbating early-evening system-wide peak demand. See Schey, et al., *A First Look at the Impact of Electric Vehicle Charging on the Electric Grid, The EV Project at EVS26* (May 2012).

produce a better response, and actually track underlying increased costs, which are themselves concentrated into relatively few hours of the day and year.⁹

In addition, while early benefits to the electricity system are more likely to accrue at scale in the residential segment where the majority of kilowatt-hours used for transportation electrification will be delivered, that does not mean the Commission should not prioritize taking an inventory of commercial and industrial rates and reforming or replacing those rates where necessary. Commercial and industrial rates are likely to apply to Direct Current Fast Charging installations or the charging of medium- and heavy-duty vehicles. In many cases, current commercial and industrial rate structures do not accurately reflect costs associated with transportation electrification use-cases and can undermine or erase the fuel cost savings upon which the economics of transportation electrification depend. As with residential rate design, commercial and industrial rate design should generally not subsidize transportation electrification, but should take into account the fact transportation electrification represents additional revenue and encourage charging that is consistent with grid conditions, which will maximize fuel cost savings relative to gasoline or diesel.

5. *Will or should variations in electricity rates due to time-of-use rate structures offered by the electric utility serving a public charging station be passed through to the users of public EV charging stations?*

See the response to question number 4, above.

6. *Can the charging capabilities (e.g., speed) of the EV affect the rates that a consumer will be charged at the EV charging station? Please explain and offer examples from your experience.*

Yes. The power rating of a vehicle's on-board charger determines the charging rate, and under certain non-volumetric pricing approaches can result in unequal treatment of EV drivers.

In the context of Level 2 charging, the kilowatt (kW) power rating of an EV charging station does not reflect the rate at which each and every vehicle will charge; instead, it reflects the maximum power output for the station itself. The actual rate at which the vehicle will charge is determined by the power rating of its own on-board charger, which varies by vehicle model and model year. Put another way, the charging station is only the energy supplier, and it is the on-board charger that determines the speed at which vehicles charge.

The power ratings of on-board chargers range widely, from 3.3 kW to about 10 kW. To illustrate the problem, take two cars with fairly common power ratings: Car 1 has a charging capability of 3.3 kW and Car 2 is rated for 6.6 kW. Assuming all else is equal, including battery capacity, Car 1 will take twice as long to charge up as Car 2. Although both drivers will have

⁹ See, e.g., Regulatory Assistance Project, Smart Rate Design for a Smart Future at 44 (2015).

consumed an equal amount of electricity, under a time-based pricing scheme (e.g., per-minute) the driver of Car 1 will pay twice as much as the driver of Car 2.

7. *How would drivers charging their vehicles at a public EV charging station pay for their usage (e.g., by credit card)?*

Front-end interoperability is a key principle for the entire charging infrastructure ecosystem. Currently, many companies have their own card or key, which means drivers must either join multiple “clubs” or risk being unable to charge; this should be remedied. EV service providers currently offer varied models for access, payment, and pricing. At present, several EV network operators require network membership and use of a network-specific ID card (typically a radio frequency or “RFID” card) in order to easily gain access and pay for charging services at their station locations. Many stations either do not support or discourage simple credit card usage. Several states have taken steps to remedy this practice, which can frustrate current EV drivers and can discourage would-be drivers.

It is critical for states to resolve basic issues related to access, payment, and pricing at EV charging stations in order to support current or would-be EV drivers. To provide EV drivers with a positive charging experience, states should set basic ground rules for charging station access, payment options, and pricing transparency. This is particularly important in a world with an ever-increasing number of EV service providers offering varied models for access and pricing.

The concept of “open access” is the ability to get a charge at any public charger, including Level 1, Level 2, and DC Fast Charging. This means that the public charging station is not locked behind a gate or wall – essentially open for access by the public – and does not require a membership card to access the charging services. Open access also means that there is one or more methods of payment available to enable the charge to begin, for example via a credit card swipe or via a mobile app.

Multiple state legislatures have responded to the “open access” problem by passing or proposing straight-forward laws mandating open access / front end interoperability at charging stations in the state. For example:

- California: SB 454 created the Electric Vehicle Charging Stations Open Access Act, which includes the above noted consumer protection principles. California is currently adopting standards to meet the specifications under the legislation.¹⁰

¹⁰ See California SB 454 (“[P]rohibit[s] the charging of a subscription fee on persons desiring to use an electric vehicle charging station, as defined, and would prohibit a requirement for persons to obtain membership in any club, association, or organization as a condition of using the station, except as specified.”) available at http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB454 (last visited November 2, 2018).

