



March 15, 2018

Mr. Patrick Wruck  
Commission Secretary  
British Columbia Utilities Commission  
6<sup>th</sup> Floor, 900 Howe Street  
Vancouver, BC V6Z 2N3

Dear Mr. Wruck:

Please find enclosed a submission from the British Columbia Ministry of Energy, Mines and Petroleum Resources as a registered intervener in the Inquiry into the Regulation of Electric Vehicle Charging Service.

If you have any questions regarding this submission or require any further information, please contact Shannon Craig at [Shannon.Craig@gov.bc.ca](mailto:Shannon.Craig@gov.bc.ca) or 778-698-7016.

Thank you.

Sincerely,

Les MacLaren  
Assistant Deputy Minister  
Electricity and Alternative Energy Division

Enclosure

**Submission from the British Columbia Ministry of Energy, Mines and Petroleum Resources to the  
British Columbia Utilities Commission  
Inquiry into the Regulation of Electric Vehicle Charging Service**

## **1. Introduction**

The Ministry of Energy, Mines and Petroleum Resources (MEMPR) has a significant interest in the British Columbia Utilities Commission (“the Commission”) Inquiry into the Regulation of Electric Vehicle Charging Service (“the Inquiry”). MEMPR is supportive of this Inquiry and looks forward to the Inquiry results, including any recommendations or advice to government that the Commission may wish to provide. MEMPR anticipates that the results of the Inquiry will inform future provincial policy direction on regulation of electric vehicle (EV) charging services.

This submission focuses primarily on information related to the first three questions identified by the Commission in its Preliminary Scope of the Inquiry:

### **Scope A: Basis for regulation**

1. Do EV charging stations operate in a competitive environment in BC or are they a natural monopoly service?
2. Are the customers of EV charging stations captive or do they have a choice?
3. Should the Commission regulate the services provided by EV charging stations? What are benefits and detriments to such regulation?

Some rate-related information is also provided in this submission, which may be relevant to the questions identified by the Commission under **Scope B: Rate design and rate setting**.

Sections 2 through 7 of this submission provide information regarding the current environment and experience with EVs and EV charging services in BC and other jurisdictions. The final section of this submission, Section 8, presents our conclusions drawn from the information presented in Sections 2 through 7, and our recommendations.

## **2. Inquiry Key Principles**

MEMPR agrees with the key principles that the Commission intends to adopt for the Inquiry, namely that the Commission should only regulate where necessary, and regulation should not impede competitive markets. Those principles align with, and support, current provincial policy and strategies relating to EVs and EV charging infrastructure, which are informed by British Columbia’s energy

objectives outlined in section 2 of the *Clean Energy Act*.<sup>1</sup> Those objectives include:

- reducing BC greenhouse gas emissions by at least 33% less than the level of those emissions in 2007 by 2020 and for each subsequent calendar year;
- reducing BC greenhouse gas emissions by at least 80% less than the level of those emissions in 2007 by 2050 and for each subsequent calendar; and
- encouraging the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia.

The provincial policies and strategies related to EVs and EV charging infrastructure described in the following section are designed to assist BC in achieving these objectives.

### **3. Provincial Policy and Strategies Related to EVs and EV Charging Infrastructure**

The Province of British Columbia has committed to significant actions to reduce greenhouse gas (GHG) emissions. Priorities outlined in the most recent mandate letter for the Minister of Environment and Climate Change Strategy include the following:

- Renew the Climate Leadership Team within the first 100 days of your mandate; and
- Implement a comprehensive climate-action strategy that provides a pathway for BC to prosper economically while meeting carbon pollution reduction targets, including setting a new legislated 2030 reduction target and establishing separate sectoral reduction targets and plans.<sup>2</sup>

To follow through on these priorities, a Climate Solutions and Clean Growth Advisory Council has been established to provide strategic advice to government on climate action and clean economic growth. It includes members from First Nations, environmental organizations, industry, academia, labour and local government. Transportation is one of the key sectors that will be included in the comprehensive climate-action strategy and the Council will be considering a range of policy options to achieve carbon pollution reductions in that sector. The outcome of this Inquiry will assist with the Council's consideration of policy options relating to EVs and EV charging infrastructure.

