



January 28, 2019

-VIA ELECTRONIC FILING-
Project No. 1598941

Patrick Wruck, Commission Secretary
British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3

RE: Greenlots Written Evidence in Phase Two in the Matter of BCUC's Inquiry into the Regulation of Electric Vehicle Charging Services

Dear Secretary Wruck,

In response to the British Columbia Utilities Commission's ("BCUC" or "the Commission") December 6, 2018 Order Number G-231-18 ("the Order"), inviting written evidence on the scoped items of Phase 2 of the Inquiry as described in that Order, Greenlots offers the following responses and perspective with regard to the questions posed.

Greenlots is a leading provider of electric vehicle ("EV") charging software and services committed to accelerating transportation electrification in British Columbia. The Greenlots network supports a significant percentage of the DC fast charging infrastructure in BC and North America. 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 electric vehicle charging loads and respond to local and system conditions.

Regulatory framework for non-exempt public utilities

1. Can both regulatory models – little or no regulation for those exempt public utilities and the participation of non-exempt utilities – co-exist? In the absence of price regulation, how can EV charging providers that are not otherwise public utilities (which would be exempt from regulation in accordance with the Panel's recommendation) be protected from being undercut by non-exempt public utilities? Should non-exempt public utilities be restricted to participate only in remote geographical locations that are currently uneconomical for exempt EV charging providers to serve?

Yes, absolutely both models can co-exist, and indeed they are complementary to each other. The question of whether regulated EVSE development could undercut private EVSE is contingent upon the assumption that those market segments are being appropriately served by the private market, which in the majority of cases they are not. This concern simply does not follow from any evidence the market has seen in North America. Additionally, Greenlots disagrees with the

premise of the statement the private market is adequately serving all segments other than "remote geographical locations." Indeed, with the possible exception of Tesla's supercharger network, we would posit that the private market is not adequately serving any market segment, and a sustainable, competitive market in the deployment of public charging infrastructure is aspirational, and is unlikely to arise prior to the adoption of a critical mass of electric vehicles – which will need to be driven by meaningful investment by non-exempt utilities.

This is primarily due to a lack of a business model for the ownership and operation of public charging stations based on sustainable revenues from charging activities and collocated services, and this has thus far resulted in a fundamentally inadequate amount of private investment in such charging infrastructure. While there is market competition between a relatively small field of sellers of EV charging products and services to motivated investors/site hosts, there is not a competitive market for offering these services directly to drivers. This is despite significant private investment in companies that are either technology or services providers, or are potentially focused on less economically disadvantageous market segments.

For example, in the residential context, an EV owner who needs a home charger will have no difficulty finding plenty of EVSE sellers and EVSE offerings to install in his or her garage. The same goes for a business that is motivated to purchase, own and operate EVSE on their premises as a value-added service or amenity to their customers and/or employees, perhaps to increase employee satisfaction, bolster their social/environmental responsibility, attract customers or otherwise differentiate themselves in the marketplace. Unfortunately, however, the existence of a competitive market ends here.

Outside of these specific use cases there are many forms of public charging—chargers for which there are not motivated investors/buyers. This includes lower powered chargers at public parking spaces or parking garages or higher-powered chargers in metro areas or key transportation corridors to facilitate every day and longer-range travel. These tend to be EVSE deployed purely to provide charging services – chargers for provision of a charging service not in the context of offering an amenity or an additional value-added service. For this second critical category, unfortunately a sustainable, competitive market is aspirational, and is unlikely to arise prior to the adoption of a critical mass of electric vehicles – which we are currently far from in BC.

For these reasons, non-exempt utility market involvement should be encouraged and supported rather than overly constrained. Indeed, the best thing the Commission can do for the private market is to allow utilities to make significant investment in infrastructure, thereby growing adoption and scaling the market to be more economically viable for all market participants, regardless of end pricing to drivers. Frankly, a better question may be "what is the best way to advance EV adoption?" given that we know EV adoption decisions are meaningfully based on cost savings considerations and availability of charging infrastructure. This reality is increasingly evident in actions and decisions by utility commissions across North America.

With respect to “protecting” private market participants, in those few segments where they are participating, the Commission can and should through its regulation of utility involvement be involved in setting appropriate prices. For example, prices can be set at the average of what any potential private market participants are offering charging services at, and stakeholder groups can be created to monitor regional pricing to be reported back to the Commission. If the Commission decides to focus on accelerating adoption as quickly as possible, it might approve a more attractive rate to drivers. This is a very manageable concern that can easily be addressed and should not be viewed as a reason to confine utility investment which is needed to scale the market.

