



May 13, 2019

Case No. 18-2660-INV
-Via Electronic Filing-

Ms. Judith C. Whitney, Clerk
Vermont Public Utility Commission
112 State Street
Montpellier, VT 05620-2701

RE: Final Recommendations of Greenlots

Dear Clerk Whitney,

Greenlots submits these comments in response to the Vermont Public Utility Commission's ("the Commission") March 22, 2019 Notice soliciting final recommendations, in its "Investigation into promoting the ownership and use of electric vehicles ("EVs") in the State of Vermont".

Greenlots is a leading provider of EV charging software and services committed to accelerating transportation electrification in Vermont, and a wholly owned subsidiary of Shell New Energies. The Greenlots network supports a significant percentage of the DC fast charging infrastructure in North America, and an increasing percentage of the Level 2 infrastructure. Greenlots' smart charging solutions are built around an open standards-based focus on future-proofing while helping site hosts, utilities, and grid operators manage dynamic EV charging loads and respond to local and system conditions.

As requested in the notice, and to help support the Commission's work in compiling its report to the legislature, below Greenlots responds directly to the specific reporting requirements identified in Act 158, Section 25.

Additionally, and more specifically, Greenlots suggests that the Commission determine and/or recommend the Legislature determine the following (referenced against the Act 158, Section 25 reporting requirements discussed in more detail below):

1. Utilities play a key role in promoting electric vehicles and ensuring benefits from transportation electrification accrue to all ratepayers and society at large. (d)(1)(D)
2. Utilities are encouraged to develop pilot concepts for load management strategies including both rate design and smart charging, potentially including direct control approaches, in addition to education and outreach programs to compliment and/or go beyond any currently offered programs. (d)(1)(A-C)
3. Utilities are encouraged to develop pilots for the development of EV charging stations in areas of inadequate coverage, such as but not limited to, rural and low-income areas, multi-dwelling units, and interstate corridors or highways. (d)(1)(D)
4. Pilots should be encouraged to have bridge mechanisms to scale to programs, where appropriate. (d)(3)(C)

5. Commission Staff will continue discussions with stakeholders on issues related to transportation electrification through an ongoing stakeholder process. (d)(1-3)
6. The Commission encourages the legislature and/or the Governor's office through legislation and/or Executive Order to set aggressive, ambitious, yet achievable targets related to transportation electrification. This should include targets related to EV penetration and EV infrastructure deployment. (d)(3)(C)
7. When utilizing ratepayer or taxpayer funding to deploy electric vehicle charging infrastructure, regulated entities should deploy and ensure charging stations support leading open protocols to ensure interoperability and future flexibility between charging station hardware and software management systems. Additionally, regulated entities should seek to maximize access to publicly available charging stations by minimizing barriers, such as requiring membership or non-point of sale payment functionality. (d)(3)(D)

Sec. 25. PUBLIC UTILITY COMMISSION; REPORT; ELECTRIC VEHICLE CHARGING
(d) The Commission's report shall include:

(1) its analysis and recommendations on each of the following issues related to the role of electric distribution utilities:

- (A) removal or mitigation, as appropriate, of barriers to EV charging, including strategies, such as time-of-use rates, to reduce operating costs for current and future EV users without shifting costs to ratepayers who do not own or operate EVs;**
- (B) strategies for managing the impact of EVs on and services provided by EVs to the electric transmission and distribution system;**
- (C) electric system benefits and costs of EV charging, electric utility planning for EV charging, and rate design for EV charging;**

Greenlots points to our comments on Rate Design and Grid Management filed into this docket on March 1, 2019, which is directly responsive to these questions/issues.¹ In summary, we submit that developing rates and programs that send accurate price signals to EV loads is critical to align the needs and constraints of the grid with EV charging behavior. This is essential deliver on the promise of transportation electrification to the broader public and ratepayers at large. Greenlots encourages the Commission to look beyond TOU rates in its analysis of these issues in the Commission's report to the legislature, and specifically discuss the broader subset of load management strategies.

