

STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Investigation into promoting the ownership and use of electric vehicles in the State of Vermont	March 1, 2019 Case No. 18-2660-INV Vermont Electric Cooperative
---	--

COMMENTS OF VERMONT ELECTRIC COOPERATIVE
Electric Vehicle Rate Design and Grid Management

Vermont Electric Cooperative (VEC) appreciates the opportunity to offer its perspective on the questions identified in the February 4, 2019 Public Utility Commission (Commission) Order regarding electric vehicle rate design and grid management.

As discussed in previous comments, VEC supports the goal of transforming our transportation system. Our vision of the future includes ensuring the well-being of our cooperative members, while expediting carbon reduction, utilizing EV charging as a resource to help manage increasing amounts of intermittent distributed generation, and controlling costs resulting from peak demand. In advance of the March 15, 2019 workshop, VEC offers the following information:

- 1. Planned or currently available EV-specific rate offerings for both home charging and service to public charging stations, how they will be or are being implemented, how successful the offerings are expected to be or have been, and any difficulties expected to be encountered or that have been encountered in offering such rates.***

VEC does not currently have a rate specific to EV charging although we do offer a time of use (TOU) rate to our members who participate in our Energy Transformation Program incentives (Tier III of the Renewable Energy Standard), which include EV and PHEV vehicle purchase and lease incentives. If the member opts-in to the TOU rate, it would typically apply to the full load for their home or business including EV charging. We currently have 12 residential, 1 small commercial, and 2 large commercial members that have opted into the TOU rate.

As discussed in detail in our comments of February 15, 2019, the current barrier to an EV-specific rate is the significant costs involved with metering and billing. This cost cannot be justified in the short term since our members can utilize the existing TOU rate that incentivizes EV charging during off peak times (9PM to 7AM on weekdays and all day on weekends and holidays). We also

This document is being filed electronically using ePUC.

believe that in our relatively rural and lower-income service territory, the more pressing barriers to EV uptake continues to be the cost of vehicles and the types of electric vehicles currently on the market.

2. Demand charges and DC fast-charging stations, including the effects of demand charges on the deployment of such stations and how such effects can be mitigated or eliminated without undue impact to electric ratepayers.

Demand charges are not a barrier to EVSE deployment in VEC service territory because DC fast-charging stations can opt-in to VEC's Pilot Commercial TOU rate. This rate excludes demand charges and encourages charging during off-peak times through differential rates that are applied depending on time of day.

There is potential in the future to develop a specific rate for fast-charging stations provided we can ensure that we limit any incremental costs related to transmission and capacity charges. We believe the largest barrier to more DC fast-charging in the immediate term is the purchase cost of the stations, and that concerns about demand charges are mitigated by the option of utilizing the Pilot Commercial TOU rate.