2. If the provision of EV charging is exempt from regulation, is there any justification for non-exempt public utilities to provide EV charging services? If the role of non-exempt public utilities is to kick start the market, how can the BCUC determine when the kick start is no longer needed? What is the role of those utilities once that kick start is completed? If there are stranded assets at that time how should they be dealt with?

Yes, there absolutely is justification for non-exempt public utilities to provide EV charging services alongside any other market participants – especially at this stage of the market. Just because the Commission exempts private market participants from certain aspects of regulation does not mean that there will be private market interest or market participation, let alone any level of participation or market competition to adequately serve all the different market segments. Utility participation and investment is critical to growing and scaling the market for EV charging infrastructure.

The role of regulated utilities goes much further beyond simply “kick starting” the market. Greenlots believes that an appropriate goal is transforming the market and providing adequate and equitable service across all market segments; as well as scaling the market in a manner that helps ensure that the benefits of transportation electrification can best accrue back to the grid and all ratepayers. These are things that the private market may never do on its own, and certainly will not happen without an active, involved, and central utility role in facilitating this transformation.

The question of when and how utilities could or should exit the market is a bit of a red herring, and indeed any discussion of a limitation on non-exempt utility involvement is unwarranted and premature at this stage. There are few, if any market segments where conditions are anywhere close to offering adequate levels of charging options or private market involvement. The focus therefore should likely be on scaling the market, and the Commission's focus on how to facilitate and support regulated utility involvement in doing that.

We expect that the Commission will be cognizant of evolving market conditions and treat future utility investment decisions or requests appropriately. While we don't necessarily support an explicit line in the sand, the approach of Washington's Utilities and Transportation Commission in identifying a percentage of electrification of the overall vehicle fleet to trigger a re-evaluation is the best approach we've seen thus far in this regard of balancing the development of the market and regulated utilities' evolving role in it. It may also be feasible for there to be an ongoing stakeholder process or advisory group that could assist in monitoring and reporting back to the Commission on this.

Greenlots believes that electric utilities are intrinsically important to transportation electrification, and while their role may evolve over time, we don't perceive a point in the future where they are not inherently relevant or do not have a part to play in such efforts.

Please see answer to Question #5 for a discussion of stranded asset considerations.

3. If non-exempt public utilities participate in the EV charging market, should EV charging customers constitute a separate class from which costs associated with EV charging infrastructure is recovered? Or should the service be offered in a separate non-regulated business? What are the implications of each of these regulatory models?

Generally, Greenlots does not believe a separate rate class is needed or appropriate given that the benefits associated with the deployment of charging infrastructure do not go exclusively to EV drivers. Additionally, by and large, utilities should have the optionality to participate in the market in the manner in which they see appropriate for their customers and service area. If it implicates ratepayer funds and BCUC regulation, the current regulatory framework for cost recovery is likely adequate and appropriate.

This said, we note that there are no jurisdictions or utility Commissions in the United States that are moving towards the advancement of transportation electrification as a non-regulated service. Additionally, such an approach would likely significantly reduce the interests of regulated utilities in embracing their critical and central role in accelerating the market and managing the beneficial growth and development of distributed energy resources generally. In addition, this would introduce significant complexity and inefficiency to the regulatory process and delays to the development of needed infrastructure. The Province would also likely lose valuable transparency to the process afforded by Commission practices and regulatory procedures. For these reasons, Greenlots would consider it wholly inappropriate and counterproductive to pursue limiting utility investment in this regard.

4. Should other customer classes of non-exempt public utilities subsidize costs associated with the provision of charging services that can't be recovered from EV charging customers? How much of the cost is it appropriate for them to subsidize – should there be a cap?

Greenlots disagrees with the use of the term “subsidy” and “subsidize” given the well-documented benefits from transportation electrification that extend far beyond those that accrue to just the EV driver. We note however that a certain degree of redistribution of cost and benefits is both unavoidable and appropriate in the context of utility ratemaking, especially considering the need to support and promote of equitable access and broad public policy.

Cost/benefit analyses and tests can be used to evaluate the extent and to where different costs and benefits accrue to some degree; however this is an emerging and developing enterprise as it relates to transportation electrification. The use of this sort of measurement and analysis, including more holistic accounting of costs and benefits (e.g. societal cost tests), is something that the Commission may wish to reevaluate at some point in the future.