Specifically, the value of direct control smart or managed charging solutions, which can better shape, utilize, and dispatch flexible EV loads and create more certain customer response, should be discussed alongside rate design approaches to EV load management. As discussed in our March 1 comments, technology-facilitated solutions to load management challenges can not

¹ Pages 1-3; 5-7.

only complement rate design, but also go further and be a more effective alternative strategic solution for maximizing beneficial outcomes.

The promise of EVs to the grid is not only in increasing utilization and thereby putting downwards pressure on rates, but also in using grid assets more efficiently and in a more flexible manner. Managed charging programs further help to ensure this in the same way that demand response programs do, except they are much more powerful as they can not only curtail load, but also increase load. This capability is extremely powerful in helping to manage and maximize the utilization of grid assets. The utility therefore is both the obvious and necessary central hub or nexus for any successful managed charging program.

For an in-depth analysis of the value of managed charging in support of these arguments, please see “Utilities and Electric Vehicles: The Case for Managed Charging” published by Smart Electric Power Alliance in April 2017.²

Regarding, the issue of demand charges in relation to EV charging, Greenlots references our March 1 discussion of this topic.³ We encourage the Commission in its report to the legislature to recognize value and purpose of demand charges in sending key price signals to EV loads, and that the issue of electricity costs to drivers and site hosts is not entirely an issue of rate design. Importantly, there are a variety of technology solutions that can be employed to address many of the same issues and mitigate negative rate impacts, including numerous managed or smart charging strategies, even in fast charging contexts.

(D) the appropriate role of electric distribution utilities with respect to the deployment and operation of EV charging stations;

Greenlots references our November 5, 2018 comments filed into this docket in response to Commission questions, which discuss our views towards the role of utilities in accelerating transportation electrification and the deployment and operation of EV charging stations.⁴ In summary, utilities have a critical role in accelerating transportation electrification, and this includes direct ownership and operation of EV charging stations in many contexts at this stage in the development of the market.

There should be no artificial barriers imposed on who can own and operate charging infrastructure, and indeed, the best positioned party or entity will also likely depend on the context and market segment. In most contexts today, the market is too small and the business case for investing in, owning, and operating charging infrastructure is not attractive for the private market alone to appropriately scale the market. Many jurisdictions have been increasingly leveraging ratepayer or socialized funds to transform the market and accelerate it to

² Available here: <https://sepapower.org/resource/ev-managed-charging/>

³ Pages 4-5.

⁴ Pages 5-8.

the point where private investment is more likely to be able to be relied upon, and this is increasingly justified given the value of transportation electrification not just to EV drivers, but also all ratepayers and society at large. Indeed, approaches that confine and pigeonhole different market participants into specific, inflexible roles will likely also confine the growth of the market as a whole.

As described in detail in our earlier comments cited above, instead of prescribing a specific role for the utility within the context of market accelerator, Greenlots believes that providing flexibility for utilities to self-select the role(s) that best fit(s) its distribution system, customers, and future planning is essential to helping motivate the utility to be excited about its involvement in accelerating the market and delivering these benefits.

(2) its analysis and recommendations on each of the following issues related to EV charging stations owned or operated by persons other than electric distribution utilities:

- (A) how and on what terms, including quantity, pricing, and time of day, such charging stations will obtain electric energy to provide to EVs;**
- (B) what safety standards should apply to the charging of EVs;**
- (C) the recommended scope of the jurisdiction of the Commission, the Department of Public Service, and other State agencies over such stations;**
- (D) whether such stations will be free to set the rates or prices at which they provide electric energy to EVs, and any other issues relevant to the appropriate oversight of the rates and prices charged by such stations, including the transparency to the consumer of those rates and prices; and**
- (E) the recommended billing and complaint procedures for such charging stations;**

Greenlots references our November 5, 2018 comments filed into this docket in response to Commission questions related to these topics.⁵ Additionally, we broadly agree with recommendations the Commission has already made to the legislature pertaining to the regulation of non-utility EV charging station providers.