The Province is active in promoting the uptake of zero emission vehicles (ZEVs), including battery-electric, plug-in hybrid, and fuel cell vehicles. The Province's Clean Energy Vehicle Program ("the CEV Program") includes point-of-sale incentives for electric and hydrogen vehicles, investments in charging and fuelling infrastructure, additional support for fleets to adopt ZEVs, and investments in research, training and outreach.<sup>3</sup> The CEV Program is intended to encourage and accelerate the adoption of ZEVs in British Columbia for both their environmental and economic benefits. The CEV Program vision is to

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<sup>1</sup> [http://www.bclaws.ca/civix/document/id/complete/statreg/10022\\_01#section2](http://www.bclaws.ca/civix/document/id/complete/statreg/10022_01#section2)

<sup>2</sup> <https://www2.gov.bc.ca/assets/gov/government/ministries-organizations/premier-cabinet-mlas/minister-letter/heyman-mandate.pdf>

<sup>3</sup> Further information on the CEV Program can be found at:

<https://www2.gov.bc.ca/gov/content/industry/electricity-alternative-energy/transportation-energies/clean-transportation-policies-programs/clean-energy-vehicle-program>

stimulate the market such that, by 2020, 5% of new light duty vehicle purchases in BC are ZEVs. In early 2018, there are approximately 8,000 light-duty electric vehicles on the road in BC. The CEV program expects the ZEV population in BC to be approximately 20,000 vehicles by 2020.

The Province has also taken action to reduce transportation GHG emissions through adoption of the *Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act* and the Renewable and Low Carbon Fuel Requirements Regulation.<sup>4</sup> That Act has two parts aimed at reducing GHG emissions from transportation fuels: Part 2 sets requirements for renewable content in gasoline and diesel fuel used for transportation or heating; and Part 3 requires suppliers to reduce the carbon intensity of the fuel they supply. An agreement under the Renewable and Low Carbon Fuel Requirements Regulation allows a fuel supplier to receive compliance credits in exchange for investing in a new Scrap-It incentive. Scrap-It provides \$3,000 to customers who scrap an old vehicle and purchase a used electric vehicle, and \$6,000 for customers who purchase a new electric vehicle.<sup>5</sup> The incentive is able to be combined with the CEV Program incentive, allowing a total incentive of up to \$12,000 for hydrogen fuel cell EVs, and up to \$11,000 for battery EVs.

The Province is also working with other jurisdictions to promote the uptake of ZEVs. Under the Pan-Canadian Framework on Clean Growth and Climate Change, federal, provincial and territorial governments committed to work with industry and stakeholders to develop a Canada-wide ZEV strategy by 2018.<sup>6</sup> This strategy will be ambitious and will build on existing initiatives, such as light-duty vehicle regulations, provincial ZEV programs, and Canadian innovation superclusters, to help meet Canada's 2030 GHG emissions reduction target and realize the country's potential as a global leader in innovation and the clean economy.

The Pacific Coast Collaborative (PCC) is a joint initiative of California, Oregon, Washington, and British Columbia to accelerate a vibrant, low-carbon economy on the West Coast. On October 28, 2013, the Governors and Premier of the PCC jurisdictions announced the Pacific Coast Action Plan on Climate and Energy. A key element of the action plan was to "take actions to expand the use of zero-emission vehicles, aiming for 10 percent of new vehicle purchases in public and private fleets by 2016."<sup>7</sup> That initial goal has now expanded to include fleets that aim for more than 10 percent and to establish a new target year of 2020.

In 2015, BC became the 14th jurisdiction to sign on to the International ZEV Alliance, which is a collaboration of national and subnational governments working together to accelerate adoption of ZEVs.