- Massachusetts: Chapter 448 of the Laws of 2016 expressly authorized state regulators to adopt regulations requiring open access and prohibitions on subscription fees of public charging stations.¹¹
- New Hampshire: SB 575 prohibits an owner or operator of a charging station from requiring a membership or subscription fee for use of a charging station, requires that charging stations support multiple payment options, and mandates reporting of charging station location and other data to the Department of Energy’s Alternative Fuels Data Center.¹²

b. EV Charging Station Technology

8. *What factors affect the charging speeds for different EVs?*

In our response to question number 6, above, we explain how in the context of Level 2 charging, the rate at which a vehicle charges is determined (and potentially limited) by the power rating of its on-board inverter. The amount of energy delivered to a vehicle also varies over the course of the charging session, based on the “state of charge” of the battery and ambient conditions. Particularly for DC fast charging, the rate of charge is fast at the outset when the battery is depleted, and drops off dramatically between 80-90 percent state of charge. Each of these factors supports volumetric-based pricing for EV charging, as it promotes price transparency, fair treatment of EV drivers, and can better reflect grid conditions, where appropriate.

9. *How will a utility determine the electricity usage of a charging station connected to its distribution grid?*

Consistent with general practice, the utility will refer to the electricity meter for the circuit with the EV charging station. Where the charging station is not separately metered and is instead placed on an existing building meter—as is likely the natural configuration at residences or workplaces with only one or two vehicles—it may be difficult to isolate EV charging load.

¹¹ See MA Ch. 48 of the Law of 2016 (“The department of energy resources may adopt interoperability billing standards for network roaming payment methods for electric vehicle charging stations. If the department of energy resources adopts interoperability billing standards, electric vehicle charging stations that require payment shall meet those standards within 1 year.”) available at <https://malegislature.gov/Laws/SessionLaws/Acts/2016/Chapter448> (last visited November 2, 2018).

¹² See New Hampshire SB 575 (“Owners or operators of public electric vehicle charging stations that require payment of a fee shall not require persons desiring to use such public electric vehicle charging station to pay a subscription fee or otherwise obtain a membership in any club, association, or organization as a condition of using such public electric vehicle charging station, but may have different price schedules that are conditioned on a subscription or membership in a club, association, or organization.”) available at <https://legiscan.com/NH/text/SB575/id/1685285> (last visited November 2, 2018).

For charging outside of the residential context, separate metering can alleviate this issue, and is likely the logical approach as EVs become ubiquitous and parking lots come to have large numbers of vehicle chargers.

In the residential context, time-variant rates that apply to the whole home and necessitate only a single meter are a reasonable first step for basic management of EV load. However, in the future, dedicated metering may be needed to reap additional benefits associated with more advanced load management strategies, including the use of more dynamic price signals to which EVs can respond (but to which other typical household loads are not yet capable of responding autonomously). Because separate utility revenue grade metering that requires a separate service is generally not cost-effective in the residential segment, utilities that are interested in pursuing this type of functionality should explore more cost-effective means of isolating EV load for purposes of implementing more advanced forms of load management, such as the use of sub-meters embedded in EV Supply Equipment (EVSE), EVs, or smart circuit-breakers.

10. *Would utilities prefer to install their own meters or rely on meters included in the EV charging stations?*

Sierra Club has no response at this time.

11. *If a utility relies on the meter in a charging station to measure electricity service to that charging station, will the utility be able to determine the time of sale for each kWh delivered to the charging station for the purpose of applying time-of-use-rates to the electricity delivered?*

Sierra Club has no response at this time.

12. *Can EV charging stations be configured so that more than one vehicle can charge at a single station at the same time (e.g., multiple cables or automatic disconnect when one car is fully charged) to avoid the need for one car to move to a new parking space in order for the second car to charge?*

Dual port charging stations (that is, EV charging stations with more than one cord and connector) are quite common.

c. Consumer Protection

13. *Does any State of Vermont entity currently have the authority to verify the accuracy of the electricity meters in EV charging stations? If yes, which agency? Please describe an appropriate regulatory oversight structure for that role. If no, what agency is best positioned to take on that oversight role and why?*

Pursuant to Vermont statutes Title 9, Chapter 73, “[a]ll weights and measures and weighing and measuring devices used in this State shall be regulated by the Secretary of Agriculture.” 9 V.S.A.

