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Les MacLaren

Assistant Deputy Minister, Electricity and Alternative Energy
Ministry of Energy, Mines and Petroleum Resources
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Diane McSherry

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Dear Les and Diane,

Re: ChargePoint's Feedback on the BC Hydro Phase 2 Review Interim Report

On March 6th 2020, the BC Government released the Phase 2 Interim Report ("the Interim Report") as part of its Comprehensive Review of BC Hydro. The Interim Report focuses on how electrification can contribute to the Government's CleanBC goals both now and in the future as technology and the energy sector evolve. Outcomes of this review will help the Government establish a framework for BC Hydro's role in supporting CleanBC goals across all sectors of the economy.

ChargePoint is the leading electric vehicle (EV) charging network in the world, with scalable solutions for every charging need and for all of the places that EV drivers go: home, work, around town, and on the road. ChargePoint's network offers more than 112,300 places to charge, including more than 4000 spots in British Columbia, and those numbers continue to grow. With thousands of customers in several verticals including workplaces, cities, retailers, apartments, hospitals, and fleets, ChargePoint provides an integrated experience enabling consistent performance, efficiency and reliability at every touchpoint whether one is using a mobile app, plugging into a charger, managing the station or analyzing charging data. On the network, drivers have completed more than 77.9 million charging sessions.

Given ChargePoint's participation in BC's EV charging market, we focus our comments on BC Hydro's role in enabling transportation electrification across the province. BC Hydro has an important role to play in accelerating transportation electrification, and is well positioned to leverage its experience in rate and program design to enable a long-term sustainable and competitive market for transportation electrification, and in particular EV charging. BC Hydro is also well positioned to support customers' investments in EV charging technologies and innovations that help manage the grid and reduce costs for all ratepayers.

As outlined in ChargePoint's submissions to the BC Utilities Commission ("BCUC") in the EV Charging Inquiry¹, this can be achieved with government policy that outlines the broad role

¹ BCUC EV Charging Inquiry Phase 2, Project No. 1598981, Exhibit 25-12
https://www.bcuc.com/Documents/Proceedings/2019/DOC_53309_C25-12-ChargePoint-Phase2-Evidence.pdf.

of the utility in accelerating transportation electrification within a framework that is transparent, protects ratepayer interests, and supports market competition.

The BCUC EV Charging Inquiry touched on a number of topics included in the Phase 2 BC Hydro Review. ChargePoint was an active intervener in that Inquiry. We draw on content provided in that Inquiry and our thirteen years of experience deploying charging stations across the globe, to support the following feedback and recommendations:

1. Re: Rate design (p.11-13) – Rates should be designed to remove barriers to EV adoption, create opportunities for investment and encourage charging when it is most beneficial to the grid. This will support fuel switching (CleanBC GHG and ZEV goals) and will generate load growth that can benefit all ratepayers.
2. Re: Time and cost of connection (p.13) – Reducing timelines and costs for new service connections will reduce barriers to EV charging investments.
3. Re: Demand side management (p.15) – Demand side management activities included in BC Hydro's Resource Plan should consider programs and investments that shape and shift EV load via smart connected EV charging equipment.
4. Re: Fuel switching (p.15) – Utility investments that encourage transportation electrification should seek to maximize ratepayer benefits, encourage innovation, leverage private investment, and support the competitive EV charging market.
5. Re: Low Carbon Fuel Standard (p.16) – BC Hydro's revenue from the Low Carbon Fuel Standard should be reinvested into programs that incentivize transportation electrification and efficient grid management.
6. Re: Grid Modernization (p.18) – BC hydro can facilitate the deployment of "behind the meter" smart connected technologies and functions to support its grid modernisation strategy and deliver ratepayer benefits.

