**RESPONSE TO**

**INFORMATION REQUEST NO. 1 TO GARY GUTHRIE**

## A. BASIS FOR EV CHARGING SERVICE REGULATION EXEMPTION

**1.0 Reference: Exhibit C16-2, pp. 1-3; Exhibit C30-2, p. 6; Exhibit C6-2, p. 5**
**Basis for regulation exemption**

1.1 *Please confirm, or explain otherwise, whether Guthrie views that a market that is not subject to any utility regulation is a means to achieving open competition among independent third party providers*.

***RESPONSE***

There are two aspects to the Electric Vehicle (EV) charging market:

a) Energy sales and\or distribution to EVs

At present, there appear to be three emerging Electric Vehicle Supply Equipment (EVSE) groups (see top of pg 4 of my March 15, 2018 submission) which plan to supply/sell power to EV owners. Each group has a somewhat different objective in entering this business.

(i) Manufacturers, which want to support product sales, may offer the service for free or at reduced rates. Tesla is a market leader in this area;
(ii) Governments, which want to encourage EV sales for environmental reasons and/or support local tourism, may not charge for the service, absorbing the costs internally; and
(iii) Third parties, which have diverse goals, may price there service from no cost to a full cost profit generating model, depending on how they see the service supporting their business plans. For example, some may want to become energy resellers, operating similar to existing service stations and charging a fully-loaded price. Others may want to encourage EV owners, through subsidized pricing, to visit their business while the customer vehicle recharges.

Even though these groups will buy the energy from a single source, they will resell it at a price in line with their business objectives. Profit may not be the only price driver.

It is this broad range of business goals and the variability of pricing levels, that will ensure an open competitive market. No regulation of these groups is required.

b) Purchase of this energy

It is a different story when it comes to purchasing the energy. Initially, all EVSEs will have to buy their power from a monopolistic Utility supplier. As such, the Utilities must remain regulated to ensure that the rates charged to resellers are fair and equitable. EV sales will provide the Utility provider with a new source of revenue, currently not available. To protect the EVSEs and EV owners, any Utility operations in the EVSE market, such as a reseller of its own energy, must also be subject to regulation.

Ultimately, there is a third aspect. A fourth group may emerge which will finance and build the

generation and storage of its own power (solar, wind, etc. connected to a battery supply storage system) and sell their energy to EV owners. This group will be subject to market forces and, as such, will not need to be regulated.

1.1.1 *If third-party providers are exempt from utility regulation (in full or in part), please discuss how third-party providers and regulated public utilities co-exist such market*

***RESPONSE***

Monopolistic, regulated public Utilities will have an inherent advantage over third-party providers if allowed to enter the energy resale market unregulated. They, in fact, will be in competition with their own third-party EVSE customers. The Utilities could use their unique position, as the sole supplier, to charge different rates to their own EVSE operations (and increase their own EVSE returns) while making their third-party EVSE customers uncompetitive. There are two possible solutions

1. Utilities are barred from purchasing their own power and reselling it to the public, through Utility-owned EVSEs.

2. Utilities are allowed to enter this market but only through a separate corporate structure, completely divorced from the utility operations, subject regulatory oversight.

In both cases, the Utility and its subsidiary EVSE must remain regulated.

1.2 *Guthrie states that any BCUC actions should be temporary or time limited until the EV market matures. Would it be more practical and regulatory efficient for the BCUC to continue the exemption and initiate another inquiry after a period of time (e.g. five years) to determine if the exemptions should continue? Why or why not?*

***RESPONSE***

I think the BCUC should do both.

The EV market is in its early stages and will continue to evolve at a rate, I believe, much faster than currently predicted. It won't be long before EVs become a more significant component of the vehicle market. This market will not fade away, so the need for ongoing EVSE exemptions will continue unless the Act is amended.

Therefore, the BCUC should act now to implement those actions which come to light during this Inquiry. EVSEs should be exempted from the ACT in the near term. The Act should be amended to eliminate this stream of ongoing exemptions. This reduces the costs of implementing EVSE for third parties and eliminates so-called 'red tape'. In short it makes sense to do this now.

I also believe the BCUC should conduct a follow-up Inquiry – five years maybe a good target – which should depend on the status of EV adoption at that time. My original comment was intended to caution the BCUC against actions which may seem required now, but as the EV market evolves and matures may no longer be required nor appropriate in the near future.

1.3 *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.*

***RESPONSE***

The key word is 'competitive'. A competitive market has supply and demand approaching equilibrium. If one provider leaves a market and demand needs are impacted, other providers will enter the market to satisfy these needs. I believe a competitive EVSE market will be maintained because "there are low barriers to enter."