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<sup>4</sup> [http://www.bclaws.ca/civix/document/id/complete/statreg/08016\\_01](http://www.bclaws.ca/civix/document/id/complete/statreg/08016_01)

<sup>5</sup> For 2018, there are incentives available for 1,000 new vehicles and 250 used vehicles. More information can be found at <https://scrapit.ca/incentivechoices/>

<sup>6</sup> [https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/complementary-actions-reduce-emissions.html#3\\_3](https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/complementary-actions-reduce-emissions.html#3_3)

<sup>7</sup> <http://pacificcoastcollaborative.org/Documents/Pacific%20Coast%20Climate%20Action%20Plan.pdf>

Members of the Alliance are striving to make all new passenger vehicles in their jurisdictions ZEVs by no later than 2050.<sup>8</sup>

Fuelling and charging infrastructure are key components in ensuring more ZEVs are on BC's roads. The CEV Program includes funding for investments in EV charging infrastructure (for battery-electric and plug-in hybrid vehicles) and hydrogen fuelling infrastructure (for fuel cell vehicles). The British Columbia Electric Vehicle Infrastructure Project ("the EVIP"), launched in 2012, was led by BC Hydro and supported by the Province of British Columbia, the federal government, municipalities and the private sector. The EVIP led to the installation and operation of over 500 Level 2 charging stations for public use in urban areas across the province, and 30 DC fast-charging stations along major transportation corridors. Subsequently, a second phase of DC fast-charging station deployment was supported by the Province, with partial funding for 21 new stations across BC. Most recently, in the Budget Update of September 2017, further Provincial investment in DC fast-chargers was confirmed, with \$2 million going into a multi-year joint call with Natural Resources Canada for a targeted additional 80 DC fast-charging stations in BC.

The Government of Canada is also investing in ZEV infrastructure through a variety of programs and supporting tax policies, and partnering with the private sector to support the demonstration and deployment of new charging stations for EVs, along with refuelling stations for alternative fuels such as hydrogen.

In 2016, the PCC and the cities of Los Angeles, Oakland, Portland, San Francisco, Seattle and Vancouver signed the Pacific North America Climate Leadership Agreement, which includes a commitment to create a comprehensive Pacific Coast ZEV charging network along major highway systems from Southern California to British Columbia and accelerate the deployment of residential, workplace and public charging infrastructure in major population centers.<sup>9</sup>

#### **4. Current EV Infrastructure in BC**

There are three main types or "levels" of EV charging:

- Level 1 charging: The slowest form of charging. Uses a standard household (120 volt ("V")) outlet to connect to a vehicle's on-board charger and can take up to 22 hours for a full charge.
- Level 2 charging: Provides electricity at 240V through a dedicated outlet and can take from four to six hours to completely charge a vehicle.
- Level 3 charging or DC fast-charging: Delivers an 80% charge in approximately 30 minutes.

Most EV charging occurs at home or at work using Level 1 and Level 2 charging. Public charging stations are generally used by drivers to "top up" on short trips or fully recharge vehicles on long distance trips. Plug In BC indicates that there are a growing number of Level 2 and Level 3 EV charging stations in public

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<sup>8</sup> <http://www.zevalliance.org/international-zev-alliance-announcement/>

<sup>9</sup> [http://pacificcoastcollaborative.org/wp-content/uploads/2016/06/Pacific\\_North\\_America\\_Climate\\_Leadership\\_Agreement\\_060116\\_Signed.pdf](http://pacificcoastcollaborative.org/wp-content/uploads/2016/06/Pacific_North_America_Climate_Leadership_Agreement_060116_Signed.pdf)

places throughout BC, with over 1,000 public charging stations available.<sup>10</sup> The vast majority of these provide Level 2 charging; many provide this service for free. Because of slow charging speeds, Level 1 charging is best suited to overnight or long-term parking use.<sup>11</sup>

Existing public EV charging stations in BC are a mix of municipal, private and public utility investments. Public utilities, in particular, have made significant investments in the development of charging infrastructure in the province. With support from the Province and the federal government, BC Hydro installed an initial deployment of 30 DC fast-charging stations across BC, which are operated by independent site hosts, and is currently installing a second phase of 21 additional stations, which will be owned and operated by BC Hydro. As part of the Accelerate Kootenays project, in conjunction with several partner organizations, FortisBC has constructed five DC fast-charging stations in five communities along the Highway 3 corridor in the West Kootenay area.