- 1. Re: Rate Design (p.11-13) – Rates should be designed to remove barriers to EV adoption, create opportunities for investment and encourage charging when it is most beneficial to the grid. This will support fuel switching (CleanBC GHG and ZEV goals) and will generate load growth that can benefit all ratepayers.**

Most of BC Hydro's existing rates do not necessarily incentivize EV charging, and in some cases, add additional costs that can serve as a barrier to EV and EV charging investments. For example, most residential customers are charging at higher Step 2 rates because the electric demand from EV charging pushes them over the Step 1 threshold (i.e. 1,350 kWh in an average two month billing period). Further, existing rates do not discourage on-peak charging, creating grid-related strain and costs for BC Hydro and its ratepayers. On the non-residential side, demand charges associated with medium and large general service rates applied to fast charging deployment can impose significant monthly costs for station owners especially in contexts where station utilizations is low (e.g. low EV penetration, rural areas). Demand charges in low utilization contexts can therefore be a significant investment barrier.

Alternative rate structures can be designed to remove barriers to EV adoption, create opportunities for investment and encourage charging when it is most beneficial to the grid (e.g. off-peak times or when renewable generation is high). This can support electrification and lower ratepayer costs in some cases. ChargePoint agrees with stakeholder and expert feedback referenced on p. 11 of the Interim report, which note "... the importance of ensuring that rates send the right price signals to the market as well as the fact that load growth can benefit all ratepayers."

ChargePoint also agrees with comments made in the Interim report on the need for alternative rates especially those that are optional and provide customers with the flexibility to select the rate that best matches their use case. Optional rate design specific to EV charging could include:

- Residential or commercial EV-only time-of-use rates that encourage off-peak charging. These rates can be static or dynamic to reflect system constraints or prices. ChargePoint does not suggest a specific rate, but does recommend that rate design consider both the charging context and the goals of the utility. For example, time-of-use rates may be appropriate for residential charging but may not be appropriate for public DC fast charging, where it is more difficult for drivers to adjust their routes or change charging behaviour. A number of utilities in North America have developed or piloted EV-only time-of-use rates in a number of charging contexts such as home and workplace.²
- Alternative demand charge tariffs for EV charging, which reduce fast charger investment barriers and increase EV adoption while addressing the utility's

² E.g., Pacific Gas and Electric EV Time-of-Use Rate: https://www.pge.com/en_US/residential/rate-plans/rate-plan-options/electric-vehicle-base-plan/electric-vehicle-base-plan.page; Southern California Edison EV Time-of-Use Rate: <https://www.sce.com/residential/rates/residential-rates>; Xcel Energy EV Time-of-Use Rate:

https://www.xcelenergy.com/energy_portfolio/innovation/electric_vehicles/electrical_vehicle_rate; Rock Mountain Power, Utah EV Time-of-Use Pilot: <https://www.rockymountainpower.net/env/ev/utah-ev-time-of-use-rate.html>; Consolidated Edison Company of New York EV Time-of-Use Rate: <https://www.coned.com/en/save-money/energy-saving-programs/time-of-use>.

cost of service. The BCUC recently approved two optional demand charge tariffs for EV fleet charging to reduce investment barriers for transit and other larger fleets.³ ChargePoint recommends that BC Hydro expand development of alternative demand charge tariffs to other EV loads, such as public fast charging. A number of utilities in Canada and the US have implemented alternative demand charge tariffs for public and private fast charging.⁴

2. Time and cost of connection (p.13) – Reducing timelines and costs for new service connections will reduce barriers to EV charging investments.

The Interim report notes that the timelines for, and cost of, customer connections to BC Hydro's systems have been barriers to electrification investments.⁵ These barriers are especially critical within the context of EV charging because electrical connections and infrastructure can be a significant component of overall installation costs, especially for curbside or highway charging deployments. Further, long connection times can add to projects costs and risk if projects are grant funded and have fixed installation deadlines.

To address these barriers, we recommend the following:

- To address connection costs: "Make-ready" or line extension program where BC Hydro would pay for or rebate the basic electrical infrastructure required to connect charging stations at a site. A number of utilities in the US have successfully implemented make-ready programs supporting customers' utility connections for public, highway, multi-family and fleet charging (e.g. Southern California Edison's Charge Ready Phase 1 Program⁶, Consumers Energy in Michigan's PowerMiDrive Program⁷, Pacific Gas and Electric's EV Fleet Program⁸, American Electric Power (AEP) Ohio's Equipment Charging Incentives Program⁹)
- To address connection times: Streamlined and accelerated timelines for new EV charging connections and ensure that utility and non-utility owned stations receive equal treatment in terms of new service connection times.