If a local market is a viable EV market, other providers will install replacement EVSEs to fill the void left by those departing this market. There will obviously be impacts in the immediate area surrounding the withdrawn EVSE, but the overall market will be unaffected. If the area does not support EVSEs, than withdrawal is also a common component of competitive markets. Market viability will dictate the placement and success of EVSEs

1.4 *In Guthrie'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 Guthrie's view, should EV charging service be exempt from?*

***RESPONSE***

This legislation was enacted to protect ratepayers from monopolistic Utilities which generate and distribute electricity. This needs to remain the focus of the Act. I believe, accordingly, that a competitive resellers market will protect the public and all EVSE reselling activity should be excluded from the UCA by amending the Definitions, Public Utility section of the UCA.

The term "Sale" should be removed from section (a) and new wording included if the Public Utilities are allowed to enter the EVSE market

I fail to see the difference if one third party buys electricity, from a monopoly, and decides to bake bread with that electricity and another buys a similar amount of electricity at the same rate and decides to sell this electricity to third parties.

The Act should be focused on controlling the activities of a monopoly, not on the ratepayers use of electricity. If the monopoly, however, is allowed to enter the EVSE market, this will need to be regulated to protect the other EVSEs and ultimately the ratepayers who purchase that energy.

1.5 *Does Guthrie 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.*

***RESPONSE***

As stated above, EVSEs, regardless of operating model, location, equipment, etc., should be excluded from the UCA. If, however, the monopoly Utility is allowed to enter and compete in the EVSE market, this should be considered a separate class covered by the UCA and will require an amendment to the Act.

**2.0 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**

2.1 *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?*

***RESPONSE***

The chart uses a continuum of '100 Competitive to 0% Competitive' as the means of considering various regulation levels. I believe this should be overlaid with a second continuum of 'supply and demand/use', because of the unique nature of this market with a sole supplier component. Currently the 'supply' side is a controlled by a monopoly and, as such, must be regulated. The 'demand/use' side is developing as a competitive market and will not need BCUC control.

If the monopoly Utility is allowed to enter the EVSE market, this chart implies that the level of regulation could move to the left of continuum (for this aspect of the monopoly's business) requiring 'light handed' or 'limited' regulation, because this new EVSE business would be entering into a competitive market.

Even though the Utility would be in a competitive market, I believe that since the Utility will still control the energy supply to all other EVSEs (its competitors), it will have an unfair market advantage, if not properly regulated. Until there are competitive supply alternatives (e.g.: from third-party wind, solar, thermal, etc. suppliers), the Utility should remain considered at zero on the 'competitive scale ', regardless if it enters the EVSE business or not.

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

***RESPONSE***

The third-party EVSE market should be unregulated.

I not sure the monopolistic Utility should be allowed to enter the EVSE business and compete with independent third parties. While I can appreciate the reasons why this business is appealing to the Utility, it's entry raises concerns about protecting the public interest.

If it is decided to allow the Utility's entry into the EVSE market, BCUC should use the UCA as its tool to regulate this business. Some regulation aspects would include:

- The Utility's EVSE business must be separated and segregated from its generation business;
- Rates, terms of service, contracts, etc with its own EVSE business would have to be consistent with those charged to its EVSE competitors;

The monopoly has financial and other advantages over third-parties. This would have to be controlled.

The nature of EV charging will change over the next 5 years, but I don't believe this will impact the

overall market competitiveness. It is uncertain if the supply market will change much during this same period. I believe that other suppliers will eventually enter the power generation business using alternative methods, but it will many years before there can be any relaxation the regulatory control over today's monopolies.

## B. INVESTMENT

**3.0 Reference: Exhibit C16-2, p. 4**
**DCFC infrastructure**

3.1 *Please discuss whether the demand for DCFC stations will decrease as battery technology improvements increase the range and shorten recharge times.*

***RESPONSE***

Most EV users will charge at home or work. When looking for alternative charging options, consumers will want a refuelling experience (time and convenience) similar to that offered by present-day service stations. DCFCs have the potential to offer this.

The DCFC demand will continue to increase because the number of EVs on the market will increase. Also, increases in range capacity will mean more EV owners will take their vehicles on trips beyond their home charging base requiring in-travel charging.

Eventually, the market may take the form of clustered DCFCs, similar to current-day gas stations. Tesla's Supercharging stations are an example of this might work.

3.2 *Given the expected battery technology improvement, in Guthrie's view, are there concerns that the current investment of public EV charging assets will need to be replaced in the near future? Why or why not? And what is the timeframe?*

***RESPONSE***

Battery improvements, accelerated charging rates and the low cost of EVSE establishment will mean the nature of EVSEs will change. Some present-day Level 1 and Level 2 chargers will be become less desirable, as DCFCs become more prevalent, and may be withdrawn from service. Others, particularly Level 2 chargers, will see continued use where recharging time is not critical. For instance, a Level 2 charger associated with a hotel can offer overnight charging as an inducement for EV travellers to stay at the hotel.

