



May 3, 2018

Sent via emails/eFile

BCUC REGULATION OF ELECTRIC VEHICLE CHARGING SERVICE INQUIRY EXHIBIT A-23
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Re: British Columbia Utilities Commission – An Inquiry into the Regulation of Electric Vehicle Charging Service – Project Number 1598941 – Information Request No. 1

Dear Mr. Weafer:

Further to the March 16, 2018 filing of written evidence on behalf of Commercial Energy Consumers Association of British Columbia, enclosed please find British Columbia Utilities Commission (BCUC) Information Request No. 1. In accordance with the regulatory timetable, please file your responses on or before Wednesday, June 6, 2018.

The BCUC's Rules of Practice and Procedure (Rules) set out in Order G-1-16 provide guidance and establish requirements for participants in BCUC proceedings. Subject to section 14 of the Rules, all parties that receive an information request must provide full and adequate response to each question.

The BCUC's Rules of Practice and Procedure can be viewed here:
<https://www.ordersdecisions.bcuc.com/bcuc/orders/en/127520/1/document.do>

If you have any questions regarding the information request process, please contact Commission Secretary.

Sincerely,

Original signed by:

Patrick Wruck
Commission Secretary

/dg
Enclosure



British Columbia Utilities Commission
An Inquiry into the Regulation of Electric Vehicle Charging Service

INFORMATION REQUEST NO. 1 TO COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BRITISH COLUMBIA

1.0 Reference: Exhibit C24-2, p. 1
CEC membership representation

On page 1 of Exhibit C24-2, Commercial Energy Consumers Association of British Columbia (CEC) states:

The Commercial Energy Consumers Association of BC (the “CEC”) represents the interests of ratepayers receiving energy under commercial tariffs in applications before the BC Utilities Commission (“BCUC” or “Commission”).

- 1.1 Please clarify whether the evidence provided is primarily from the perspective of a specific role in the market, i.e. supply chain, EV charging station owner/ operator, and/or EV vehicle customer.

A. BASIS FOR EV CHARGING SERVICE REGULATION EXEMPTION

2.0 Reference: Exhibit C24-2, p. 32
BCUC Thermal Energy System Guidelines (TES Guidelines), p. 7
Class exemption

On page 32 of Exhibit C24-2, CEC states:

The CEC submits that it would be appropriate for the Commission to provide some form of exemption for the provision of electricity for electric vehicles to allow costs to be recovered and a reasonable profit to be generated.

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

- 2.1 In CEC’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 CEC’s view, should EV charging service be exempt from?
- 2.2 Does CEC 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.

¹ http://www.bcuc.com/Documents/Proceedings/2016/DOC_46352_05-19-2016_Bakerview-Exemption-Approved_G-71-16.pdf

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

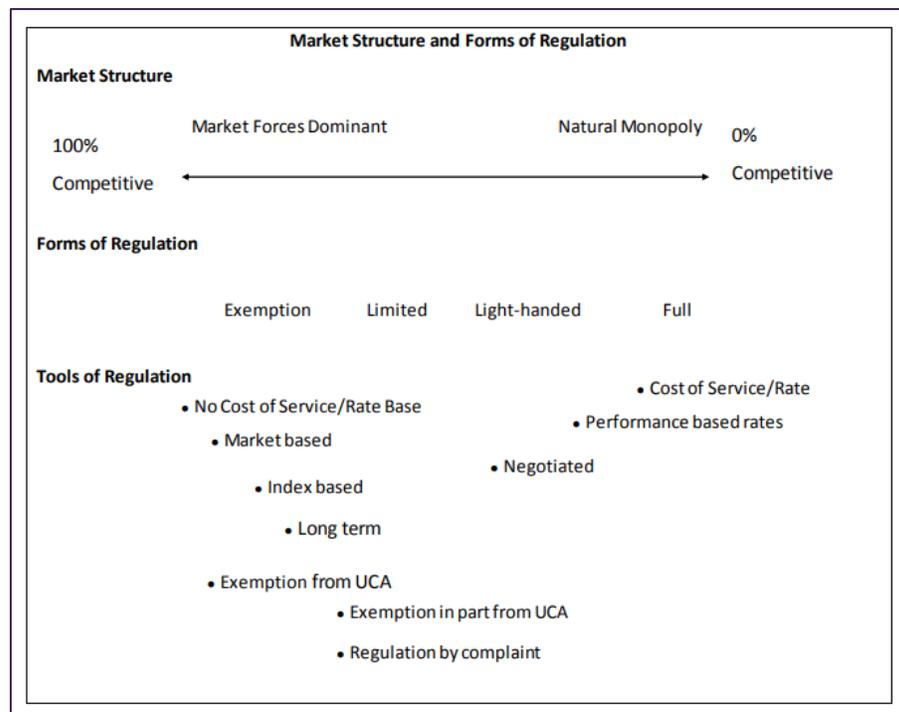
Strata Corporation TES²: A TES owned or operated by a Strata Corporation, or the Strata Corporation's lessee, trustee, receiver or liquidator, that supplies the Strata Corporation's owners, is exempt from Part 3 of the UCA other than sections 42, 43 and 44.

