

June 5th, 2018

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

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

Dear Mr. Wruck:

Please find attached BrightSide's reply to CEC IR1

Sincerely yours,
BrightSide Solutions

Mark Grist
President

BrightSide Responses to CEC IR1

1. Reference: Exhibit C23-2, Page 1

EV demand for electricity is simply another customer segment that the utility needs to serve. As with other customer segments, the utility should concentrate on supply of electricity to the main meter serving the EV charging station. This is the natural monopoly part of the business.

1.1 Would you agree that the competitive market for EV charging is in its early stages and would be expected, if unregulated, to develop considerably beyond the current state if left to develop its own economic fee models?

Response: Yes, a variety of competitive solutions will develop to meet demand provided the regulatory structure is changed to allow this development and provided that the potential for public entities to provide non-compensatory solutions is removed. This last point is important as it affects the perceived risk to private sector investments.

1.2 Would you be concerned about the linkage between the providers of equipment and software for charging creating a potential monopoly/oligopoly situation leaving EV customers captive to those providers fees without significant alternative competition?

Response: Given the relatively low barriers to entry into the EV charging market I do not see this as a significant threat.

2. Reference: Exhibit C23-2, Page 3

BC Hydro should develop a specific tariff designed to recover the specific Cost of Service (COS) of supplying electricity to EV charging stations. EV demand has characteristics that drive cost of service in ways that are somewhat different to other demand. For example, addition of EV demand often requires bolstering of the distribution system (e.g. transformer additions and supply line system improvements) BC Hydro should be directed to develop a tariff for EV charging that is based on and incorporates the following:

2.1 Would you expect this rate to apply to home charging as opposed to the residential rate, which covers 80% of the current demand?

Response: Should EV's win a major segment of the vehicle market, the increased residential demand will stress the existing system and require very large increased investment in system improvements to service this demand. This would argue for an EV charging rate that is separate from the residential structure. In addition, the present mixing of EV demand with residential demand complicates the achievement of the objectives of the step rate structure. So yes the new tariff should be designed to recover the full costs of all three levels of EV charging, regardless of location. It should be an EV tariff that is designed by demand level rather than residential/commercial/industrial designation.

2.2 Would you expect this rate to apply to business building and parking lot charging as opposed to a general service rate, which covers the building?

Response: See response to 2.1 above:

2.3 The nature of the current residential and commercial rates covers such a wide range of customer requirements now that it would be likely that EV charging would not be substantially different. Do you have any evidence that there would be such a distinct difference that a new class of customers would be required?

Response: See response to 2.1 above. Also note that with the potential size of this emerging market, it will be important to gather consumption data across all application areas. This can be accomplished through submeters on the EV stations that are part of residential or commercial installations.

2.4 Do you recommend end-use-based customer class distinctions and if so what other end uses other than EV charging would become potential class distinctions?

Response: The end use customer distinctions are not as important as the demand level distinctions which drive the COS. The EV tariff should be designed to work with demand from a small home charger through to a charging station designed to service a hybrid ship. Again rates' should reflect the costs incurred to deliver that type of service.

Reference: Exhibit C23-2, Page 3 & 4

A benefit of owning and operating an EV is that electricity is inexpensive relative to conventional vehicle fuels. Gasoline in Vancouver is presently priced at N\$1.50 per litre and the overall efficiency of a gasoline based vehicle is N30%. Thus the cost of useful energy for a gasoline vehicle is N\$144/GJ ($\$1.50/.3 \cdot 1000/34.7 \text{ MJ/L}$ energy content)

EV's on the other hand have high efficiency (N90%) and low (often free) energy charging costs. If we assume a COS based electricity rate of \$0.15/kWh, the cost of useful energy for an EV is \$46/GJ. (Not including amortization of charging station capital, which may or may not be free to the end user depending on the business model of the station operator. In any event amortization of this cost will not significantly reduce the competitive advantage of electricity as a vehicle fuel)

It might be argued that subsidized electricity should be provided to EVs because of their beneficial impact re GHG emissions and climate change. In reality, however, there are at least two policy measures where this issue is already being addressed in a more direct fashion. The first is through the Carbon Tax on BC fuels and the second is through credits generated under BC's Renewable and Low Carbon Fuel Requirement Regulation. The economic benefits these two policy measures presently generate for EVs in the range of \$12/GJ, which translates to approximately \$0.40/Gasoline Litre Equivalent¹. Again, this would support the argument that subsidized charging is not required.

3.1 Would it be correct to say that as the carbon tax is increased the overview of fuel costs you have provided would increase the spread between electricity and gasoline or diesel fuels?

Response: Yes

3.2 Would it be correct to say that as the adoption of EV's expands and that as the manufacturer offerings for EV's increases that the cost differences between ICE vehicles and EV's would likely close significantly such that electrification of transportation becomes an economically driven competitive market solution with broad based adoption?

Response: Yes

4. Reference: Exhibit C23-2, Page 4

Regulated utilities should not be involved in providing EV Charging stations or in the ownership and operation of such facilities. The involvement of utilities presents challenges re fair competition with private sector participants. (See the Alternative Energy Services Enquiry) To the extent that utilities do provide charging station services, the activity should be conducted by their non-regulated entities without the benefit of guaranteed returns on investments. Care should also be taken to ensure that the non-regulated affiliates fully compensate the regulated affiliate for any services provided by the regulated affiliate at reasonable rates including overhead burdens.

Existing charging stations should be transitioned to private sector operators through a competitive bid process.

4.1 Requiring the BC Utilities to compete in the market as unregulated entities would be one way to level the playing field, another might be to provide the same subsidy level to the private sector parties who would compete if they had the same advantages as the monopoly utility, would you agree?

Response: Yes in theory but no in practice. This would be very difficult to achieve in practice.

5. Reference: Exhibit C23-2

Ideally, to encourage higher EV vehicle adoption, the revenue from the LCFRR program should flow to the parties that are using the vehicles or to those that are investing in the charging infrastructure. At present they flow into BC Hydro as general revenue and do nothing to incent greater vehicle adoption rates. (The utility is prevented at present from directly flowing such revenues back to the customers that generated the benefits or from using these revenues to pay for charging infrastructure} The revenue received by the utility is spread out and diluted amongst all rate payers which is a waste of the intended incentive.

If the present enquiry changes the rules re who can supply electricity to customers in BC for EV applications, it would be possible for the Ministry of Energy to change its policy on who can earn credits under the LCFRR program. This would be a beneficial change that would result in greater EV adoption.

5.1 The FortisBC application for rate design for EV charging refers to the potential LCFRR benefit and appears to imply that it would flow back to defray the costs of the charging station. Do you agree that this is the case?

Response: My understanding is that this is not the present practice. Credit revenue gained by a utility is for the benefit of all rate payers at present. To change this would presumably require a separate application to the commission to change the distribution of benefits.

5 .2 Can you please identify the specific components of legislation/regulation that are preventing the utility from flowing the LCFRR incentives back to paying for the charging infrastructure?

Response: I do not have this information available; however my understanding of the distribution of LCFRR credit benefits has been confirmed to BrightSide by both major BC utilities.