MEMPR is not aware of significant issues or public safety concerns regarding the current operation of public EV charging stations. However, reliability and pricing have been expressed as issues by some users.

More EV charging stations will be required in the future to support the anticipated increase in ZEVs on BC roads; however, the exact number of stations required is difficult to estimate. A review of charge points per vehicle in major metropolitan areas within the most prominent national electric vehicle markets shows there is no universal benchmark for the amount of charging infrastructure required.<sup>12</sup> In the Netherlands, where private parking and charging are less common, two to seven electric vehicles per public charger is typical. In California, where EV owners have access to home charging, or to charging at their workplaces, there is roughly one public charger per 25 to 30 EVs.

Municipalities, public utilities, private businesses and others are planning to make further investments in public EV charging stations in the coming years. Regional districts in Northern BC recently committed funding in support of a plan to bring DC fast-charging infrastructure to the 1,240 km Highway 16 and 97 corridors.<sup>13</sup> In its application for approval of rate design and rates for its DC fast-charging service, FortisBC indicates that it intends to develop other stations over the coming years.

Public Level 2 charging stations play an important role by allowing EV drivers to “top up” on short trips; however, in order to meet BC’s ZEV adoption targets, a significant expansion in public Level 3 charging stations will be required to support long distance trips, mitigate the “range anxiety” that inhibits purchasers from investing in an EV, and reduce queuing in urban environments, where lineups for charging services are an increasing issue. Approximately 64 Level 3 charging stations are currently

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<sup>10</sup> <https://pluginbc.ca/charging-stations/>

<sup>11</sup> We note the analogy of Level 1 charging with outdoor receptacles used to plug in engine block heaters in many areas of the province. They are not metered, not regulated and no fee is charged.

<sup>12</sup> [https://www.theicct.org/sites/default/files/publications/EV-charging-best-practices\\_ICCT-white-paper\\_04102017\\_vF.pdf](https://www.theicct.org/sites/default/files/publications/EV-charging-best-practices_ICCT-white-paper_04102017_vF.pdf)

<sup>13</sup> <http://www.princegeorgecitizen.com/news/local-news/district-supports-electric-vehicle-charging-station-plan-1.23149684>

installed or under construction in BC, located predominantly in the Lower Mainland and the Kootenays. Approximately 40 new Level 3 locations are currently under consideration or in the “planning stages” by various parties, including FortisBC, BC Hydro and the Ministry of Transportation and Infrastructure.

MEMPR is currently using an EV modeling tool and collaborating with these organizations to determine the number of sites that will be required in the future in order to provide a complete EV charging network that allows reliable travel throughout the province and reduces lineups in urban centres. Initial modeling results indicate that approximately 200 Level 3 charging stations would be required at a minimum to allow for travel along all of BC’s primary and secondary highway corridors. This figure would not include the need for more densely located DC fast-charging stations in urban centres. Natural Resources Canada is targeting a distance of approximately 50 kilometres between DC fast-charging stations. This distance is aligned with the Province’s planning approach.

## **5. Current Regulation of EV Charging Services in BC**

Currently in BC, parties providing EV charging services for compensation are considered public utilities, and subject to regulation by the Commission under the *Utilities Commission Act* (UCA). The associated real or perceived regulatory burden may be an obstacle to the deployment of public EV charging infrastructure across the province and, in turn, may slow the adoption of EVs. To date, only one company, Bakerview EcoDairy Ltd. (“EcoDairy”), has applied to the Commission for approval to operate a private sector DC fast-charging station. EcoDairy is the only private sector host participating in the EVIP. Following a written comment process, the Commission ultimately granted EcoDairy an exemption from various provisions of the UCA, with the approval of the Minister of MEMPR.<sup>14</sup> Launching this type of application to the BCUC can be relatively expensive. EcoDairy was responsible for paying all fees incurred by the Commission in conducting the proceeding.