§ 2631. As described on the Vermont Agency of Agriculture website, the agency’s Weights and Measures Program “coordinates inspection and testing of devices and products in commerce, such as scales, gas pumps, heating oil and propane delivery truck meters, scanners used in retail stores, and firewood,”¹³ and the agency’s Consumer Protection Section inspects relevant weights, measures, and meters in a variety of industries to ensure adherence to standards, including ensuring, for example, “that maple syrup is graded properly and is of good quality.”¹⁴

Although it is clear that the Agency of Agriculture could, in theory, inspect and regulate the metering and charge at non-utility EV charging stations throughout the state,¹⁵ in practice it does not do currently do so. It is likely that the Legislature would need to provide the Agency of Agriculture with additional revenue in order to properly train, equip, and manage staff to effectively inspect EV charging stations in coordination with any emerging national testing standards. Sierra Club recommends that Commission or Department of Public Service staff specifically engage the Agency of Agriculture to determine what resources the Agency feels it would need to develop an EV charging program in the future, so that the Commission can recommend appropriate action to the Legislature at the start of the January 2019 session.

14. What recourse would consumers have for complaints arising from public EV charging station usage absent Department of Public Service and Commission jurisdiction?

Initially, a consumer could reach out to the host of the EV charging equipment, the EV charging station operator (if different from site host), the network operator (if a networked station) and/or the equipment manufacturer.

The Consumer Protection Unit of the Vermont Attorney General’s Office provides another level of protection for EV drivers and other citizens by investigating and prosecuting violations of Vermont’s consumer laws, which prohibits businesses from engaging in “unfair” or “deceptive” acts or practices. Under Title 9, Chapter 63 of Vermont Statutes, “[u]nfair methods of competition in commerce and unfair or deceptive acts or practices in commerce are hereby declared unlawful.” 9 V.S.A. § 2453. Thus, any widespread consumer concerns related to EV charging business practices could be brought to the attention of the Attorney General’s Consumer Protection Unit, which has the expertise and authority required to investigate and curb potential abuses.

¹³ https://agriculture.vermont.gov/food_safety_consumer_protection/weights_measures (last visited November 1, 2018).

¹⁴ https://agriculture.vermont.gov/food_safety_consumer_protection/consumer_protection/commodity_inspection/maple_syrup (last visited November 2, 2018).

¹⁵ The definition of “weights and measures” in the statute appears to exclude regulation of facilities owned by utilities: “Weights and measures’ means all weights and measures of every kind, instruments and devices for weighing and measuring, and any appliances and accessories associated with any or all such instruments and devices but not including meters for the measurement of electricity, gas (natural or manufactured), or water *when they are operated in a public utility system. Such electricity, gas, and water meters are specifically excluded from the purview of this chapter, and this chapter shall not apply to such meters or to any appliances or accessories associated therewith.*” 9 V.S.A. § 2651 (14) (emphasis added).

15. *What information should be available to the users of public EV charging stations at the time they are charging their vehicles (e.g., phone number for technical assistance from station operator, phone number for consumer protection assistance, etc. posted in plain view on the charging station)?*

In addition to the examples given, information regarding pricing for EV charging services should be clearly and plainly posted in order to support price transparency. EV drivers should be able to easily know what it will cost to charge without the need to enroll in a proprietary network or use proprietary smart phone applications.

d. Utility Participation

16. *Do third-party charge providers compete directly with utilities in any other states?*

In Sierra Club's view, there is ample space in the emerging EV charging market for both utilities and private third-party providers. Utility investments in EV charging can overcome the market coordination problem that results from high upfront costs of charging infrastructure, and advance the market for EVs and EV service providers alike, particularly in certain market segments such as multi-unit dwellings. As evidenced by the charging market in other states, regulators have found it reasonable to approve of utilities and third parties having a role in this space. For example, state utility commissions in Washington, Michigan, Ohio, Massachusetts, Florida, Oregon, Utah, Nevada, California, and Kentucky, among others, have provided guidance and/or authorized utility investment in aspects of EVSE and cost recovery in the normal course of utility regulation.¹⁶

Particularly as the EV charging market develops and EV adoption continues to grow at this early stage, the experience around the country has been that utility investments in EV charging has supplemented rather than supplanted private investment. Although there may be some concern that allowing utilities to own or operate EV charging stations or related EV supply equipment could have a chilling effect on private investment and innovation, those concerns are largely not shared by charging providers themselves. For example, EVGo, which operates a large public EV fast charging network, explained in recent comments submitted to the Illinois Commerce Commission in an ongoing EV investigation docket, that, "utilities have been, and are, a critical partner in the EV charging space."¹⁷ Other EV technology filing comments to that docket expressed similar views.¹⁸ At the commission level, the Maryland Public Service Commission led

¹⁶ See Sierra Club, Post Workshop Comments at 6, Vermont Public Utility Commission, Case No. 18-2660-INV (October 15, 2018).

