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BCUC REGULATION OF ELECTRIC VEHICLE CHARGING SERVICE INQUIRY EXHIBITC3-2

BCUC Regulation on Electric Vehicle

Charging Service Inquiry – Exhibit A-2

To: BCUC

RE: British Columbia Utilities Commission – An Inquiry in the Regulation of Electric Vehicle Charging Service – Establishment of regulatory timeline and preliminary scope

Scope A: Basis for regulation

1. Do EV charging stations operate in a competitive environment in BC or are they a natural monopoly service?

- This question has to be answered in two parts:
  I. Coming back from the Nordic EV Summit in Oslo, Norway, there are many aspects to consider. The BC EV market is competitive on an EVSE infrastructure standpoint, meaning that companies can easily target clients and provide and install EV charging stations.

  II. The second part is at the manufacturer level. In North America, if a client such as hotel, restaurant or municipality is interested in purchasing an EV charging stations (hardware) they are also bound to the payment service (Chargepoint protocol software) of that company, mainly being Addenergie and Chargepoint. What that means is that if hotel A is purchasing an EVSE but after one year is unsatisfied with the software service or a potential rise in fees, hotel A will have no choice but to pay the increasing payment processing fees (ChargePoint or Addenergie) or have to look in to purchasing new hardware altogether. Both in BC and nationwide we would derive great value in copying the European model where all hardware

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and software are on an open source format called Open Charge Point Protocol (OCPP). This way if hotel A is unsatisfied with the software provider, they have the ability to shop around for a different system management provider that will also be compatible with the hardware. This way, we are eliminating the monopoly / oligopoly of a few manufacturers in the North American market. ChargePoint has tried to reach the European market but failed mainly because of its proprietary back-end system chargepoint protocol or software. There shouldn't' be any reason for a client to be stuck with a single provider when purchasing the hardware. Similarly to the requirement of being able to unlock ones cellphone so we are not stuck with the same cellphone provider if unsatisfied. This situation is termed being "vendor locked".

III. To summarize, there is no monopoly in the installation part of the EV industry where a company can control the pricing. The market will dictate how much they can charge per hour as EV drivers will simply avoid the most expensive charge stations – similar to ATM machines. However, on a manufacturer level, by not having the ability to have open charge point protocol for payment processing, the client is tied to the manufacturer terms & conditions as well as the payment management / processing fees and subject to any fee increase (with the industry being at around 12% fees today). This situation would create a monopoly / oligopoly. Solution: request all smart EV chargers to be open sourced, and have the ability to have open charge point protocol like it is in Europe.

2. Are the customers of EV charging stations captive or do they have a choice?

- It depends who is defined as the customer.
  I. EV drivers? Not really as they are not tied to any extra costs other than the set rate on the EVSE. However, in a market with very few chargers collusion between charger owners could happen raising the price substantially as people will not have a choice. One point to consider is the lack of open charge point protocol, which means that EV drivers have to have a proprietary app for each charger brand provider. Open charge point protocol would solve this situation.
  II. However, the EVSE owner, who are also clients of vendors, are captive of a monopoly / oligopoly structure in which they are tied to the provider of the hardware (charging station) that they have purchased. As mentioned above, until the smart EVSEs operate on Open Charge Point Protocol like ABB, Easton or Tritium DCFCs, all level 2 hardware is tied to the same company to provide payment processing & service and are very vulnerable to uncompetitive monthly fees and payment processing fee hikes.
  III. Ultimately, this could also result in increasing prices to the EV drivers as the companies (EVSE owners) pass on fee increases down to the customers (EV driver).

3. Should the Commission regulate the services provided by EV charging stations? What are benefits and detriments to such regulations?

- The market should regulate itself in terms of pricing and the City of Vancouver is a great example. Right now, the City of Vancouver is testing different pricing throughout the city going anywhere from

$2 / hour up to $6 / hour depending on the location. If a private or public entity decides to raise prices, people will simply avoid them and go somewhere else. However, there would be a need to regulate the DCFCs, since there are so few, and since they are essential to commuters travelling longer distance in a time sensitive manor. Therefore, an organization who provides the only DCFC within 15km range could easily increase the price as there are no competitors around. As the DCFC network develops, regulation won't be as necessary as people will have the choice to go to one place or another just like gas stations today. That being said, it would be worthwhile to keep a close look for collusion between parties offering DCFC in the same region so they don't come together to set higher pricing.

Scope B: Rate design and rate setting

4. Should the rate design of EV charging stations be established under a public utility's traditional cost of service model or some other model? And within that context, what are the customer pricing options (e.g. energy-based rate vs. time-based rate)?