(3) its analysis and recommendations on each of the following issues:

- (A) jointly with the Secretary of Transportation, recommended options to address how EV users pay toward the cost of maintaining the State's transportation infrastructure, including consideration of methods to assess the impact of EVs on that infrastructure and how to calculate a charge based on that impact, the potential assessment of a charge to EVs as a rate per kilowatt hour delivered to an EV; varying such a charge by size and type of EV; and phasing in such a charge;**

Greenlots references our January 9, 2019 comment letter filed into this docket on this topic, which describes the clear need to identify a sustainable path forward for the collection of

⁵ Pages 1-5.

needed transportation revenues, and how this goes beyond this issue as it specifically relates to EVs. In this comment letter, we described a vehicle miles traveled (VMT) approach as being the most promising approach for holistically addressing this challenge in Greenlots' assessment.

(B) the accuracy of electric metering and submetering technology for charging EVs;

Greenlots references our comments on Rate Design and Grid Management filed into this docket on March 1, 2019, which is directly responsive to this specific question/issue.⁶

(C) strategies to encourage EV usage at a pace necessary to achieve the goals of the State's Comprehensive Energy Plan and its greenhouse gas reduction goals, without shifting costs to electric ratepayers who do not own or operate EVs; and

Greenlots suggests that the Commission recommend to the legislature setting aggressive, ambitious, yet achievable targets for transportation electrification. Target-setting can be an extremely effective forcing function, which can drive further policy decisions and resource allocations. This is a proven and straightforward action that has strong precedent in a wide array of other states across the country and the northeast, including CT, NY, CA, and Quebec, and even several cities, including Los Angeles⁷.

In addition to setting targets for vehicle adoption, Greenlots would recommend setting an EV charging infrastructure target. These targets can align with and support achievement of the transportation emissions reductions targets set in the Comprehensive Energy Plan. With an adequate level of infrastructure deployment, Greenlots is of the strong opinion that EV adoption will occur at a more aggressive rate than what most projections have identified to date.

(D) any other issues the Commission considers relevant to ensuring a fair, cost-effective, and accessible EV charging infrastructure that will be sufficient to meet increased deployment of EVs.

Greenlots references our December 14, 2018 comments filed into this docket regarding open standards for EV charging and hardware and software interoperability. As we noted, open standards and hardware/software interoperability are critical aspects of responsible planning and deployment of infrastructure to support transportation electrification that leverages ratepayer or taxpayer investments in charging infrastructure. At their core, open standards can facilitate a seamless driver experience, minimize infrastructure investment risks, and allow for the efficient integration of EVs into the electric grid. Utilizing them means that it is possible to connect an array of software, network, and utility IT systems with any charging station, regardless of the vendor via open and royalty-free protocols.

⁶ Page 6-7.

⁷ See page 82 here: http://plan.lamayor.org/sites/default/files/pLAn_2019_final.pdf

In these comments, we suggested regulatory language for the Commission to consider that would support and encourage the adoption of open standards.⁸ We now encourage this discussion and consideration to be included in the Commission's report to the legislature give its critical importance to responsible, efficient, and cost-effective EV infrastructure deployment that best serves the public interest.

Conclusion

Greenlots encourages the Commission to consider the virtues of deeper, flexible utility involvement in its analysis of the utility's relationship to other market participants and the market as a whole. Additionally, Greenlots encourages the Commission to outline and recommend clear steps the legislature and state government can take to support beneficial transportation electrification as discussed above. Greenlots appreciates the work that the Commission has invested into this process, and the opportunity to offer these final recommendations. We look forward to continued participation in the Commission's activities to support transportation electrification and advanced mobility in Vermont.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Thomas Ashley', written over a horizontal line.

Thomas Ashley
VP, Policy

⁸ Page 3.