¹⁷ EVGo Comments at 1, Illinois Commerce Commission, Docket No. 18-NOI-01 (October 23, 2018).

¹⁸ See Siemens Comments at 1 ("Our view ... is that utility should be permitted to own chargers in order for EV owners and ratepayers generally to receive greater benefits at lower costs from EV adoption as well as to drive grid

a stakeholder process similar to the one here and found that the process “unveiled the near-consensus that allowing some level of utility involvement in the build-out of EVSE [electric vehicle supply equipment] could catalyze the private market, as well as electric vehicle ownership generally.”¹⁹ The California Public Utilities Commission reached the similar conclusion following a lengthy rulemaking process, finding that parties to the case represented “near unanimity that the utilities should have an expanded role in EV infrastructure support and development in order to realize the potential benefits of widespread EV adoption.”²⁰

In order to guard against concerns that utility participation could negatively impact private investment in a still emerging EV charging marketplace, several states have folded consideration of competitive concerns into public interest tests for utility investments in this space. For example, Oregon law allows regulators to approve utility programs or proposals to further transportation electrification where, *inter alia*, the programs are “[a]re reasonably expected to stimulate innovation, competition and customer choice in electric vehicle charging and related infrastructure and services.”²¹ Similarly, the Massachusetts Department of Public Utilities articulated a test for approval of EV-related investments that considered whether proposals were in the public interest, met a need regarding the advancement of electric vehicles in the commonwealth and did not hinder the development of the competitive electric vehicle charging market.²² That test was later codified into law²³, and the DPU has approved some \$65M worth of EV investments for Eversource and National Grid.

Finally, it is critical to understand that any utility investment in EV charging is entirely reliant on EV service providers for hardware, software and networking services, just as those providers are entirely reliant on the utility’s distribution system. Stated differently, “ownership” of vehicle charging equipment is far from the most important consideration in ensuring that utility engagement in the EV market fosters growth among providers – instead, the focus of the Commission and stakeholders to accelerate the EV market should be on clarification of the

benefits.”); ChargePoint Comments at 14 (“We believe that there is a vital role for utilities in supporting efficient integration of EV load and that the right program design can encourage the installation of more charging stations around the state in a manner that complements, and does not duplicate or conflict with, the private market.”).

¹⁹ Maryland Public Service Commission, Case No. PC 44, *In the Matter of Transforming Maryland’s Electric Distribution Systems to Ensure that Electric Service Is Customer-Centered, Affordable, Reliable and Environmentally Sustainable in Maryland*, Notice at 8 (January 31, 2017).

²⁰ California Public Utilities Commission, Rulemaking 13-11-007, *Order Instituting Rulemaking on the Commission’s own motion to consider alternative-fueled vehicle tariffs, infrastructure and policies to support California’s greenhouse gas emissions reduction goals*, Decision 14-12-079 at 5 (December 22, 2012).

²¹ SB 1547 § 20(4)(f).

²² Massachusetts Department of Public Utilities, DPU 13-182-A, Investigation by the Department of Public Utilities upon its own Motion into Electric Vehicles and Electric Vehicle Charging (filed August 4, 2014).

²³ <http://lawfilesexternal.wa.gov/biennium/2015-16/Pdf/Bills/Session%20Laws/House/1853-S.SL.pdf> (last visited November 1, 2018).

regulatory landscape (e.g., Commission jurisdiction, tariff sheet revisions to allow per kWh pricing, and permissible utility roles), among other issues.

17. *Do any Vermont utilities have an interest in offering their own charging facilities? If so, how would that arrangement be structured (e.g., facilities and services subject to traditional utility regulation or services provided by an affiliate subject to the same level of regulation applied to non-utility providers of charging services)?*

Sierra Club has no comment on utilities' interests.

However, we strongly recommend that the Commission permit and invite its regulated utilities to bring forward proposals for investments to support transportation electrification as regulated services, in line with the regulatory framework adopted in the majority of states to have considered these issues. (See answer to question 18 below).

In addition to traditional components like program specifics and costs, a utility application for an EV infrastructure investments should include an explanation of how the program will: (1) accelerate transportation electrification in the target segment or segments; (2) improve the utilization of the grid, support the integration of variable resources; (3) increase access to the use of electricity as a transportation fuel; (4) deliver the cost-savings that motivate EV purchases; (5) interact and partner with competitive market participants; (6) leverage other funding sources; and (7) collect data to inform Commission policy and program evaluation.