As interveners in the EcoDairy proceeding, both BC Hydro<sup>15</sup> and FortisBC<sup>16</sup> indicated that it would be premature for the Commission to consider a class exemption for EV charging services at that time. Now that several years have passed, this Inquiry is an opportunity for the Commission to consider the question of whether a class exemption for EV charging services is appropriate.

The Commission’s oversight of public utilities ensures that customers receive safe, reliable and non-discriminatory energy services at fair rates from the utilities it regulates. Aspects of EV charging services that may require regulation in order to meet those objectives include rates charged to customers, impacts on ratepayers (if charging services provided by public utilities), infrastructure safety (including installation and use), and siting. A variety of agencies other than the Commission currently have a role in regulating some of these aspects of EV charging services.

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<sup>14</sup> [http://www.bcuc.com/Documents/Proceedings/2016/DOC\\_46352\\_05-19-2016\\_Bakerview-Exemption-Approved\\_G-71-16.pdf](http://www.bcuc.com/Documents/Proceedings/2016/DOC_46352_05-19-2016_Bakerview-Exemption-Approved_G-71-16.pdf)

<sup>15</sup> [http://www.bcuc.com/Documents/Proceedings/2016/DOC\\_45660\\_C1-3\\_BCH-Response-to-BCUC.pdf](http://www.bcuc.com/Documents/Proceedings/2016/DOC_45660_C1-3_BCH-Response-to-BCUC.pdf)

<sup>16</sup> [http://www.bcuc.com/Documents/Proceedings/2016/DOC\\_45623\\_C3-1\\_FortisBC-Comment.pdf](http://www.bcuc.com/Documents/Proceedings/2016/DOC_45623_C3-1_FortisBC-Comment.pdf)

The *Safety Standards Act* governs the installation, operation and maintenance of electrical equipment in BC. Technical Safety BC and eight local governments administer the *Safety Standards Act* and Electrical Safety Regulation. In addition to adopting the BC Electrical Code, the Electrical Safety Regulation sets out requirements for permitting and worker qualifications.

The Electrical Safety Regulation does not apply to “public utilities” as defined in the UCA.<sup>17</sup> Based on the current definition of public utility in the UCA, this means that companies and individuals providing EV charging services for a fee are not subject to the requirements of the Electrical Safety Regulation. This creates a potential inconsistency in the regulation of free versus for-compensation EV charging stations. Depending upon the results of this Inquiry and future provincial policy direction regarding EV charging services, government could work with Technical Safety BC, delegated local governments, and the Commission to explore options for ensuring optimal safety oversight of EV charging stations.

Local governments have the ability to regulate EV charging services through zoning and commercial use of public space guidelines, business licensing regulations, issuing electrical permits and enforcing building codes. For example, Squamish’s Zoning Bylaw allows electric vehicle charging stations as a permitted use in all but residential zones.<sup>18</sup>

Measurement systems used in EV charging stations must comply with different federal measurement laws, depending on how the electricity is sold.<sup>19</sup> Measurement Canada regulates EV charging station meters, but has not yet approved any meters for use in EV charging stations that sell electricity on the basis of energy. Charging stations that sell electricity on the basis of time are allowed by Measurement Canada, so long as the meter operates within the limits of error set in the federal *Weight and Measures Act*.

Some aspects of EV charging services fall outside of any current regulation, including:

- systems and networking requirements, such as open protocols, that may be necessary for data sharing and tracking; and
- maintenance or operation standards for reliability.

## **6. Regulation of EV Charging Services in other jurisdictions**

A variety of regulatory models are used in other jurisdictions. Ontario, California, Washington, Oregon, New York and a number of other US states exempt EV charging from energy regulation. Re-sale of electricity is permitted without prior approval, and prices are set by the market. Safety, consumer protection and other considerations are regulated under other existing regimes. Similar to the current regulatory scheme in BC, some other US States require EV charging service providers to become public utilities, subject to all other aspects of energy regulation, including pricing.

