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May 15, 2018

VIA EMAIL
BCHYDROREGULATORYGROUP@BCHYDRO.COM

British Columbia Hydro and Power Authority
16th Floor – 333 Dunsmuir Street
Vancouver, BC
V6B 5R3

**Attention: Mr. Fred James, Chief Regulatory Officer
Regulatory & Rates Group**

Dear Sirs/Mesdames:

**Re: British Columbia Utilities Commission Inquiry into the Regulation of Electric
Vehicle Charging Service ~ Project No. 1598941**

We are counsel to the Commercial Energy Consumers Association of British Columbia (the "CEC"). Attached please find the CEC's Information Request on written evidence with respect to the above-noted proceeding.

If you have any questions regarding the foregoing, please do not hesitate to contact the undersigned.

Yours truly,

OWEN BIRD LAW CORPORATION



Christopher P. Weafer

CPW/jj

cc: BCUC – Atten: Patrick Wruck, Commission Secretary
cc: Registered Interveners
cc: CEC

COMMERCIAL ENERGY CONSUMERS ASSOCIATION
OF BRITISH COLUMBIA (“CEC”)

INFORMATION REQUEST NO. 1 TO BRITISH COLUMBIA HYDRO AND POWER
AUTHORITY (“BC HYDRO”)

British Columbia Utilities Commission – Inquiry into the Regulation of Electric Vehicle
Charging Service ~ Project No. 1598941

May 15, 2018

1. Reference: Exhibit C1-2, Page 4

8 and therefore may preclude cost recovery from all ratepayers. Subject then to
9 acceptance of the benefits to all ratepayers of developing the market for EV charging
10 services in B.C., this Inquiry may provide evidence to allow the Commission to
11 consider i) whether the principles that were established in the AES Inquiry ought to
12 be applicable in the emerging marketplace for electric vehicle charging services, or
13 ii) whether Commission recommendations on regulations that may modify those
14 principles should be considered to allow for cost recovery of public utility
15 investments in this market development.

- 1.1 Please describe in detail the issues BC Hydro sees with the AES Inquiry principles and what modifications BC Hydro expects could be useful to recovery of costs for a public utility.
- 1.2 Please explain why BC Hydro could not recover its hydroelectrical system costs through selling electricity to EV charging providers at tariff rates assuming the providers including any providing done by a public utility through a non-regulated business entity if such entities were exempt from utility regulation except some Commission oversight.

2. Reference: Exhibit C1-2, Page 6

11 The first phase of the DCFC infrastructure build out in B.C. (Phase I deployment)
12 began in 2012. With funding from both the Federal and Provincial Governments,
13 BC Hydro initiated the “Electric Vehicle Smart Infrastructure Project”, which included
14 the deployment of 30 DCFC stations on a pilot basis. BC Hydro owns each of these
15 30 stations and leases them for a nominal amount to the respective station
16 host/operator. As owner, BC Hydro is responsible for keeping these stations
17 operational and for any costs associated with repairs should a station fault occur.
18 Station hosts/operators are responsible for the cost of electricity provided to the
19 station (through, for example, BC Hydro’s Medium General Service tariff), and for
20 the collection of any revenues from fees for vehicle charging.

- 2.1 Please confirm that it is the cost of the DCFC stations that BC Hydro is not able to collect under its tariffs at this time because the station is reselling the electricity downstream of BC Hydro’s electricity meter.
- 2.2 Could BC Hydro collect the costs of the station if the station costs were part of a non-regulated business particularly if the station was exempted from regulation by the Commission except with respect to light oversight?

3. Reference: Exhibit C1-2, Page 6 & 7

21 With the exception of the station in Abbotsford operated by Bakerview EcoDairy Ltd.
22 (**EcoDairy**), all stations are operated by the respective municipality in which each is
23 located, and are thus exempt from the definition of “public utility” in the *UCA*.
24 EcoDairy was granted an exemption from Part 3 of the *UCA* pursuant to
25 Commission Order No. G-71-16 and is therefore able to resell energy on that basis.

1 Under this pilot program, site hosts have the discretion to charge a rate for vehicle
2 charging, and currently 16 of 30 station operators charge a rate of \$0.35 per kWh.
3 The remaining 14 operators offer charging services for no charge.⁸

- 3.1 Does BC Hydro recover its costs for the stations that are charging customers from the station operators?