2.3 In CEC'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.

**3.0 Reference: BCUC Inquiry into FortisBC Energy Inc.'s Offering of Products and Services in Alternative Energy Solutions (AES) and Other New Initiatives proceeding, BCUC 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.

² As defined by the *Strata Property Act* [SBC 1998].

³ Inquiry into FortisBC Energy Inc.'s Offering of Products and Services in Alternative Energy Solutions and Other New Initiatives

- 3.1 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?
- 3.2 Suppose the BCUC uses the above diagram as a guide to determine the appropriate form of regulation. Given the market structure noted in CEC's submission, what would be the corresponding form of regulation and tool of regulation? If any different, please explain in terms of the CEC's view of the current market structure and the expected market structure in the next 3-5 years.

4.0 Reference: Exhibit C24-2, pp. 13, 16, 27, 31–32, 35
Basis for regulation, degree of competitiveness, investments

On page 13 of Exhibit C24-2, CEC states:

A natural monopoly does not exist in the Level 3 fast charging stations because the infrastructure costs of \$100,000 or so do not represent a significant barrier to entry. Rather, the main barrier to entry is through the restrictions imposed by the UCA discussed under Barriers to Entry below.

On page 16 of Exhibit C24-2, CEC states:

The CEC submits that to the extent that the regulatory burden was removed to allow for the resale of electricity at rational prices there is an opportunity for a competitive market to exist and expand with the sale of Electric Vehicles.

- 4.1 Does CEC consider that if the regulatory requirements of the UCA were lifted that site host/third-party investments would significantly increase in Level 3 charging infrastructure? Please summarize any evidence to support this.

On page 27 of Exhibit C24-2, CEC states:

The CEC submits that ultimately the electric vehicle market could develop to the point that EV charging can be managed competitively.

On page 31 of Exhibit C24-2, CEC states: "recommends that the Commission give significant weight to this potential future environment and establish the regulatory regime for this market now under an anticipated competitive market scenario."

On page 35 of exhibit C24-2, CEC states that "that once the market is developed there will be no requirement for specific price regulation."

- 4.2 In the view of CEC, before reaching market maturity could all segments of the EV market (i.e. various levels of public EV charging under different situations) operate effectively in an environment that is yet to be competitive? How would an exemption from public utility regulation help or harm this transitional stage?
- 4.3 Please discuss whether CEC advocating a market where the regulatory environment facilitates an open market as soon as possible, or a phased approach where the degree of regulation would depend on the level of maturity and competitiveness in the market.
 - 4.3.1 If a phased approach, does CEC have a view on the metrics or indicators that would demonstrate the market had reached a sufficiently mature/ competitive state? For example, should this be the number of EVs fleet in BC, number of EV charging stations/ports per EV, distance measured between public EV charging stations, or some other measures?