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<sup>17</sup> See Section 3 of the Regulation:

[http://www.bclaws.ca/civix/document/id/complete/statreg/100\\_2004#section3](http://www.bclaws.ca/civix/document/id/complete/statreg/100_2004#section3)

<sup>18</sup> <https://squamish.civicweb.net/filepro/documents/?preview=151868>

<sup>19</sup> <https://www.ic.gc.ca/eic/site/mc-mc.nsf/eng/lm04839.html>



Some jurisdictions, including Oregon<sup>20</sup>, allow public utilities to provide EV charging services and recover costs through rates. Some other jurisdictions do not allow public utilities to deliver EV charging services or only allow them to deliver EV charging services as a non-rate based venture. For example, a recent decision from the Nova Scotia Utility and Review Board denied a request from Nova Scotia Power Incorporated to recover from ratepayers the cost of purchasing and installing 12 EV fast-charging stations at locations across Nova Scotia.<sup>21</sup>

There are a number of advantages and disadvantages associated with public utility involvement in EV charging services. An April 2016 article from the Center for Strategic and International Studies<sup>22</sup> notes that establishing a profitable business model for EV charging infrastructure is challenging because of high upfront investment costs, low and uncertain near-term demand, and competition from home charging. The article notes that some see utilities “as the way to overcome all three of these challenges: utilities can address uncertainty by being told by regulators to install infrastructure (and at a pace directed by the regulator), can address the financing challenges by seeking ratebasing for the infrastructure, and can deploy in the immediate term if directed to do so by public utility commissions. In short, the market challenges faced by third-party EV charging vendors evaporate when the utility is the one doing the installing.” Disadvantages of public utility involvement include the potential risk to ratepayers and the potential for stifled competition.

## **7. Rate Design and Rate Setting Considerations**

A range of fees are currently in place at public EV charging stations in BC, with Level 2 charging provided at no or low cost compared to Level 3. This is a reflection of the significant differences in installation cost for each type of charger. Plug In BC provides a guide to installation costs totalling \$6,425.50 for a networked Level 2 charging station.<sup>23</sup> Installation of a DC fast charger is significantly more expensive. In its application for approval of rate design and rates for its DC fast-charging service, FortisBC estimated gross capital expenditures of \$492,000 to build five EV fast-charging stations.

Most public Level 2 charging stations provide charging services for free. For example, the City of Victoria has installed eight Level 2 chargers in various City parkades which can be used for free, although regular parking fees apply. The City of Vancouver currently manages 75 Level 2 public charging stations throughout Vancouver and one DC fast-charger. Most are free; however, at some Level 2 sites, drivers pay a charging fee of \$2 per hour, which is in addition to any parking fees that apply. A charging fee of \$16 an hour is in place at the DC fast-charging station.

Some parties who operate DC fast-charging stations as part of the initial deployment project led by BC Hydro have implemented a \$0.35/kWh charge with a minimum \$2.00 fee per charging session.<sup>24</sup> The

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<sup>20</sup> <http://apps.puc.state.or.us/orders/2012ords/12-013.pdf>

<sup>21</sup> <https://nsuarb.novascotia.ca/sites/default/files/M08224%20Decision.pdf>

<sup>22</sup> <https://www.csis.org/analysis/utility-involvement-electric-vehicle-charging-infrastructure-california-vanguard>

<sup>23</sup> <https://pluginbc.ca/faq/how-much-does-it-typically-cost-to-purchase-and-install-a-charging-station/>

<sup>24</sup> For more information on the pilot, see <https://pluginbc.ca/wp/wp-content/uploads/2014/08/FAQ-EV-DCFC-pilot-2Oct2014.pdf>

minimum sales amount ensures the recovery of the \$0.91 payment transaction fee and any electricity dispensed before reaching the \$2.00 mark. FortisBC has an approved interim rate of \$9 per half hour at its DC fast-chargers.