While these are areas that the Commission may seek to track, Greenlots believes that it would be inappropriate to set any limitation or caps on the redistribution of costs and benefits at this point in the development of the market. The Commission has preexisting and sufficient mechanisms to evaluate and approve utility infrastructure investment proposals and set related rates that are just and reasonable. This is especially true for those that advance the public policy goals of the Province, as is the case with EV charging infrastructure development.

5. If assets are stranded as a result of changing technology or other factors, who should pay for the potential stranded EV charging assets which may be in the non-exempt public utility's rate base?

There are two main ways EVSE could potentially become a stranded asset. First, it could be underutilized or its location could not adequately serve customers. Greenlots believes this concern to be a bit of a distraction, and these concerns are well meant but misplaced. In considering the utilization of investments associated with transportation electrification, while increased transportation electrification will result in greater utilization of system infrastructure, particularly with strong management, some amount of infrastructure likely should have low utilization, meaning that it may be playing a critical role in a rural or less popular location. Indeed, some of these are characteristics that are farthest from the focus of private investment, and serve a necessary role in providing drivers more or enough range confidence to adopt EVs in the first place. However, underutilized infrastructure investments could be minimized by planning through a managed charging lens. Indeed, planning investments based upon assumptions of maximum power utilization at all times is likely an inappropriate methodology for building out capacity and assets for EV charging.

As mentioned, part of the reason we need to build out EV infrastructure is to overcome physical barriers to EV adoption, such as range anxiety, and part is to overcome psychological barriers. Investments that might to a greater degree address the latter barrier still represent appropriate

ratepayer investments, as they are also working to accelerate the market and the adoption of EVs.

Second, EVSE investments could become stranded assets through the technology becoming outdated, or otherwise not meeting the needs of drivers/site hosts. While this concern is more relevant, there are powerful tools that utilities and regulatory Commissions have to protect against such risks. Namely, the Commission can take action to help avoid these undesirable outcomes by encouraging or even requiring utilities and developers as part of any ratepayer-funded program (including make-ready/rebate) to fully utilize open standards such as Open Charge Point Protocol ("OCPP") and OpenADR in order to best serve EV drivers, ratepayers and the evolving market.

The adoption of open protocols and standards is essential to support transportation electrification, grow the market for EVs and EV charging products and services, enhance the driver/customer experience, integrate with the electricity system, and lower the cost of ownership of both EVs and EV charging infrastructure. The proliferation of open standards and communication methodologies provides a platform and ecosystem for innovation and customer choice that is critical to guarding against stranded assets and protecting the prudence of ratepayer investments.¹

Importantly, Greenlots also notes that utility ownership of charging infrastructure also comes with significant maintenance, reliability and safety benefits that further protect against the risk of assets being stranded, when compared with other ownership structures.

This question of who would pay for stranded assets contemplates a scenario Greenlots does not believe to be a risk when these appropriate mitigation strategies are leveraged. When active steps such as these are taken by utilities and the Commission, Greenlots believes any real risk of stranded EVSE assets to be minimal, manageable, and otherwise part of natural technology evolution.

6. In the context of BCUC economic regulation, what regulatory justification is required to allow existing utilities to cross subsidize EV charging services? If EV charging services add incremental load, does that justify cross-subsidization? Would the incremental load appear without the subsidization?

First, as noted before, we do not believe the term "subsidy" or "cross-subsidization" to be an appropriate characterization given the well-documented benefits from transportation electrification that extend far beyond those that accrue to just the EV driver. Regarding,

¹ Please see Greenlots Phase 1 Exhibit C15-3 at page 4-5 for a broader discussion of the importance of open standards and promoting interoperability in the context of protecting against stranded assets.

attribution, Greenlots generally encourages the Commission and stakeholders to avoid attempting to solve for likely impossible counterfactuals. Instead, the Commission should encourage utilities to maximize benefits— including those related to increased load and load management— while minimizing costs, and can require the utilities to track and report on metrics related to this.

More broadly, with respect to costs, Greenlots does not believe there is a meaningful difference between providing EV charging services on a regulated basis to serve an emerging and growing source of load, and any other distribution system investments built to serve expected load growth. More important is the consideration of efficiently managing that load growth, something utilities are best situated to accomplish. Incremental, beneficial load growth, such as the load associated with transportation electrification, is much more likely to appear quickly, and in an organized manner, with the support of utility infrastructure investments.