3. Re: Demand side management (p.15) – Demand side management activities included in BC Hydro's Resource Plan should consider programs and

³ BC Hydro Fleet Electrification Rate:

https://www.bcuc.com/Documents/Proceedings/2020/DOC_57665_G-67-20-BCH-Fleet-Electrification-Final-Order-Reasons.pdf.

⁴ For example, Pacific Gas and Electric, Southern California Edison, and San Diego Gas and Electric, in California; Pacific Power in Oregon; Nevada Energy in Nevada; PECO in Pennsylvania; and hydro Quebec in Quebec.

⁵ See p.13 of the Interim Report.

⁶ ChargeReady Phase 1 Program website: <https://www.sce.com/business/electric-cars/Charge-Ready>.

⁷ PowerMiDrive Program website: <https://www.consumersenergy.com/residential/programs-and-services/electric-vehicles/level-2-charging-station-rebates>.

⁸ EV Fleet, EV Charge Network Program Guide website: https://www.pge.com/pge_global/common/pdfs/solar-and-vehicles/your-options/clean-vehicles/charging-stations/program-participants/EV-Charge-Network-Program-Guide.pdf.

⁹ AEP Ohio's Equipment Charging Incentive Program website: <https://www.aepohio.com/save/business/ElectricVehicles/>.

investments that shape and shift EV load via smart connected EV charging equipment.

EV charging can provide a fairly low-cost flexible energy resource in a number of use cases where EV charging loads can be aggregated. Smart connected EV chargers capable of communicating with, and responding to, signals from a utility (e.g. signals to throttle charging up or down) can serve as a demand response asset.

Programs that seek to incentivize participation in demand response events (e.g. offering customers bill credits for responding to a demand response call to draw power down) and the deployment of smart chargers (e.g. offering customers rebates for the purchase of connected charging stations) could provide BC Hydro with a valuable and flexible demand response asset in the future. While, at present, charging loads may not be large enough to be a resource in BC Hydro's Resources Plan, near-term pilots exploring the feasibility of charging as a demand response asset could provide important information for future planning.

4. Re: Fuel switching (p.15) – Utility investments that encourage transportation electrification should seek to maximize ratepayer benefits, encourage innovation, leverage private investment, and support the competitive EV charging market.

Although the Greenhouse Gas Reduction Regulation (GGRR) enables some utility fuel switching investments and programs, a more comprehensive framework and transparent process is needed to review utility transportation electrification investments and ensure that they are cost-effectively supporting EV charging deployment and the competitive EV charging market (i.e. avoiding adverse market impacts). Significant investment in EV charging infrastructure from a wide diversity of entities will be needed to achieve CleanBC GHG and ZEV targets. Therefore, it will be important to foster diversity, competition and innovation in BC's EV charging market, for both market efficiency and customer interests. Having future EV charging investments reviewed by the BCUC, as indicated in the Interim Report, would achieve these objectives. Furthermore, it would leverage the experience and expertise of the BCUC.

To support BC Hydro's investment and ensure that CleanBC goals are achieved transparently and in a manner that balances ratepayer interests with climate objectives, the Government may wish to implement policy that establishes a framework for utility investment. Such a framework could clarify the scope of BC Hydro's transportation electrification activities and investments, but preserve the important role of the BCUC in reviewing and approving BC Hydro's investment, program and rate applications. This is in contrast to a prescribed undertaking within the GGRR where the regulation defines and approves utility investment, with limited BCUC involvement and transparency.