- In a perfect world, it would be a different design depending on the location. For example, if the EVSE is in a desirable area, charging only per kWh would not be a good solution as people will charge up and leave the car parked for days since it'll be free once fully charged. In most cases, it would be a combination of kWh and time. Here are five designs that would be efficient if used for the proper application
  I. Free for 1 or 2 hours, then pay up to $10 / hour thereafter
  II. $2 /hour and up to $10 / hour thereafter (to make people move their vehicle)
  III. $1 / hour for the first 2h + KWH used then up to $10 per hour.
  IV. Simply $2 / hour – no incentive for cars to vacate the space.
  V. Free if the EVSE owner decides to provide it as additional service
  VI. For DCFC, clearly having a mix of kwh and time is absolutely necessary

- It would not be desirable for the BCUC to establish one model for all as every situation is different depending on location and EVSE ownership. With DCFC, it would make sense to have a fee to simply start the DCFC then pay per KWH used and one free hour to avoid people leaving their car behind. Also, since BC Hydro is rolling out with phase 2 of DCFC soon, other private entities will get into the market as well suggesting that BC Hydro's rate design might differ from the private sector.

5. Should the EV charging station service rate be based on a public utility's existing wholesale or commercial retail rate or some other rate?

- As BC has a surplus of power, especially running on hydro and will increase its producing capacity with Site C, the correct amount would be commercial rate for level 2 and slightly higher rate for DCFC as it is already at $0.15 per kWh at some BC Hydro DCFC. Many people living in urban areas parking on the street will need public charging infrastructure and it would be unfair to set a high kWh rate compared people who have the ability to charge at home.

6. Should public utilities include EV charging stations in their regulated rate base or through a separate non-regulated entity?

- It would be hard to set a new rate for EVSE as the chargers will most likely be in private enterprises such as tourism industry, public buildings such as recreational centers and libraries, grocery stores and such where the charger will be hooked to the buildings main panel. The kWh fee should be the same as the commercial rate plus extra fees (for EVSE owner) per hour for providing the EVSE service and infrastructure.

7. If public utilities provide EV charging services within their regulated business, is there a risk of cross subsidization from other rate classes to support this new service and if so, is the proposed rate design potentially unduly discriminatory?

- If utility providers are getting in the industry of EV charging stations, the rate should be very similar to what the private market provides. There should not be any discounted price because the utility would have access to the electricity source at a cheaper rate (as they are also producers).

Other matters

8. Any other matters that may assist in the effective and efficient review of the Inquiry.

- It is very important to understand that many benefits will come from allowing private organizations to get in to building EV charging infrastructures and charging fees for it. Presently, what drives the building of EV infrastructure is heavily relied on taxpayers money as the ROI from EVSE isn't quite good. However, by allowing the private market to charge a fee for charging services and pay for electricity usage, this will change the way the industry operates. With the fast increase of EV adoption, it will increasingly become heavy on public funding to support the investment needed to build the EVSE infrastructure across the province. Also, there is currently a Federal Government Grant through NRCAN in which one of the requirement is to have payment features, therefore the station cannot be offered for free which does not align with the current gray zone in the BCUC regulations.

  It would accelerate the EV adoption rate on an EV driver perspective since it's been proven that one of the main barriers to chosing an EV over and internal combustion engine (ICE) is the lack of charging infrastructure. Speaking from personal experience being an EV owner, I can attest to the incredible rise in usage of the DCFC in North Vancouver (1st street west), PNE (Hastings) and in Squamish when it is not unusual to see two, three or four EVs parked waiting for a charge. At that rate, it's faster to charge with a level 2 charger rather than waiting in line which defeats the whole purpose of a DCFC.

  For private companies like ours, it also means faster growth and employment opportunities contributing in paying provincial taxes as well as creating sustainable local jobs.

Following our industry exposure in Norway in early February 2018, it is clear that a regulation around open charge point protocol to separate hardware and software is critical. Currently we have the discussion about the rate for EV drivers but never consider the operational cost that the EVSE provider has to pay for payment processing from a company like Chargepoint that can be up to 12% which is significant. If the company (provider) decides to raise their fees, subsequently the EVSE owner will have to cover the costs by raising its fees which will be transferred to the EV driver which in some cases might go up from $2/hour to $3-$4/h.
As European companies will enter the Canadian market, this issue may get resolved through the market deciding who they wish to choose to provide hardware as well as software.

If any of the above sections are unclear or you need more details, please reach out to us and it will be a pleasure to assist you.