

**British Columbia Utilities Commission
An Inquiry into the Regulation of Electric Vehicle Charging Service
VANCOUVER ELECTRIC VEHICLE ASSOCIATION (VEVA) RESPONSE TO
BCUC INFORMATION REQUEST NO. 1**

A. BASIS FOR EV CHARGING SERVICE REGULATION EXEMPTION

1.0 Reference: Exhibit C30-2, p. 4 Basis for regulation

On page 4 of Exhibit C30-2, Vancouver Electric Vehicle Association (VEVA) states:

VEVA views an open, competitive market as the best means to achieve the necessary scale of charging infrastructure within a timeframe that reflects the rapidly accelerating pace of adoption of electric vehicles.

1.1 Please confirm, or explain otherwise, whether VEVA views that a market that is not subject to any utility regulation is the means to achieving an “open and competitive market”.

There are degrees of regulation in any market. There may be a need for some types of regulation in the EV charging market for reasons of safety and transparency of charging station pricing, although such regulation would presumably not be carried out by the Commission. VEVA is advocating that all charging stations, with the possible exception of those owned by regulated utilities, should be exempt from regulation under the Utilities Commission Act (UCA). VEVA submits that such an exemption from regulation by the Commission is an important factor for achieving an open and competitive market for charging stations in BC.

It must be recognized that utilities have an important role to play in providing charging infrastructure, due to the chicken-and-egg nature of the EV charging market. Although utilities necessarily operate in a highly regulated environment, the challenge is to find appropriate means to reconcile and adapt the traditional utility approaches to a new market for EV charging characterized by rapid and accelerating adoption, fast-changing technology, and innovative consumer-facing services.

1.2 In a competitive market, there are low barriers to enter and exit. Please discuss the potential issues, if any, should EV charging service providers freely exit the market at any time.

The barrier to entry in the case of EV charging stations is material, yet relatively low compared to many industries and there is an incentive for site hosts to enter the market. The approximate \$100,000 cost of a single charging station represents a material but achievable barrier to enter the market, and reasonable recovery of that investment and a return provides a significant incentive for EV charging hosts not to exit the market on a whim.

VEVA is not particularly concerned by the possibility of some EV charging service providers freely exiting the market. Assuming that an open and competitive market is established, EV owners/drivers would have choices for EV charging services. If one charging station closed down, EV owners/drivers would presumably choose among other options including using other available public charging stations, charging at home, or charging at their workplace. In that respect, one would expect that the loss of a charging station location or service provider might cause some temporary adjustments, as EV owners/drivers and other charging hosts adapted to the change. However, just as the gasoline market occasionally loses locations, operators, or owners and/or brands yet manages to carry on, no mid-term or long-term upheaval should be caused in the EV charging market by the exit of some charging hosts. A truly open and competitive market will find a way to adjust and have supply meet demand.

2.0 Reference: Exhibit C30-2, p. 6 Other jurisdictions

On page 6 of Exhibit C30-2, VEVA states:

VEVA also understands that 21 states and the District of Columbia have passed legislation and/or regulations that exempted or excluded charging stations from being regulated as utilities.

2.1 Please discuss the other US states in which statutory amendments or regulatory clarifications were not made. Please clarify whether EV charging service provided by site hosts/third-parties are considered a regulated activity, or whether those US states have not made a determination.

It is VEVA's understanding that the US states that have not made any amendments or regulatory clarifications regarding charging have not made any determination on regulatory jurisdiction over charging services. In these states, charging services are not considered a regulated activity.

3.0 Reference: Exhibit C30-2, p. 6; Exhibit C6-2, p. 5 The BCUC Thermal Energy System Guidelines (TES Guidelines), p. 7 Class of cases exemption

On page 6 of Exhibit C30-2, VEVA states:

VEVA believes that charging stations in British Columbia should be exempted or excluded from the definition of a "public utility" in the Utilities Commission Act, [RSBC 1996] CHAPTER 473 (UCA).

On page 5 of Exhibit C6-2, BC Sustainable Energy Association and sierra Club BC (BCSEA) states:
7. The Commission should consider, either within this Inquiry or in a follow-on proceeding, exercising its authority under section 88(3) of the UCA to exempt from some or all of the provisions of the Act certain classes of entities providing EV charging services (to be defined) that but for the exemption would be "public utilities" and regulated under the Act. (For clarity, this includes entities providing EV charging services that may not currently meet the definition of "public utility" but that likely would do so if they started to receive compensation for their EV charging services.) An exemption under s.88(3)

requires the advance approval of the Minister responsible for BC Hydro, i.e., the Minister of Energy, Mines and Petroleum Resources.