On pages 31 to 32 of Exhibit C24-2, CEC states:

Municipalities, such as the City of Vancouver, and commercial entities are often not seeking compensation for the electricity provided for EV charging which results in free or very low charging costs for electric vehicle owners but little profit potential or incentive for competitors to enter the market, particularly in DCFC where the costs of infrastructure are higher.

...

In addition to policy and other governmental reasons and influences the CEC expects that the zero to low charging rates situation has at least partially developed for commercial enterprises in order to avoid the regulatory burden that would apply as a reseller deemed to be a 'public utility.'

- 4.4 In the view of CEC, if the regulatory definition of public utility did not apply to EV charging infrastructure to site hosts / third-parties, would commercial entities be able to charge a fee for EV charging services and still successfully compete with free EV charging from entities such as municipalities? Please provide any supporting evidence available to CEC.

On page 32 of Exhibit C24-2, CEC states:

The CEC submits that a model similar to that of the Class Exemption for BC Hydro Customers that Resell Electricity Under Certain Lease Agreements could be appropriate, or a more open model which allowed for light regulation with limited reporting.

On page 35 of Exhibit C24-2, CEC states that "during the market development phase it could be reasonable to require simple reporting to ensure reasonable limits on the mark-up of electricity if necessary."

- 4.5 Please briefly explain, in the view of CEC, the benefits and risks of "light reporting" for EV charging site hosts / third-parties in an environment that is exempt from public utility regulation.
- 4.6 In CEC's proposed simple reporting regime, what type of information would entities submit to the BCUC? Who would pay for the regulatory cost of such review?
- 4.7 Regarding CEC's suggestion of a reasonable limit on mark-up of electricity, if some regulation is in place, would one reasonable option be setting a price cap on the mark-up on electricity sold?

B. INVESTMENT DECISION

- 5.0 **Reference: Exhibit C20-2, p. 6**
Exhibit C25-2, p. 2
DCFC - third-party investment

On page 6 of Exhibit C20-2, AddÉnergie Technologies Inc. states:

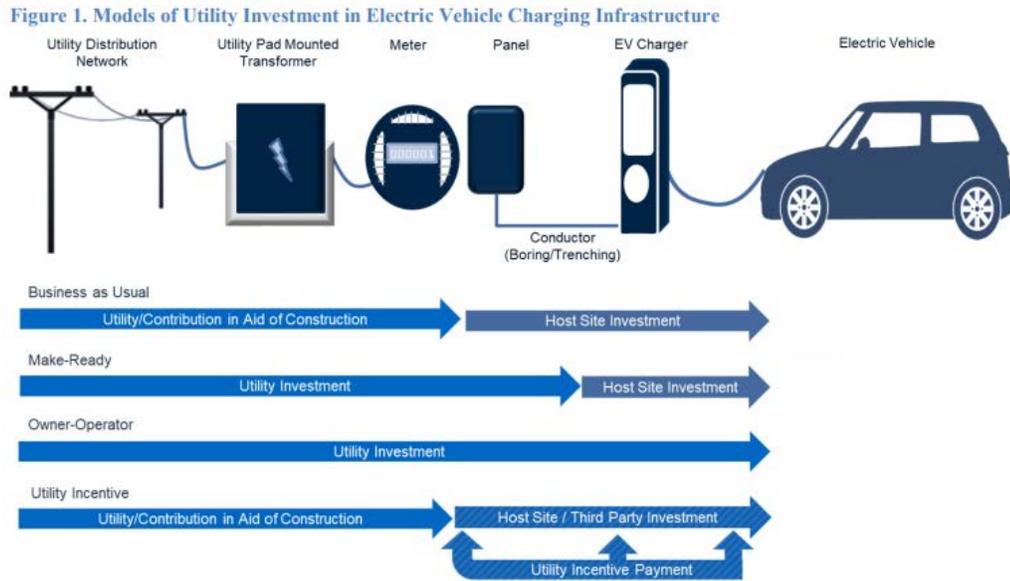
That the major barrier to EV charging station competitiveness is that British Columbia lacks a comprehensive network of charging stations and that one is unlikely to be developed by [third-party] investment alone.