3. Incorporation of growing EV charging load into the electric grid and issues associated with serving that new load;

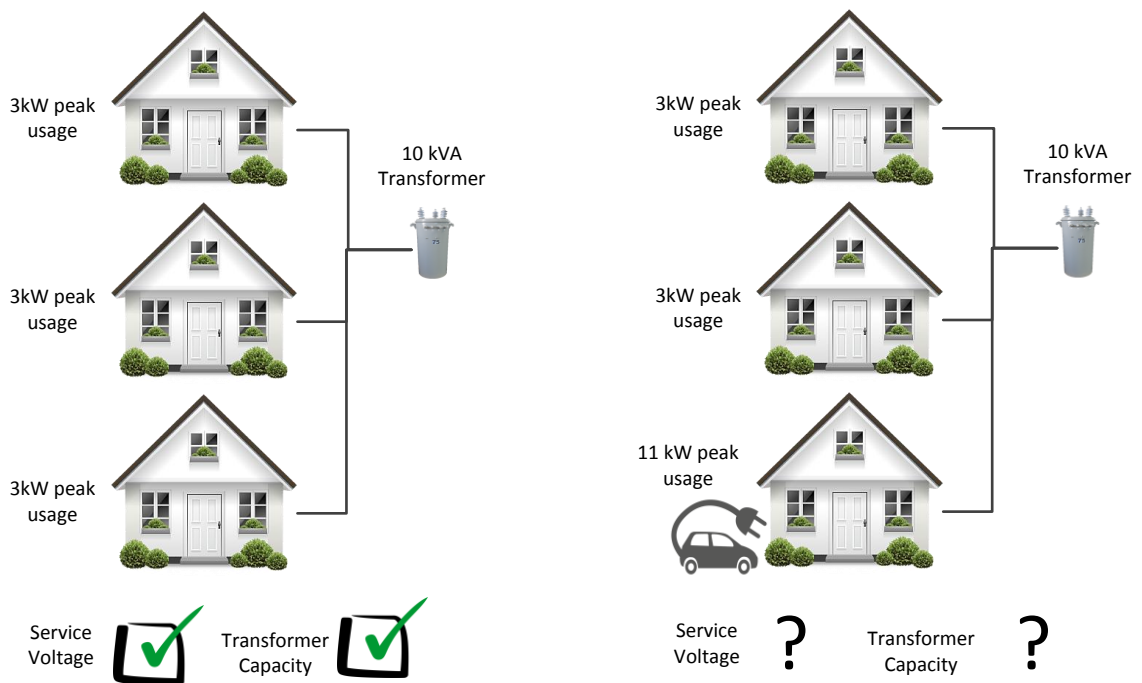
VEC is looking closely at this issue as part of our IRP update process. As with any type of load growth, quantity and location of load can have significant impacts on the electric grid. If we look at EV load growth under the worst case assumptions (no load control or rate design) we are expecting 52% of the load growth in VEC territory by 2023 to be attributable to EV and PHEV's (5.6MW). The potential risk for this type of load growth can be service transformer overload and service voltage drop. These risks and infrastructure cost recovery can be mitigated through proper planning, which could require notification prior to the purchase and installation of EV charging equipment. Since currently there is no notification mechanism in place, this is something that needs to be developed.

We also are finding that while some studies conclude that 20% EV penetration would not result in overloading of existing distribution networks, other systems can tolerate only 10% of

This document is being filed electronically using ePUC.

uncoordinated charging load. That level could be raised to 40% in the case of charging coordination. Each distribution network is a special case, requiring an independent study to explore the issues and limits of EV charging load.

For example, the average residential customer will draw around 3 kVA and in some cases up to 8 kVA. A 10 kVA transformer is utilized for residential loads which would allow for additional members to be added without changing the transformer. In more developed areas where multiple members may be fed off of the same transformer, an electric vehicle purchase may cause the need for a transformer upgrade to ensure system reliability and performance.



To plan for the future we are exploring how to track increases in load so we can accommodate this load through our capital planning. We are also exploring rate design to ensure appropriate price signals and how to supply members with that information so they can make informed choices.

4. Potential benefits of managed EV charging to the electric grid, including using EV batteries for purposes such as peak shaving and regulation, and the likelihood of realizing such benefits based on EV usage in Vermont and existing and expected technological capabilities; and

This document is being filed electronically using ePUC.

We are in the early stages of learning about the opportunities and challenges of using car batteries as a part of a peak management system and backup power opportunities. Some initial questions include how battery life could be affected and whether there are any product warranty concerns. This is an important topic to explore.

5. Accuracy of electric metering and sub-metering technology for charging EVs.

We have high confidence in the accuracy of our metering system, and if there were separate meters controlled by VEC, accuracy would be assured. We do not have the same knowledge about third-party secondary usage meters.

We look forward to the discussion on March 15. Thank you for the opportunity to comment.

Respectfully submitted,

VERMONT ELECTRIC COOPERATIVE, INC.



Andrea Cohen, Manager
Government Affairs & Member Relations
Vermont Electric Cooperative, Inc.
42 Wescom Road
Johnson, Vermont 05656
802-696-9036, acohen@vermontelectric.coop