These rates currently charged in BC are in line with those charged in other jurisdictions. EVgo, the United States' largest public DC fast-charging network, has fees ranging from \$0.18-0.21/minute for members and \$0.25-0.35/minute for Pay As You Go drivers.<sup>25</sup> Level 2 charging costs \$1.50 per hour. The Electric Circuit, the largest charging network in Québec, charges the following rates:

- Rates for 240-volt stations: \$2.50 per charge, regardless of charging time, or \$1 per hour, billed per minute while the vehicle is connected to the station.
- For quick charging stations: \$10 per hour, and charging time is billed per minute while the vehicle is connected to the station.

Sources of revenue other than charging fees may be available to EV charging service providers in BC to offset the installation and operating costs of an EV charging station. EV charging service providers can receive low carbon fuel compliance credits which they can sell to other fuel suppliers. Under the *Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act*, a fuel supplier's compliance with the low carbon fuel requirements of the Renewable and Low Carbon Fuel Requirements Regulation ("LCFRR") is calculated in terms of credits for low carbon fuels and debits for high carbon fuels. Fuel suppliers may transfer debits and validated credits in order to achieve compliance with the low carbon fuel requirements. The value of a \$150 compliance credit is \$0.13/kWh.

Electricity is considered a low carbon transportation fuel under the LCFRR. In its application for approval of rate design and rates for its five DC fast-charging stations, FortisBC estimates an average value of \$17,700 per year over ten years in compliance credits under the LCFRR, with each 20 kWh charging session having the potential to generate between \$1.00 and \$3.25 in compliance credits.

MEMPR will be consulting stakeholders regarding the point of compliance for EV charging, to ensure that the appropriate parties are identified as fuel suppliers. Accurate metering and data tracking at EV charging stations will assist fuel suppliers in reporting under the LCFRR and obtaining compliance credits.

## **8. Conclusions**

MEMPR supports a significant expansion of public EV charging infrastructure in BC, which will be required in order for the Province to meet provincial, national and international commitments on climate change, reduce transportation-related GHG emissions and increase the number of ZEVs on the roads in BC. To facilitate this expansion, MEMPR supports the reduction of undue regulatory burden and cost of providing EV charging services in BC, so long as the interests of ratepayers and consumers are protected and safety considerations are adequately addressed.

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<sup>25</sup> <https://www.evgo.com/>

In terms of the specific questions posed in the scoping document, MEMPR's submissions are provided below.

***Scope A: Basis for regulation***

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

The answer to this question depends on the type of EV charging station under consideration. As noted above, for Level 1 and Level 2 charging stations, there appear to be no barriers to entry, which is one of the characteristics of a competitive market place. For Level 3 charging stations, there are barriers to entry, which suggests that utilities have an opportunity to play an important role in developing this market.

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

Public EV charging stations available currently in BC are owned and operated by a variety of private and public entities. EV owners generally also have the option of charging their vehicles using non-public charging stations either at home or at work, although there are well-documented hurdles for residents of multi-unit residential buildings to install and access charging facilities in their buildings. The current variety of both public and private Level 1 and Level 2 EV charging stations in terms of ownership and fees suggest that customers do have a choice of service provider for these two types of charging service. Level 3 stations are much more limited in availability. Currently, customers requiring Level 3 charging services (e.g., those on longer trips) have limited choices.

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

The experience from other jurisdictions shows that a variety of regulatory models for EV charging services are feasible, ranging from full regulation as public utilities to no public utility commission oversight. Because of the differences noted above, different regulatory schemes could be considered for Level 1 and 2 charging services versus Level 3. Regulating Level 1 or 2 charging service providers as "public utilities" will likely be a detriment to private investment and the expansion of these services in BC. Any concerns regarding safety could be regulated by other agencies. This means that the Commission may not need to play a significant, or any, role in the regulation of Level 1 and Level 2 charging services. As a result, some form of class exemption may be warranted for these types of charging stations.

There may be benefits to some form of Commission regulation of Level 3 charging services. A complaint-based form of regulation may be sufficient to address concerns regarding fairness of rates.