7. What are the implications of the province's energy objectives, as stated in the Clean Energy Act, with respect to non-exempt public utilities providing potentially subsidized EV charging services? Are there noneconomic justifications such as environmental benefits or meeting greenhouse gas reduction targets?

Yes, there are, and those are clearly articulated in the Clean Energy Act ("CEA"), in addition to the framework for utilities to make "prescribed undertakings" to address these goals and meet these targets. Section 18(2) of the CEA provides broad authority to utilities to make prescribed undertaking investments and be able to recover the related costs they incur. Moreover, section 18(3) prevents the Commission from "directly or indirectly" exercising its power under the Utilities Commission Act ("UCA") in a way that would prevent utilities from carrying out a prescribed undertaking.

At least in the foreseeable future, Greenlots believes that attainment of strong Provincial clean energy and greenhouse gas reduction objectives is largely contingent upon deep and flexible utility involvement in the deployment and management of transportation electrification infrastructure, which the CEA provides for. We also note that economic values can be attached to environmental or GHG reduction benefits (see answer to Question #4), however this is an emerging field of measurement and analysis, and inherent value may be a more appropriate treatment.

8. If non-exempt public utilities participate in the EV charging market, do they have any obligation to serve EV charging customers?

Greenlots broadly agrees with FortisBC's answer to this question as articulated in Phase 1 Exhibit C12-3, BCUC IR 1.6.5:

In FBC's view, if EV charging service is regulated by the Commission, then there is an obligation on an electric utility to provide an EV charging service as stated in Section 39 of the UCA. This obligation would apply once the EV charging infrastructure is built and is in-service for public use. The obligation to serve is part of the regulatory compact, such that an entity with this obligation must also be provided with a reasonable opportunity to recover costs and earn a fair return on investment.

Section 38 of the UCA would impose a requirement on a public utility to maintain its property and equipment appropriately and provide service to the public that is adequate, safe, efficient, just and reasonable.

The duty to serve would not, however, automatically compel a public utility to construct new charging stations. As the Commission has held in the past with respect to new facilities in its decision regarding BC Hydro's application for a certificate of public convenience and necessity for the Dawson Creek/Chetwynd Area Transmission Project, "the Commission Panel wishes to emphasize that the absolute obligation to serve is always in context: the service must meet the appropriate electrical standards; options must be weighed diligently; and the service must be adequate, safe, efficient, fair and reasonable. (UCA, Section 28)."

9. Should non-exempt public utilities be provided the same exemptions in regard to EV charging services as are other EV charging market participants? This includes exemption from Part 3 of the UCA, with similar retentions of certain sections by the BCUC.

Greenlots generally believes the current BCUC regulatory framework for non-exempt regulated utilities to be appropriate with respect to the provision of EV charging services. The exemptions that the Panel approved in Phase 1 were targeted at the unique and different needs of potential private market participants.

10. Any other comments that may be helpful to the Panel.

Not at this time.

Wholesale rate

11. Is there a need for specific tariff provisions for the wholesale provision of electricity for the purpose of EV charging?

With respect to wholesale rates offered to third-party EVSE operators (as opposed to rates charged to drivers themselves), Greenlots generally believes the applicable rates offered in the

Province to be sufficient, and that no special rate is necessary. However, we recognize that there may be value in exploring wholesale rate treatment, especially for large users, including heavy duty fleet users. We note however that the Commission and utilities should be particularly cognizant of EV load demand management, and fully leveraging technology solutions, including managed charging capabilities, to most effectively integrate EV load in the manner that maximizes benefits to the broader distribution system. Indeed, managed charging can be more effective and economical than many TOU rate structures.

12. If so, how should this wholesale tariff be designed? Is a time of use rate appropriate? Should there be any differences depending on the type of EV charging – Level 1, Level 2, and/or DCFC stations?

In general, Greenlots believes that the development of rates and programs that send accurate price signals to EV loads reflecting local or grid constraints and realities is essential to align the increased electrification of transportation with the interests of the grid and the broader public. EV time-of-use (“TOU”) rates represent a rather blunt but in some cases appropriate beginning instrument to deliver these price signals, especially at low levels of EV market penetration. Other strategies, including managed or smart charging and real-time or dynamic pricing represent more accurate instruments that can better utilize and dispatch flexible EV loads at charging stations with longer dwell times, such as residences and workplaces, to better maximize system-wide benefits and cost reductions. Other dynamic pricing instruments can also be deployed in higher power charging and shorter dwell time contexts, including DC fast charging. For these reasons, we encourage the Commission to look beyond TOU rate design and towards technology-facilitated smart/managed charging programs.