On May 19, 2016 by Order G-71-16, BCUC granted Bakerview EcoDairy an exemption from Part 3 of the *Utilities Commission Act* (UCA), except sections 25, 38, 42, 43, 44 and 49.1

3.1 In VEVA's view, if BCUC were to recommend a class of cases exemption to government in relation to EV charging service, what factors should be considered in developing the classes? Further, what sections of the UCA, in VEVA's view, should EV charging service be exempt from?

If the BCUC were to recommend a class of cases exemption to government in relation to EV charging service, VEVA submits that the exemption should apply to a single broad class comprising all EV charging hosts other than utilities currently regulated by the Commission. VEVA is concerned that defining other factors that define one or more classes of exemption will unnecessarily create confusion and impede rapid, broad deployment of EV charging stations in BC.

VEVA submits that EV charging service, provided by any charging host other than a utility regulated by the Commission, should be exempt from the following sections of the UCA:

- a. All of Part 3 — Regulation of Public Utilities; and
- b. All of Part 5 – Electricity Transmission.

3.2 Does VEVA have a view on what the classes could be (e.g. based on different levels of EV charging equipment, charging station geographic locations, type of dwelling, owner/operator structure, some combination of the above, or others)? If yes, please describe.

At this stage of the Inquiry, VEVA is not persuaded that classes of exemption are either helpful or appropriate. VEVA is inclined to support the broadest possible class of charging stations exempted from regulation – essentially all charging station hosts other than regulated utilities. The potential risk of creating a list of narrowly defined classes is that it may inadvertently prevent worthy charging station service providers from entering the market, either because they were not envisioned at the time of codifying the exemptions (e.g. on ferries or at ferry terminals, etc.) or because they are made possible by technological change (e.g. portable charging stations to serve surge demand at festivals or large public gatherings).

All charging stations should be treated the same in terms of BCUC regulation, and as stated in VEVA's Written Evidence all charging stations should be excluded or exempt from BCUC regulation. It would be confusing and a significant impediment for charging hosts to face different regulations for different types of stations. For example, if classes were based on the Level of EV charging stations then it's conceivable that a Level 2 charging station located on the same site as a Level 3 (DCFC) would be subject to two different forms of regulation.

On page 7 of the BCUC's Thermal Energy System Guidelines (TES Guidelines), it states:

Strata Corporation TES2: A TES owned or operated by a Strata Corporation, or the Strata Corporation's lessee, trustee, receiver or liquidator, that supplies the Strata Corporation's owners, is exempt from Part 3 of the UCA other than sections 42, 43 and 44.

3.3 In VEVA's view, should an exemption similar to the Strata Corporation exemption in the TES Guidelines be considered for Strata Corporations if EV charging service were to be regulated by the BCUC? Please discuss.

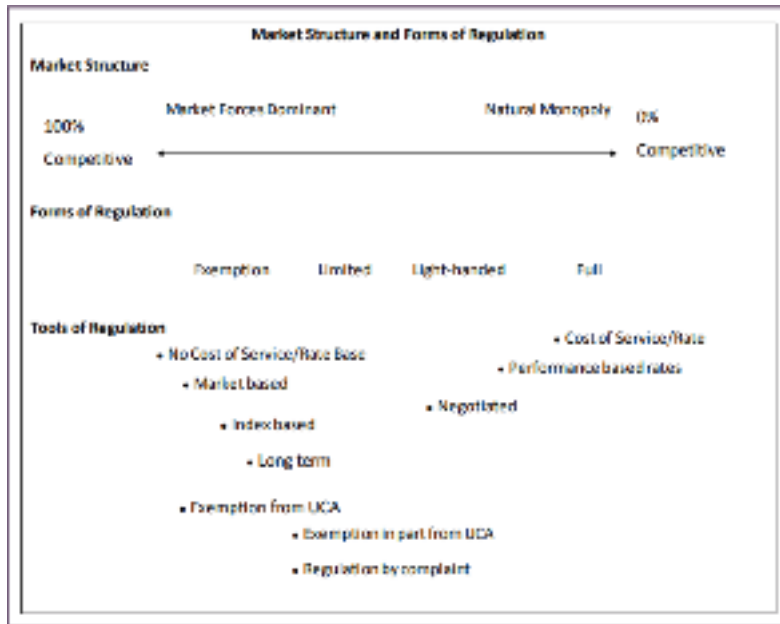
VEVA submits that to create an open and competitive market for EV charging stations it is important to avoid or minimize differences in exemptions from the UCA for different types or classes of charging station service providers. The more varied and complex the exemptions, the more likely that they will create relative winners and losers among service providers by inadvertently advantaging some while disadvantaging others.