4. Reference: Exhibit C1-2, Page 7

4 Currently, a standard for the measurement of Direct Current does not exist in
5 Canada, and thus the meters in the DCFC stations are not Measurement Canada
6 approved. However, Measurement Canada is aware of these stations being in
7 operation on a pilot basis, and there have been some efforts by industry to move a
8 DC fast charging standard forward. The introduction of a new standard is expected
9 to take some time, and in BC Hydro's view a Measurement Canada approved DC
10 standard is several years away. Therefore, time-based rates for DC fast charging
11 may be the only interim option.⁹

- 4.1 Is a DCFC station operating in a municipality prohibited from selling DC electricity because there is no Measurement Canada approved standard?
- 4.2 Is BC Hydro prohibited from selling DC energy because there is no Measurement Canada approved standard?

5. Reference: Exhibit C1-2, Page 8

8 The Federal Government has announced funding for additional DCFC station
9 infrastructure. Consistent with its past efforts to remove barriers to the deployment of
10 EVs in B.C., BC Hydro plans to continue to work with governments, business and
11 other stakeholders to expand DCFC infrastructure in B.C.

- 5.1 Please confirm that BC Hydro does not collect these DCFC station costs from its electricity customers.
- 5.2 If the regulation of BC Hydro included the costs of fuel switching as an allowed DSM expenditure, would BC Hydro be enabled to recover its costs in this manner?
 - 5.2.1 Has BC Hydro had any discussions with government regarding regulation of fuel switching as an allowed expenditure?

6. Reference: Exhibit C1-2, Page 9

3 First, in part due to generally low penetration of electric vehicles presently, there is
4 relatively low utilization of DC fast charging stations and thus the costs of owning
5 and operating a DC fast charging station are expected to exceed direct revenues
6 received. Related, limited private sector investment and resulting low market
7 penetration of EV charging services will further impede adoption of EVs and
8 achieving higher utilization rates for charging services, creating additional lag in
9 market development; the so-called “chicken and egg” issue.

6.1 Has BC Hydro examined what would be a reasonable cost for expanding DC fast charging capability and or developed a methodology for evaluating what would be an appropriate limit on such expenditures?

6.2 Does BC Hydro have evidence that the pilot expansion of DC fast charging has been a critical barrier to be reduced, such as strong growth in the uptake for use of the DC fast charging service on highway corridors?

6.3 Does BC Hydro have a wells to wheels view as to the GHG reduction that would be represented by EV uptake and whether or not the DCFC stations are a good investment in GHG reduction and if so, could BC Hydro please provide that?

7. Reference: Exhibit C1-2, Page 9

18 Investment and provision of DC fast charging services will not entail a fully
19 competitive market for the foreseeable future until utilization rates increase,
20 economics improve and regulatory barriers are eased. At some point in the future
21 when it is economic to do so, the private sector may be able to take over the fast
22 charging marketplace under a fully competitive landscape. As a result, the public fast
23 charging market may have elements of monopoly service until such time as the
24 economics and regulation allow for a competitive market.

7.1 Is BC Hydro implying that an uneconomic investment with social costs factored into the analysis, is an element of a monopoly service and if so please provide the supporting literature for such a view?

8. Reference: Exhibit C1-2, Page 10

18 As stated above, BC Hydro's general view is that barriers to market development
19 should be reduced or removed to facilitate growth in investment in all electric vehicle
20 charging technologies and services. However, until there is private sector uptake of
21 fast charging services, utilities operating in the market are best suited to provide this
22 service and need to have the ability to recover the costs of doing so.

8.1 From whom does BC Hydro propose that it should have the ability to recover the costs of expanding DCFC stations and what limitations does BC Hydro propose for how much cost should be collectable?

9. Reference: Exhibit C1-2, Page 11

9 If public utilities are allowed to own fast charging stations and have more certainty
10 that they will recover costs from ratepayers, the benefits would include more fast
11 charging service being available, which would encourage greater take-up of electric
12 vehicles, lowering GHG and increasing utility revenue through additional electricity
13 sales. Other benefits include the ability of public utilities to leverage institutional
14 knowledge and management of grid and system operations, which assists in
15 planning the location of stations, for example.

9.1 Has BC Hydro made any projections of the degree to which DCFC stations will cause expanded uptake of electric vehicles use and if so please provide them?

9.2 Has BC Hydro determined the degree to which lowering GHG emissions could be advanced by investment in DCFC stations and if so please provide any projections BC Hydro may have?

9.3 Does BC Hydro have any analysis on whether or not greater GHG reductions can come from investment in efficiency for ICE vehicles than from addition of electric vehicles and if so could that please be provided?

10. Reference: Exhibit C1-2, Page 12

15 Taken from the perspective of BC Hydro investing in public fast charging services,
16 generally speaking the use of traditional cost of service to assign the costs of fast
17 charging to a utility class of service comprised of fast charging customers would
18 result in costs to those customers that would be uneconomic and prohibitive to the
19 utilization of the service. In that sense, traditional cost of service may not be a
20 feasible approach when the EV market is still at an early stage and when the DC fast
21 charging stations are not fully utilized.