18. *Are there states that treat charging stations owned by utilities differently than they treat charging stations owned by non-utilities? If so, please identify those states and describe the differences in treatment and the reasons therefor.*

Yes. The common regulatory paradigm is for state utility regulators to exclude third party, non-utility owners/operators of EV charging stations from regulation solely by virtue of providing EV charging services, while retaining jurisdiction over *otherwise regulated* electric utilities and, where those utilities propose investments in EV charging as regulated services, to review them for consistency with the relevant public interest or prudence standard and maintain some ongoing measure of oversight over charging stations that are funded using ratepayer dollars, whether the utility owns them or not.

The reasons can be summed up as follows:

First, as we explained in our opening comments in this docket, third party owners/operators of EV charging stations should not be subject to state utility commission regulation solely by virtue of providing EV charging services.²⁴ Such a determination provides regulatory certainty for EV service providers, encourages innovation in EV charging, and avoids potentially burdensome

²⁴ See Sierra Club, Post-Workshop Comments at 5-7, Vermont Public Utility Commission, Vermont Public Utility Commission, Case No. 18-2660-INV (October 15, 2018).

regulation for stations in an emerging market. As noted previously, it is important to recognize that other states such as California and New York do not completely disclaim *any* jurisdiction over third-party providers of EV charging services and indeed some states identify some other factor that justifies regulation (like safety issues, grid reliability concerns, or, pricing). Moreover, as addressed elsewhere in these comments, there are other available avenues for state consumer protection even absent regulation by this Commission.

Second, state utility regulators nonetheless retain jurisdiction over *otherwise regulated* electric utilities and, where those utilities propose investments in EV charging, regulators typically review proposed investments for consistency with the relevant public interest or prudence standard. This Commission should likewise maintain an ongoing measure of oversight over charging stations that are funded using ratepayer dollars, whether the utility owns them or not. Such oversight would help protect ratepayer investments and ensure that utility programs are structured to deliver the benefits on which they are premised.

19. If a utility offers time-of-use rates to a residential customer for charging an EV at home, or to a business customer for charging employee EVs at work, would or should that utility also offer the same time-of-use rates to non-utility operator of a public EV charging station? What considerations would go into determining whether to tariff such an offering?

The bulk of vehicle charging occurs at the home,²⁵ and then at the workplace. The Commission should therefore initially work to optimize rates for these two market segments, particularly the home where the bulk of EV charging takes place.

With respect to time-variant rates for public charging, it is important to better understand the “use case” – that is, what level of charging and what type of driver behavior is at play – and then to structure rates that incentive appropriate charging behavior for that use case. For example, is it a public lot serving workplaces where drivers will be parked for long periods of time and can modify their charging behavior in response to time-variant rates, or is it public parking for come-and-go shopping where drivers would plug in only during errands or other short trips? Is it high demand applications like transit fleets or high-power charging where time-variant rates can better reflect system costs than demand charges while also supporting electrification?

In the case of public charging, the customer-of-record (*i.e.*, the utility customer paying the energy costs) is not generally the end-user (*i.e.*, the EV driver). Itinerant EV drivers cannot easily be armed with the tools needed to “set-and-forget” in response to dynamic price signals, nor

²⁵ The Department of Energy estimates that most EV owners do more than 80 percent of their charging at home. <https://www.energy.gov/eere/electricvehicles/charging-home> (last visited November 4, 2018).

will they necessarily have the flexibility to do so. Therefore, the initial focus in optimizing rates should be on long-dwell locations—like home (single family and multi-family) and workplace charging.

e. General

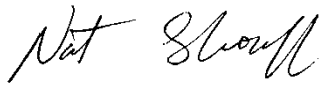
20. Are there other considerations that these questions do not reflect, and if so, what are they?

Sierra Club has no additional comments at this time.

III. Conclusion

Thank you for the opportunity to provide feedback as the Commission continues its important work and identifies next steps toward transportation electrification in Vermont. Should you have any questions about the information provided in this letter, please feel free to reach us at the contact information listed below.

Sincerely,



Nathaniel Shoaff
Senior Attorney
Sierra Club Environmental Law Program
2101 Webster Street, Suite 1300
Oakland, CA 94612
(415) 200-9778
nathaniel.shoaff@sierraclub.org

_____/s/_____
Robb Kidd
Conservation Program Manager
Sierra Club Vermont
P.O. Box 492
Montpelier, VT 05602
(802) 505-1540
robb.kidd@sierraclub.org