TES provides one model of how an exemption may be structured. However, the TES exemption is limited to factors such as cost, capacity, and number of units participating. VEVA submits that this is not appropriate for EV charging, where the goal is to eventually enable charging for 100% of the parking stalls regardless of the number of units in the building.

4.0 Reference: BCUC Inquiry into FortisBC Energy Inc.'s Offering of Products and Services in Alternative Energy Solutions (AES) and Other New Initiatives proceeding, Order G-231-13A with reasons for decision, pp. 23–24 Proposed regulatory framework and guide for thermal Energy Service Utilities

On pages 23 and 24 of the Reasons for Decision attached to Order G-231-13A, the BCUC states:

The [AES]³ Inquiry found that the form of regulation should be determined by the market structure. The Panel agrees with this assessment. The figure below illustrates the Panel's view of the relationship between market structure and the various tools of regulation.



The Panel in Order G-231-13A also agreed with the basic regulatory concepts outlined in the AES Inquiry Report whereby regulation should be the option of last resort and competition should always be preferred over regulation.

4.1 Please discuss whether the BCUC in this EV Inquiry should consider the relationship between market structure and forms of regulation, as shown above in the diagram. If not, why not?

VEVA agrees with the BCUC's view in Order G-231-13A that regulation should be the option of last resort and competition should always be preferred over regulation. VEVA believes it is appropriate for the BCUC to use the diagram shown in this Information Request as a useful reference point. The BCUC will of course recognize that no single diagram is likely to fully reflect the many nuances and complexities that will arise in the fast-changing context of charging station use and technology.

4.2 Suppose the BCUC uses the above diagram as a guide to determine the appropriate form of regulation. Given the market structure noted in VEVA's submission, what would be the corresponding form of regulation and tool of regulation? If any different, please explain in terms of the VEVA's view of the current market structure and the expected market structure in the next 3-5 years.

VEVA favours a 100% Competitive Market Structure, Exemption as the Form of Regulation and Exemption from UCA as the primary Tool of Regulation.

B. HYDROGEN FUEL CELL TECHNOLOGY

5.0 Reference: Exhibit C30-2, p. 6; Exhibit C19-2, p. 2 Fuel Cell Electric Vehicle (FCEV)

On page 2 of Exhibit C19-2, British Columbia Ministry of Energy, Mines and Petroleum Resources states that “The Province is active in promoting the uptake of zero emission vehicles (ZEVs), including battery-electric, plug-in hybrid, and fuel cell vehicles.”

In February 2016, the Province announced an investment of \$40 million for the CEV Program. The funding will be distributed over three years (2017-18, 2018-19, and 2019-20) to:

Continue point-of-sale purchase incentives of up to \$5,000 for battery electric vehicles and \$6,000 for hydrogen fuel cell electric vehicles. When combined with SCRAP-IT program incentives, total savings could be up to \$11,000 for a new electric vehicle, and \$12,000 for a hydrogen fuel cell vehicle.

In accordance with the *Utilities Commission Act (UCA)*:

Public utility" means a person, or the person's lessee, trustee, receiver or liquidator, who owns or operates in British Columbia, equipment or facilities for

(a) the production, generation, storage, transmission, sale, delivery or provision of electricity, natural gas, steam or any other agent for the production of light, heat, cold or power to or for the public or a corporation for compensation

On page 6 of in Exhibit C30-2, VEVA believes that charging stations in British Columbia should be exempted or excluded from the definition of a “public utility” in the UCA.

5.1 Please indicate whether VEVA represent any FCEV members. If so, how many members own and/or drive FCEVs relative to VEVA’s total membership?

In VEVA’s history, only a few members have pursued the FCEV option, and VEVA is aware of only one that chose to purchase a commercially available FCEV. This compares to over a thousand who have built or bought a BEV of some kind.

VEVA has seen estimates that put the total number of FCEVs in the province at about 10, compared to approximately nine thousand BEVs and PHEVs.