On page 2 of Exhibit C15-2, Greenlots states:

[Unfortunately] a sustainable, competitive market is aspirational, and is unlikely to arise prior to the adoption of a critical mass of electric vehicles. This is primarily on account of a lack of a business model for the ownership and operation of public charging stations

based on sustainable revenues from charging activities, and this has thus far resulted in a fundamentally inadequate amount of [third-party] investment in such charging infrastructure.

In a report authored Georgetown Climate Center and by M.J. Bradley & Associates, titled “Utility Investment in the Electric Vehicle Charging Grid: Key Regulatory Considerations” dated November 2017⁴ (GCC-MJBA Report), on page 9, Figure 1 provides the models of utility investment in EV charging infrastructure: (i) business as usual, (ii) make-ready, (iii) owner-operator, and (iv) utility incentive.



Source: M.J. Bradley & Associates

5.1 Please discuss the pros and cons of the four business models that are noted in the GCC-MJBA Report. Include considerations such as market growth, business sustainability, customer impacts, public interest, competition, and appropriate level of utility regulation.

**6.0 Reference: Exhibit C24-2, p. 28–29
EV charging station projections**

On page 28 of Exhibit C24-2, CEC states:

The CEC model projections for numbers of charging stations is based on an NREL study estimating the number of charging stations that should be required per electric vehicle. The data the CEC used for its projections showed approximately 25 EVs per station.

On page 29 of Exhibit c24-2, CEC states:

Also, the CEC can produce scenario models for any range of parameters used in its modeling if the Commission would like alternative views.

At the Vancouver Community Input Session, Mr. Karlen from Greenlots stated:

In Los Angeles right now there's about 20 public chargers, that includes DC fast charging and Level 2 chargers to support every one electric vehicle. And we know for a fact that this entirely insufficient and inadequate to support EV drivers. In Europe the thinking on this topic, in terms

⁴ http://www.georgetownclimate.org/files/report/GCC-MJBA_Utility-Investment-in-EV-Charging-Infrastructure.pdf

of municipalities and regulators, is that you need somewhere between seven and four chargers per one electric vehicle. I would argue that that's probably closer to what different targets should be shooting for.⁵

- 6.1 Please clarify what type of EV charging stations is behind CEC's projection of "25 EVs per station." For example, level 2 or DCFC, or some combination.
 - 6.1.1 An EV charging station could have multiple ports. Please confirm that CEC's projection is meant to say 25 EVs per port. If not confirmed, please clarify.
 - 6.1.2 Please confirm that the "25 EVs per station" are specific to the province of BC. If not confirmed, please clarify.
- 6.2 Please show various scenarios with different EV adoption rates and EVs per port.
- 6.3 It appears that the EV infrastructure that exist to support EVs vary by regions, as submitted by Greenlots' example of Los Angeles and in Europe. Please discuss whether CEC's projections have considered any BC specific factors, such as mileage driven, type of vehicles on the road, climate, private (home) charging availability, etc.
 - 6.3.1 If available, please submit the live working model or spreadsheet of CEC's model.

C. RATES

- 7.0 **Reference:** Exhibit C24-2, pp. 36, 38–39, 43
Exhibit C12-2, p. 19
Rate design – utility to charging station

On page 36 of Exhibit C24-2, CEC states:

Commercial charging stations could be assessed a special rate that reflected the price of future distribution network upgrades and build-outs that might potentially be needed to accommodate the fast charging stations.

- 7.1 Please provide sample jurisdictions that have implemented a special rate as described above.

On page 38 of Exhibit C24-2, CEC contends that existing residential and commercial tariffs are sufficient to recover its cost of service.

On page 19 of Exhibit C12-2, FortisBC Inc. (FBC) states:

FBC recommends that a new rate should be developed for electricity supply to EV charging stations, since its existing retail and wholesale rate schedules contain components, such as demand charges or high customer charges that would make them inappropriate to support the development of EV charging infrastructure in the province. The rate should reflect the unique characteristics of the service being provided.

- 7.2 Please comment on FBC's proposal for a new EV-specific rate class.