The proposed policy approach has been taken by a number of jurisdictions in the US and could serve as a model for BC. For example, California, Oregon and New Mexico each have legislation, which outlines the scope of utility engagement in

transportation electrification and requires the public utility commissions to review applications.¹⁰

At a high-level, these state policies:

- Confirm that transportation electrification delivers environmental and other public benefits and contributes to state EV and GHG targets;
- Indicate the intent of the policy is to support utility involvement in achieving these EV and GHG targets and/or environmental benefits;
- Clarify that utilities have an important role to play in improving access to transportation electrification, and clarify the broad scope of utility activity that can accelerate transportation electrification (e.g. programs, investments);
- Acknowledge a need for utility programs and investments to support grid benefits, innovation, competition, consumer choice, stimulate private capital, or underserved or low-income communities;
- Establish the conditions for rate recovery;
- Are transparent and include public reporting to inform design and Commission policy;
- Direct the commissions to require utilities to submit applications for programs and investments that accelerates transportation electrification; and,
- Clarify the criteria the commission must consider when reviewing utility applications for rate recovery, including that appropriate investments should:
 - Support grid flexibility and management
 - Increase transportation electrification
 - Support consumer choice in EV charging infrastructure and services
 - Be reasonable and prudent, and in the interest of ratepayer
 - Do not impact non-utilities' ability to transact in the market

These policies allow the government to set the policy direction and context (accelerating transportation electrification by supporting utility cost recovery), but leverage the expertise of the Commission to implement policy.

Additional details on these policy frameworks are outlined in ChargePoint's Phase 2 Submission in the BCUC EV Charging Inquiry.¹¹

¹⁰ California Senate Bill 350 Clean Energy and Pollution Reduction Act of 2015, https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350; Oregon Senate Bill 1547 of 2016 <https://olis.leg.state.or.us/liz/2016R1/Downloads/MeasureDocument/SB1547/Enrolled>; New Mexico House Bill 521 of 2019, respectively <https://www.nmlegis.gov/Sessions/19%20Regular/bills/house/HB0521.pdf>.

¹¹ BCUC EV Charging Inquiry Phase 2, Project No. 1598981, Exhibit 25-12 https://www.bcuc.com/Documents/Proceedings/2019/DOC_53309_C25-12-ChargePoint-Phase2-Evidence.pdf.

5. Re: Low Carbon Fuel Standard (p.16) – Revenue from the Low Carbon Fuel Standard (LCFS) should be reinvested into programs that incentivize transportation electrification and efficient grid management.

BC Hydro can help support the goals of the LCFS as well as CleanBC by reinvesting revenue it receives from the sale of LCFS credits. More specifically, the Government should direct BC Hydro to use revenues to support activities and programs that incentivize transportation electrification and efficient grid management. This would be consistent with requirements for utilities participating California's LCFS.¹²

Further, as noted in the Interim Report, the LCFS credit market "provides a significant incentive to use low-carbon electricity for transportation¹³". As demonstrated in other LCFS markets (e.g. California and Oregon) credits can deliver critical revenue to fleets, municipalities, retailers, workplaces, and charging providers to support transportation electrification investments. Amendments to BC's LCFS, which clarify opportunities for a broader range of entities (in addition to utilities) are needed to support a similar outcome in BC.

6. Re: Grid Modernization (p.18) – BC hydro can facilitate the deployment of "behind the meter" smart connected technologies and functions to support its grid modernisation strategy and deliver ratepayer benefits.

BC Hydro's grid modernization strategy should consider both the impacts (e.g. increased load) and opportunities (e.g. flexible and connected load) of transportation electrification. Much like other connected end-use devices, smart chargers can support BC Hydro's grid modernization process by providing real time data on charging load to improve planning and forecasting. They can also provide energy management tools to reduce strain on the grid, which, in turn, can reduce system costs and deliver savings to ratepayers. BC hydro can support the deployment of "behind the meter" smart connected technologies and functions through programs that enable these investments (e.g. rebates). BC Hydro's experience supporting customer purchases of EV chargers and other end-use technologies such Energy Star refrigerators, clothes washers and clothes dryers, via Power Smart, should be leveraged for program design.

Thank you for your consideration of our comments. We would welcome the opportunity to share additional insights from our experience in BC or other jurisdiction.

If you have any questions, please contact me at suzanne.goldberg@chargepoint.com.

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ChargePoint

¹² California LCFS Regulation:

https://ww3.arb.ca.gov/fuels/lcfs/fro_oal_approved_clean_unofficial_010919.pdf?_ga=2.50968041.1975544871.1589251190-1992862636.1507226382.

¹³ See p. 16 of the BC Hydro Phase 2 Review Interim Report.