This is undoubtedly due to FCEVs not being a technology that is accessible to independent experimenters, the lack of commercially available FCEVs and the lack of hydrogen fueling stations and other related infrastructure. There is also a reluctance to commit to an FCEV because of concerns their viability and future prospects, as described further in our response to 5.2 below.

5.2 In VEVA's view, from a user perspective, please compare the pros and cons of FCEVs relative to battery electric and plug-in hybrid electric vehicles.

VEVA takes no official position for or against fuel cells or other alternatives. However, it would be fair to say that the majority of VEVA members who are aware of the different technologies lean heavily toward BEVs over FCEVs for light-duty vehicles. The pros and cons are slightly different for long-term trucking and heavy-duty machinery. VEVA has limited this response to the light-duty vehicle context to match the scope of the BCUC's Inquiry.

Advocates of FCEVs cite these advantages:

1. Long range;
2. Faster refueling; and
3. Favorable full-lifecycle emissions when hydrogen is produced from hydro power compared to long-range EVs (but note that BEV advocates dispute this).

Detractors of FCEVs argue that:

1. You can charge a BEV at home, which greatly mitigates the faster refueling advantage of an FCEV. It takes time to travel to and from a refueling station and owners/drivers also have to stay with their vehicle for the full duration of the process.
2. Worldwide, much hydrogen production is based on fossil fuel sources, which has an environmental impact. Hydrogen produced from electrolysis is cleaner, but that is expensive and inefficient.
3. The hydrogen production cycle is less efficient than electricity generation for battery storage.
4. Hydrogen fueling infrastructure is more expensive.
5. FCEVs are more complex than BEVs and PHEVs and can be expected to have higher operating and maintenance costs.

Discussions between proponents of both sides tend to quickly become very technical and detailed. The debate comes down to FCEV detractors who feel that hydrogen fuel cell technology has no viable future and that it is a distraction and opportunity cost to work on it now, versus FCEV advocates who feel the technology is getting more viable over time and that the more options for clean transportation, the better.

5.3 In VEVA's view, from a charging infrastructure perspective, please compare and contrast the pros and cons of FCEVs relative to battery electric and plug-in hybrid electric vehicles.

The production and distribution of hydrogen is the weakest link in the chain for adoption of FCEVs. The well-established electric grid exists today and can generally be accessed by charging stations for BEVs and PHEVs. In contrast, a hydrogen distribution system would have to be developed almost from scratch.

An FCEV fueling station costs an order of magnitude more than even a DCFC charging station. VEVA understands that the approximate cost of a FCEV fueling station is between \$2 million to

\$3 million, versus approximately \$100,000 for a Level 3 (DCFC) charging station. VEVA understands that there are plans for 5 hydrogen fueling stations in BC by the end of 2019. By comparison, there are already hundreds of electric charging stations in BC with more coming on at a rapid pace.

In addition to hydro sources, electricity can be produced by solar, wind, and tide then be distributed on the grid and stored directly in car batteries. Hydrogen is not itself a source of power, it is a means to capture that energy, store it, and distribute it.

The biggest advantage of electric battery charging from an infrastructure perspective is that the technology, expertise, equipment and services for it are well established and it is relatively inexpensive to provide charging at home, work, and public areas.

5.4 In VEVA's view, would companies owning or operating public hydrogen fueling stations for the sale of hydrogen fall within definition of a public utility as defined in the UCA? Why or why not?

VEVA understands that the equipment, measurement, speed of fueling, safety issues and cost of infrastructure for FCEVs is very different than for EV charging stations. The absence of established hydrogen production or distribution systems, the very low number of existing and planned FCEV fueling stations in BC (i.e. 5), the absence or significant limitation of public access to those fueling stations, and very low usage by vehicle owners/drivers suggests that it may be premature to consider whether the sale of hydrogen would fall within the definition of a public utility as defined in the UCA. It is not yet apparent that the "public" aspect of hydrogen fueling has been achieved. At this point, VEVA believes that there are too many variables and uncertainties to make an informed determination regarding "public utility" status of predominantly private and experimental hydrogen fueling facilities.

5.4.1 If so, does VEVA believe that hydro fueling stations in BC should be exempt or excluded from the definition of a "public utility" in the UCA?

Accordingly, for the reasons discussed in response to 5.4 above VEVA believes that it is premature consider an exemption or exclusion of hydrogen fueling stations from the definition of a "public utility" in the UCA.