On pages 39 of Exhibit C24-2, CEC discusses a formula-based regulatory model to establish rates for EV charging services to EV customers.

⁵ Transcript, Volume 8, p. 523.

- 7.3 Please clarify whether the formula-based regulatory model that CEC is applicable for electricity supply to EV charging stations. If not, please clarify.
- 7.4 Please elaborate on a potential formula-based rate design for the EV charging market.
- 7.5 If possible, please provide sample jurisdictions that utilize a formula-based model for the EV charging market. Please note any differences in jurisdictions that would be unsuitable for comparison to BC.

On page 43 of Exhibit C24-2, CEC states:

The CEC submits that a provisional reduction in the current public utility reporting requirements for the resale of electricity for compensation would be adequate to remove the barrier to the deployment of DCFC charging stations and allow DCFC charging stations to proliferate according to market demands. The CEC notes that DCFC charging stations are being deployed throughout the United States and that electric vehicle sales are continuing to increase.

- 7.6 Please elaborate on the growth in the EV market in the US and whether similar trends are anticipated to occur in Canada, particularly in BC. Please provide any supporting evidence for these projections.
- 7.7 Please provide sample jurisdictions where reductions in regulatory barriers have increased growth, if possible. Please elaborate on how regulatory barriers are measured and how the study attributes the level of regulation to EV market growth.

**8.0 Reference: Exhibit C24-2, pp. 44, 47
Exhibit C12-2, p. 19
Exhibit C1-2, p. 13
Exhibit C35-2, p. 8
Rate design – charging station to EV customer**

On page 44 of Exhibit C24-2, CEC states:

The CEC is concerned that a time-based rate does not necessarily reflect the consumption of electricity, but instead the charging rate of the vehicle. The CEC notes that charging rates vary significantly with the level of existing charge.

On page 19 of Exhibit C12-2, FBC states: “time-based rates may result in more costly charging on an energy consumed-basis for vehicles with a lower charging capacity.”

On page 13 of Exhibit C1-2, British Columbia Power and Power Authority (BC Hydro) states: “It may be possible to differentiate time-based charges to vary based on vehicle capacity to address such fairness issues.”

On page 8 of Exhibit C35-2, Victoria Electric Vehicle Association (EVA) states:

DCFC charging could be resold on a time basis but this could introduce very wide variations in fees (275% undercharged to 27% overcharged – Appendix B) due to a number of variables including vehicle make and model, ambient temperature, battery preconditioning and State of Charge (SOC) at start and end of the session. DCFC fees based on time are not advised.

- 8.1 Please provide CEC’s views on BC Hydro’s suggestion of a possible rate design that differentiate time-based charges to vary based on vehicle capacity.

On page 47 of Exhibit C24-2, CEC states:

[It] does not consider EV charging to represent a distinct rate class as it does not have significantly differing costs of service characteristics from other rate classes, which are large and defined by the group of consumers rather than by end use.

...

The CEC submits that to the extent the Commission disagrees and undertakes to select a rate design for the Utility (i.e. from the Utility to the EV station provider or user) it should be based on a cost-of-service (COS) model which reflects the existing end cost of buildout and delivery costs required to service the Electric Vehicle market

On page 19 of Exhibit C12-2, FBC states:

FBC recommends that a new rate should be developed for electricity supply to EV charging stations, since its existing retail and wholesale rate schedules contain components, such as demand charges or high customer charges that would make them inappropriate to support the development of EV charging infrastructure in the province. The rate should reflect the unique characteristics of the service being provided.

8.2 Please comment whether CEC has any views on FBC's proposal for a new EV-specific rate class, particularly in demand charges.

D. HYDROGEN FUEL CELL TECHNOLOGY

9.0 Reference: Exhibit C24-2, p. 5; 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 (MEStates 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 accordance with the *Utilities Commission Act*:

"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 5 of Exhibit C24-2, CEC states: "Electric Vehicle (EV) charging stations are not a natural monopoly and could largely operate in a competitive environment with an exemption from the UCA."

9.1 Please discuss whether CEC has any involvement in FCEVs and/or FCEV fueling infrastructure.

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

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