- 10.1 Does BC Hydro have any projections as to when the DCFC station service could become economic and if so could those please be provided?
- 10.2 At what level of carbon tax on gasoline would a DCFC station become economic versus ICE vehicles?
- 10.3 Are electric vehicles economic for urban city driving purposes?
- 10.4 Are PHEV vehicles able to economically travel distances on highways as well as take advantage of electricity fuel economics during urban city driving?
- 10.5 Why would BC Hydro propose to subsidize uneconomic travel when there are suitable economic travel options for customers to select from?

11. Reference: Exhibit C1-2, Page 13

3 While both forms of pricing are in place across existing fast charging stations in B.C.,
4 the measurement of energy for DC applications is outside approved error tolerances
5 and is not approved by Measurement Canada. For sale of electricity, meters must
6 comply with the requirements of the *Electricity and Gas Inspection Act (EGIA)*,
7 subject to any dispensation provided pursuant to the *EGIA*. Currently there are no
8 Measurement Canada certified meters for DC applications; therefore it is not
9 possible to charge for kWh consumption from a DC fast charging station using
10 certified metering. Thus, a time-based charge, similar to what the City of Vancouver,

- 11.1 Has BC Hydro applied for dispensation pursuant to the EGIA and if so please provide the results of such application and if not why not, please explain?

12. Reference: Exhibit C1-2, Page 14

13 BC Hydro appreciates that this question concerns whether it is appropriate and
14 necessary to segregate investments in non-traditional utility services into a
15 non-regulated entity. We discuss above that DC fast charging is not a true monopoly
16 service, and thus the question would suggest therefore that these activities may be
17 more appropriately operated through a non-regulated entity.

12.1 If BC Hydro's DCFC station costs were to be managed through a non-regulated entity and the costs were to be recovered from the carbon tax, government contribution or other social cost process, through arrangements with the government, would BC Hydro prefer this as an appropriate cost causation allocation for pricing as opposed to including the costs in the costs for electricity service for its customers.

12.2 Please confirm that BC Hydro's incremental electricity sales and lower GHG emissions would not be impacted by the sourcing of the cost recovery for a non-regulated service business or for that matter for a BC Hydro subsidized service.

13. Reference: Exhibit C1-2, Page 15

4 Furthermore, structuring the provision of these activities under a non-regulated
5 affiliate would add additional cost and complexity to the delivery of services outside
6 of the traditional role of regulated public utilities, a further barrier to market
7 development in addition to the economic and regulatory barriers discussed above.

13.1 Please quantify the costs associated with a non-regulated business affiliate versus the costs and complexity of adding this issue into BC Hydro's cost of service rates.

14. Reference: Exhibit C1-2, Page 16

8 With respect to regulated public utilities, the existing regulatory regime may present
9 barriers to such parties providing services depending on their ability to recover costs.
10 BC Hydro is of the view that public utilities should be able to recover costs on the
11 basis that installing fast charging stations is removing a key barrier to EV adoption
12 and will deliver benefits to all ratepayers. BC Hydro acknowledges that the principles
13 set out in the AES Inquiry Report appear to be applicable to regulated public utilities
14 providing EV charging products and services; however, we suggest the application
15 of these principles may be re-considered in the context of the market for DC fast
16 charging services.

14.1 Please provide BC Hydro's quantified business case evidence that including such costs in its electricity revenue requirements will provide benefits to all ratepayers.

14.2 If the service is uneconomic and is just subsidizing a vehicle drivers choice between types of electric vehicles, PHEV versus BEV, and their choice to use the vehicle for long distance travel, then all ratepayer benefits would be highly unlikely and it would be much more likely that BC Hydro would be making a substantial subsidy to a few very specific electricity customers, please discuss.

15. Reference: Exhibit C1-2, Appendix B, Page 1

The following table identifies estimated annual fuel costs associated with popular battery electric vehicles (**BEV**) and compares these to that for similar internal combustion engine (**ICE**) models. For the purposes of comparison, the electricity cost is assumed at both \$0.10 per kWh and \$0.35 per kWh, which are the assumed indicative costs of home charging and DC fast charging respectively, and the gasoline cost is assumed at \$1.45 per litre. For EVs, fuel efficiencies (kWh per 100 km) are based on the respective battery size and the published ranges of each vehicle. Fuel efficiencies for the three identified ICE vehicles are based on NRCan's 2018 Fuel Consumption Guide. The annual driving distance is assumed at 15,000 km.

15.1 Please supply a full break down of the costing for the DCFC station costs of \$35 per kWh, including showing the costing differences for different levels of utilization of such a station, including identifying the range of utilization level of the DCFC stations in the pilot program so far so that table B-1 can be better understood.