VERMONT PUBLIC UTILITY COMMISSION

Case No. 18-2660-INV

Investigation into promoting the ownership
and use of electric vehicles in the State of Vermont

GREEN MOUNTAIN POWER
RESPONSE TO COMMIMSSION QUESTIONS

Green Mountain Power responds to the Vermont Public Utility Commission (the "Commission") Order of October 24, 2018, requesting that participants submit written responses to questions pertaining to issues concerning the Commission's investigation into promoting the ownership and use of electric vehicles in the State of Vermont as follows:

Q1. 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.

Response: GMP does not have unique expertise in this area at this time and would look to other stakeholders who may have that expertise to provide relevant comments.

Q2. 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.

Response: GMP does not have unique expertise in this area at this time and would look to other parties who may have that expertise to provide relevant comments

Q3. Describe any limitations imposed on the fee structures for EV charging station use in states other than Vermont.

Response: GMP does not have unique expertise in this area at this time and would look to other parties who may have that expertise to provide relevant comments.

Q4. 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?

Response: GMP does not have unique expertise in this area at this time and would look to other parties who may have that expertise to provide relevant comments.

Q5. 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?

Response: GMP cannot predict if time of use electric rates charged to public charging stations will result in the owner of the charging station passing through those time-differentiated costs to consumers since GMP has no influence over this decision. If the Commission elects to lightly regulate public charging stations, it should not mandate particular rate structures that the owners of these facilities must charge.

Q6. 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.

Response: GMP does not have unique expertise in this area at this time and would look to other parties who may have that expertise to provide relevant comments.

Q7. How would drivers charging their vehicles at a public EV charging station pay for their usage (e.g., by credit card)?

Response: GMP does not have unique expertise in this area at this time and would look to other parties who may have that expertise to provide relevant comments.

Q8. What factors affect the charging speeds for different EVs?

Response: GMP does not have unique expertise in this area at this time and would look to other parties who may have that expertise to provide relevant comments.

Q9. How will a utility determine the electricity usage of a charging station connected to its distribution grid?

Response: Generally, charging stations will be connected to circuits served from the service panels of the addresses hosting the stations. In these cases, metering will be for the premise and not specifically for the charger. If the charger is participating in a load management program, it will have to be metered specifically to determine how it responds to curtailments. In these cases, measurement would be either through a dedicated meter, or through the metrology built into the charger. In cases where the charger is served from a dedicated circuit, though, either a dedicated AMI meter, the metrology within the charger itself, or a combination of the two will be employed.

Q10. Would utilities prefer to install their own meters or rely on meters included in the EV charging stations?

Response: Depending on the circumstances specific to the charging station and customer location, charging station consumption and load will be measured through one of the following methods:

- through a dedicated AMI meter where charger is direct tied to utility;
- through a dedicated submeter where charger is tied behind the main billing meter;
- through the metrology in the charging station;
- through a combination of the AMI meter and the metrology in the charging station;
- as an undifferentiated load that is part of the premises from which it is served.

Using utility advanced metering systems seems to represent the most efficient and accurate way of capturing information on the energy associated with vehicle charging due to the pre-existing integration to back office systems that process meter data, as well as the standards compliance, security and supportability of AMI metering infrastructure. Use of utility meters also enables utilities to accurately charge and support demand response programs for the benefit of all customers. However, there is intelligence and additional functionality that can come from the metrology built into chargers. In particular, the ability to measure demand and consumption specific to the charger when it does not have a dedicated AMI meter. This capability may be an alternative to utility metering subject to demonstrated accuracy, security, and ability to cost-effectively integrate with back office systems.

Q11. 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?

Response: The station's metrology would have to include these capabilities, and generally meet the criteria outlined in the response to question 10, in order for the utility to use it for billing and demand management.

Q12. 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?

Response: GMP does not have unique expertise in this area at this time and would look to other parties who may have that expertise to provide relevant comments.

Q13. 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?

Response: The Department of Public Service and the Commission regulate entities that sell electricity to the public. The Secretary of the Agency of Agriculture, Food and Markets has jurisdiction over weights and measures under 9 V.S.A Chapter 73. Input from this Agency

would be worthwhile. GMP notes that on the Agency's website, there is a link to the National Institute of Standards and Technology ("NIST") Handbook 44 in which NIST has published tentative standards for electric vehicle fueling systems. https://agriculture.vermont.gov/food_safety_consumer_protection/weights_measures/device_inspection/laws_regulations

Q14. What recourse would consumers have for complaints arising from public EV charging station usage absent Department of Public Service and Commission jurisdiction?

Response: The Consumer Protection Unit of the Attorney General's Office investigates and prosecutes violations of Vermont's consumer laws; consumers would also have the right to bring a private action.

Q15. 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)?

Response: While this list may not be exhaustive, GMP believes that at least the following information should be provided: contact information of provider; pricing information; trouble shooting information; customer support & regulatory oversight contacts.

Q16. Do third-party charge providers compete directly with utilities in any other states?

Response: Utilities provide EV charging services in other states. To the extent that these stations are in proximity to chargers owned and administered by other entities, they may be seen as competing directly. However, the actual services provided would need to be examined in order to determine whether there is competition.

Q17. 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)?

Response: GMP currently maintains a network of over 90 ports of level 2 charging infrastructure and 14 ports of DC Fast Charging Stations. Currently, customers are charged based on the amount of time spent charging.

Q18. 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.

Response: GMP does not have unique expertise in this area at this time and would look to other parties who may to provide relevant comments.

Q19. 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?

Response: The utility should offer the same rates to non-utility operators of public EV charging stations that it offers to standard General Service customers, including the option to take time of use service. The rates, terms and conditions of service need not be identical to residential EV charging at a residence since that EV charging equipment would likely be a part of the many electric loads at the residence. GMP notes that it is also early in the evolution of EV charging and some elements of service may be suitable to the home and business charging equipment that may not be suitable to stand-alone public EV charging stations, such as incentives for control of the equipment at certain times.

Q20. Are there other considerations that these questions do not reflect, and if so, what are they?

Response: The parties should discuss the issue raised by some advocates of high-speed charging equipment that demand charges and limited energy use (due to underutilization as the EV market grows) make the economics of these Level 3 facilities questionable. While a special exemption from demand charges may be enticing, the parties should also consider other means to make these facilities economic if it is in the public interest. Options include contributions toward the utility bill from public sources or initial demand charge adjustments for a defined period of time until the facility develops customers to generate revenue to pay for the electric bill.