DCFC technology is also changing. Recharge rates are increasing and some slower DCFCs may become less used and withdrawn.

## C. TECHNOLOGY

**4.0 Reference: Exhibit C16-2, pp. 3–4**
**EVSE vehicle connector standards and payment management systems**

4.1 *In Guthrie's view, what role would the BCUC play, if anything, related to EV connector standards? Please discuss in light of the BCUC's jurisdiction as a public Utility regulator. Are there other entities that would be more appropriate for such oversight?*

***RESPONSE***

I don't see a role for the BCUC in connector standards. BCUC's jurisdiction is BC.

Connection standards will be established on a national or international basis by manufacturers and standard setting/certification organizations.

For instance, the Society of Automotive Engineers (SAE) developed an EV electrical standard known as the SAE J1772 plug. This standard was adopted and deployed by American and European auto manufacturers. SAE also developed the Combined Charging System (CCS) connections for these same companies DCFC chargers.

Once the ACT is amended to exclude EVSEs, BCUC's "jurisdiction as a public Utility regulator" should cease for third-party EVSEs.

4.2 *In Guthrie's view, please discuss the degree of captivity in the North American EV charging station market related to payment management systems.*

***RESPONSE***

Like other aspects of the EV market, this area is evolving. Eventually, most fragmented markets, like the current EV market, experience a series of amalgamations, takeovers, and consolidations resulting in a number of large organizations controlling a major share of the market.

Manufacturers may opt to maintain control of their payment management system, similar to Tesla. In the past, manufacturers have promoted a continued relationship with their customers through warranty programs. As EVs require much less service, using a payment management system could offer an alternative method to regularly connect with customers, to develop and maintain brand loyalty. Again, one of Tesla's market advantages is its propriety charging network.

Governments and third parties will probably continue to use payment management systems as an efficient way to operate their EVSEs. As the EVSE market grows, so will the payment management systems.

4.3 *What role would the BCUC play, if anything, in terms of captivity of monopoly/oligopoly at the payment management systems level? Please discuss in light of the BCUC's jurisdiction as a public utility regulator. Are there other entities that would be more appropriate for such oversight?*

***RESPONSE***

I don't see a role for BCUC in this area at this time. Third-party EVSEs should be excluded from the ACT and not under BCUC oversight. The payment management systems related to EVSEs should also be excluded from the ACT and not under BCUC oversight.

BCUC needs to remain focused on the monopolistic Utility providers.

**D. RATES**

**5.0 Reference: Exhibit C16-2, pp. 4, 6**
**Cross-subsidization**

5.1 *Please clarify on what basis utilities should use its existing non-EV customers to subsidize*

*the cost of power sold to its EVSE operations.*

***RESPONSE***

There should be no subsidization. The two business components (utility power generation and EVSE sales) must be kept separate. Non-EV public Utility customers should not subsidize EV owners.

My comment on page 4 of Exhibit C16-2 could be misinterpreted. I meant that without controls and oversight of its EVSE business, there is the possibility that some Utility subsidization could exist.

5.2 *When competing with private third-party providers, please clarify how a regulated public utility can subsidize its EVSE operations if the public utility is to manage its EVSE service separately from its regulated business.*

***RESPONSE***

If separate, there should be no subsidization or perception of subsidization. In other words, any financial transactions between the Utility and its EVSE, must be transparent and subject to BCUC oversight. There should be no inter-company charges (e.g.: management fees) or other related transactions where an opportunity exists to undercharge the Utility's EVSE at the expense of the Utility overall. This could be one way to lower the costs of its EVSE, making it more competitive.

The Utility is in effect buying the power from itself to resell to EV owners. The power it sells to its EVSE must be priced at the same rate as the power it sells to third party EVSEs.

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***SUMMARY COMMENTS***

EVs present a future revenue increase for the Utilities. BCUC should focus on this aspect of EV growth to ensure that ratepayers get value from this growth.

BC ratepayers invested hundreds of million dollars in so-called Smart Meters. Studies indicate one of the main advantages of these meters is time-of-use or differential rates billings. Most EV owners will charge at home. Most will plug in their EV when they get home at day's end. This will put additional peak demand on the electrical system.

Most EVs, and in fact many new home appliances, are capable of programmed operation. EVs, washing machines, dish washers, etc. could be programmed to run during off-peak hours, say after 11:00PM. Owners could be encouraged to use this time shifting feature by lower off-peak electrical rates.

I believe the BCUC should focus on this area. The new EV revenue should used to finance the implementation of time-shifted rates. Instead of just capturing this new revenue at existing rates, the Utilities should be encourage to develop models where new EV income can be charged at lower after-hours rates.