We must emphasize that the underlying key in maximizing system utilization and efficiency and unlocking this value, in addition to technology, is a central utility role. Advanced rate design or technology-driven alternatives tend to require advanced technology and communication norms to allow consumers to respond to TOU or more dynamic price signals. Similarly, to implement managed charging, allowing utilities to actively manage the charging of EVs in response to real-time grid demands or constraints, requires appropriate software and hardware to make this both seamless for customers and the utility to implement. Managed charging programs then can provide grid services in the same way that demand response programs do, but can be more impactful as they can also increase load such as during times of renewable overgeneration. This capability of both load increase and decrease is an extremely powerful tool in helping to manage and maximize the efficiency of utilization of grid assets and deliver value to all utility customers.

Safety

13. Section 3 of the Electrical Safety Regulation states that it “does not apply to a public utility as defined in the Utilities Commission Act in the exercise of its function as a utility with respect to the generation, transmission and distribution of electrical energy”. Further, “distribution equipment” is a defined term in the UCA. Although it seems clear that EV charging equipment is not “generation or transmission”, the Panel did not make any finding in the Phase 1 Report on whether EV charging infrastructure is “distribution equipment.” The Panel invites submissions on this issue in Phase 2.

In responding, Interveners are requested to consider the status of the provider – for example, is the interpretation different for a non-exempt public utility than it would be for an exempt utility or a provider excluded from the definition of a public utility?

Broadly speaking, the “make ready” equipment on the utility side of the meter serving an EV charging site clearly is “electrical equipment” as defined in the Electrical Safety Regulations (“ESR”). Therefore, it follows that such equipment— including electrical transformers and the like— are exempt from the ESR for both exempt and non-exempt utilities or providers. Regarding the EVSE itself, Greenlots notes ambiguity in the UCA’s definition of “distribution equipment” as it relates to EVSE. Given this ambiguity, we would generally caution against exemptions from appropriate safety regulations for both utility and non-utility providers of EV charging services unless the regulation explicitly provides for this, which it does not appear to do.

Greenhouse Gas Reduction Regulation

14. In Phase 2, the Panel invites submissions from Interveners on whether amendments to the Greenhouse Gas Reduction Regulation to allow public utilities to own and operate EV charging stations as a “prescribed undertaking” are appropriate and if so, the appropriate extent and scope of such undertaking.

Not only does the record from Phase 1 support, but the Panel’s determination also enshrines the ability of public utilities to continue to be able to provide regulated EV charging services subject to Commission approval as authorized under section 18 of the Clean Energy Act (“CEA”) and section 4 of the Greenhouse Gas (Clean Energy) Reduction Regulation (“GGRR”). Additionally, this framework is consistent with several ministerial mandate letters encouraging fuel switching, electrification of transportation, EV charging stations and support of the Government’s Climate Leadership Plan as described by BC Hydro.²

² Phase 1, Exhibit C1-4, BC Hydro response to Flintoff IR No 1.1.1

It is clear that the deployment of EVSE to support EV adoption, transportation electrification and fuel switching is a greenhouse gas ("GHG") reducing activity, and therefore a "prescribed undertaking" under section 18(1) of the CEA. As discussed previously, Section 18(2) provides broad authority to utilities to make prescribed undertaking investments and be able to recover the related costs incurred, and section 18(3) prevents the Commission from "directly or indirectly" exercising its power under the Utilities Commission Act ("UCA") in a way that would prevent utilities from carrying out a prescribed undertaking.

This said, and as detailed by BC Hydro and FortisBC in their Phase 1 final arguments, the Commission may want to recommend to the Province modest amendments to the GGRR confirming/clarifying the appropriateness and allowability of utility ownership of charging infrastructure. Greenlots supports this and the language proposed by BC Hydro in Appendix B to its Phase 1 Final Argument:

Section 4 be amended by adding the following subsections:

(5) A public utility's undertaking that is in a class defined as follows is a prescribed undertaking for the purposes of section 18 of the Act:

(a) the public utility constructs or operates an electric vehicle charging station.

Conclusion

Greenlots appreciates the opportunity to provide these comments, and the Commission's consideration of them. The Commission has a critical role to play in supporting and ensuring the growth of the market for transportation electrification in a manner that maximizes benefits for all ratepayers. Greenlots looks forward to supporting the Commission's work and ongoing information gathering, analysis and planning efforts.

Respectfully submitted,



Thomas Ashley
VP, Policy
tom@greenlots.com