**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)?

MEMPR supports innovative rate design for EV charging stations because a traditional cost of service model:

- does not account for the impact of public EV charging services in promoting the uptake of EVs, leading to increases in the incremental load from all forms of EV charging; and
- may under-estimate the potential revenues from EV charging services. As noted above, under the LCFRR, additional revenues for EV charging services may be realized. The current compliance credit market is about \$170/tonne and the penalty for non-compliance is \$200/tonne.

MEMPR recommends a holistic approach to rate design where:

- utilities are able to recover the cost of public EV charging infrastructure through rates charged to all ratepayers in consideration of the revenue obtained through electricity sales at all EV charging stations within their service territories (i.e., through both public and private Level 1, 2 and 3 charging stations combined), and
- utilities receiving other sources of revenue would use these revenues to expand the charging infrastructure.

Until Measurement Canada approves meters that can base rates on electricity consumption, rates based on time appear to be an appropriate surrogate. MEMPR encourages utilities and charging station manufacturers to work with Measurement Canada to speed the development of approved consumption-based meters for use in charging stations.

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?

MEMPR supports EV charging rates in BC that are fair and affordable. Existing rates charged at stations in BC appear to be reasonable when compared to rates charged in other jurisdictions. Comments provided under question #4 above may also be relevant to this question.

With respect to a utility providing service to a customer that re-sells the electricity to charge an EV, utilities already have approved terms and conditions depending on the level of service requested by the customer.

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

Both models may work in the future. In the interim, until the EC charging market is further developed, MEMPR's view is that EV charging stations should be included in a public utility's regulated rate base.

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?

Based on the experience to date in BC and the experience in other jurisdictions that have allowed public utility involvement in the provision of EV charging services, MEMPR supports a role for public utilities in “kick-starting” the market for EV charging services. A role for public utilities would not preclude other entities from also investing in EV charging services.

The Province has allowed public utilities to play a similar role in establishing a domestic market for natural gas in transportation through the Greenhouse Gas Reduction (Clean Energy) Regulation (GGRR) under the *Clean Energy Act*. The GGRR allows utilities to implement prescribed undertakings for a specified time period without seeking the prior approval of the Commission for programs that lead to GHG reductions, although the Commission still has the ability to rule on the prudence of expenditures.

A similar mechanism could be used for DC fast-chargers. The Province could consider establishing objectives through legislation that would guide determinations of whether or not particular EV charging infrastructure investments could be recovered from ratepayers. The ability to recover costs through alternate revenue sources (such as credits under the LCFRR, or federal or provincial investments) is also a relevant consideration when determining amounts that should appropriately be recovered from ratepayers.

Alternatively, a public utility may be able to demonstrate that the cost of public EV charging infrastructure can appropriately be recovered from revenue obtained through electricity sales at all EV charging stations within their service territories (i.e., through both public and private Level 1, 2 and 3 charging stations combined).

Under either approach, MEMPR would be interested in advice from the Commission regarding appropriate levels of investment that public utilities should consider in developing EV charging infrastructure. MEMPR’s modeling shows that at least 200 new DC fast-chargers are required to provide adequate coverage throughout BC. There may also be a need for more DC fast-chargers in metropolitan areas. To manage impacts on ratepayers, some type of formula or other criteria could be used to guide utility investments (e.g., a maximum number of stations installed per year, metrics to assist in identifying areas and locations that utilize the existing transmission and distribution system or provide that maximum net benefit, a specific revenue-to-cost ratio, or some other metric). MEMPR is also interested in whether existing rate structures are adequate to supply a DC fast-charging account holder, including the type of service required and load profile of a DC fast-charger.

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

The cost of EV charging may be a barrier to expanding the use of electricity in the transportation sector. At the current cost of \$0.35/kWh in place at some DC fast-chargers in BC, the cost for EV charging is close to the price of gasoline in the US. Most EVs slow down the rate of charging as the batteries are almost at full capacity, which means that the cost of charging can be even higher at stations that charge

based on time rather than electricity consumption. Although not identified as issues under consideration in the preliminary scope of the Inquiry, MEMPR encourages utilities and the Commission to explore innovative pilots such as time-of-use rates for EV charging, incentives from utilities for home and workplace charging, control of charging software and system network capability.