

Date Submitted: April 22, 2018

Proceeding name: BCUC Regulation of Electric Vehicle Charging Service Inquiry

Are you currently registered as an intervener or interested party: Yes, Interested Party

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Comment:

Please see the attached document submitted on behalf of Plug-in Richmond. I would also welcome the opportunity to discuss the document in person with the Commission.

Plug-in Richmond Submission on Electric Vehicle Charging to the B.C. Utilities Commission April 2018

Plug-in Richmond is a group of EV owners in Richmond BC providing information to potential EV owners on its website <http://pluginrichmond.ca/index.html>, at community events and at its annual EV Showcase in collaboration with the Richmond Lions Club, the City of Richmond, Emotive BC and the new and used electric vehicle dealers in Richmond.

Objectives

Plug-in Richmond prefers to present its recommendations in terms of results that would be of great benefit to EV owners and to leave the determination of the best way to bring about those results to the BCUC. The overall objectives of the recommendations are:

1. To ensure that EV owners can charge their vehicles at home at a cost consisting almost entirely of the BC Hydro Step 1 residential rate. This includes owners who live in multi-unit residential buildings (MURBs).
2. To make it attractive for EV owners to immediately get in the habit of using their charging timers to charge their vehicles from midnight to 6 am when demand on the grid is low. Minimizing the long term need to expand grid capacity is of financial benefit to all electricity consumers.
3. To ensure that level 3 charging during long distance trips which exceed the vehicle's range are at a cost consisting almost entirely of the provider's cost of electricity plus a gross margin comparable to that prevailing on the sale of gasoline.

Summary of recommendations

1. No need to regulate public level 2 charging except at service stations which also sell level 3 charging and/or gasoline.
2. Require BC Hydro to register EV owners at their request.
3. Require BC Hydro to increase daily Step 1 rate consumption allocation by 7 kWh for EV owners.
4. Set maximum daily \$1 flat rate fee by MURBs to resident EV owners including administration fee.
5. Set maximum daily \$0.40 administration fee by MURBs charging actual consumption cost to resident EV owners.
6. Require MURBs to invoice any capital cost reimbursement or amortization fees separately.
7. Require BC Hydro to offer 50% discount on Step 1 rate to EV owners on actual electrical consumption between midnight and 6 am up to 7 kWh daily maximum.
8. Set maximum level 3 charging fee of \$5 base fee plus 10% gross margin on cost of electrical consumption. Same for level 2 charging at service stations which also sell level 3 charging and/or gasoline.
9. Allow maximum level 3 charging time of 1 hour if level 2 charging facilities are also available.
10. Do not allow time based fees for level 3 charging.

Where regulation is necessary

A distinction should be made between EV charging where there is competition and the EV driver has the choice of where to charge and/or whether to charge at all and EV charging where there is little or no competition and the EV driver must charge. In the former category are public level 2 charging at work, during shopping trips and at hotels, where there is little need for regulation. In the latter category are private charging at home and charging during long distance trips which exceed the vehicle's range, where regulation is necessary.

Little need to regulate level 2 charging at work and during shopping trips

Note that this does not include charging at work and during shopping trips. While these may have been necessary a few years ago, EVs being sold today have sufficient range to make those scenarios obsolete. It is extremely rare to find a commute to work in Metro Vancouver that exceeds 65 km or a total of 130 km. Adding 45 km for running errands and a reserve gives a maximum required range of 175 km, within the range of almost all new EVs being sold today.

The popularity of charging stations in workplaces and shopping centres has more to do with convenient parking and taking advantage of free electricity. Since most of these facilities in Metro Vancouver are level 2 and free, there is no business case for establishing charging facilities with high user fees and therefore little need for regulation. Regulation can therefore be restricted to facilities that EV owners need for overnight charging at home and for level 3 charging, especially during long distance trips. An exception is that level 2 charging should be regulated at service stations which also sell level 3 charging and/or gasoline.

Regulation of charging in residential buildings

Over 80% of EV owners do all of their charging at home with the exception of long distance trips exceeding their vehicle's range. They may also take advantage of free charging facilities during daily use of their vehicle even though they do not need to charge in order to return home.

BC Hydro has a residential Step 1 low rate for the first 22.1918 kWh of electrical consumption per day and a higher Step 2 rate thereafter. Rather than encouraging the use of EVs, this penalizes EV owners whose normal household electricity use does not exceed this threshold, but who exceed the threshold when charging their EV. More important than the money involved is the perception that the BCUC, as a government agency, and BC Hydro are not treating EV owners fairly.

Most EV owners do not use more than 7 kWh per day to charge their vehicle. BC Hydro should be required to increase the Step 1 allocation by 7 kWh per day for EV owners who submit an application form and a copy of their vehicle registration. For EV owners consuming the full 7 kWh per day, the saving would be approximately \$0.30 per day or \$110. per year. For multi unit residential buildings (MURBs) that invoice EV owners for vehicle charging, the MURB account should be allocated the daily 7 kWh Step 1 increase.

The administrative burden for BC Hydro could be almost eliminated by arranging with the BC Government to combine this application with their existing HOV lane sticker application and simply transmit the required data to BC Hydro.

Regulation of charging in multi unit residential buildings (MURBs)

For MURBs that invoice resident EV owners a flat rate monthly supplement to cover vehicle charging, the flat rate including administrative fees should be limited to a maximum of \$1 per day. For MURBs that invoice resident EV owners for the actual electrical consumption of their vehicles, the Step 1 rate should apply plus an administrative fee limited to a maximum of \$0.40 per day whether the MURB uses a third party administrative service or not.

Municipalities have the power to regulate the initial installation of charging facilities in MURBs and whether resident EV owners can be assessed any of the related cost. This should be kept separate from charges for electrical consumption. MURBs should be forbidden from combining any charges for the installation and/or amortization of EV charging facilities with charges for electrical consumption.

Encouragement of home charging during early morning hours

A significant impediment to EV adoption is the belief that increased EV charging will tax the electrical grid beyond capacity and require costly and environmentally damaging new generation facilities. This concern evaporates when potential EV owners are told that they should use the timers in their vehicles so that charging begins after midnight when demand on the grid is low.

The most effective way to encourage charging during early morning hours is to have lower rates for EV home charging from midnight to 6 am. Such a discount would play a significant role in creating a habit of early morning charging when it is easiest to do so – when the new EV owner first starts charging at home. It is going to be much harder to change old habits years from now when demand on the grid from EV charging becomes a very real issue. Although such a discount may appear to be cross-subsidization, minimizing the long term need to expand grid capacity is of financial benefit to all electricity consumers.

While BC Hydro has been very reluctant to introduce time of day discounts for electrical consumption, it is time for BCUC to seriously examine the issue. As described above, there is a clear path to making BC Hydro aware of who the EV owners are and it already knows from existing metering what the increase in electrical consumption is over baseline between midnight and 6 am each day. An appropriate discount would be 50% of the Step 1 rate to a maximum of 7 kWh per day.

Regulation of level 3 charging

There is little competition in level 3 charging and many of the users are under time constraints that prevent them from using level 2 charging. Regulation is necessary, especially during trips that exceed the vehicle's range.

The need for charging facilities on or near highways is the same as for gas stations with the only difference being the energy source provided. Washroom, snack bar and restaurant requirements are identical. This begs the question as to why anyone would build charging facilities separate from gas stations except in the current EV introductory phase when oil companies have been slow to encourage a competing energy source. Thus, governments (through BC Hydro) and Tesla have been forced to find other partners and build new facilities. In the current EV introductory phase, BC Hydro should be encouraged to work with the oil companies to co-locate BC Hydro owned and maintained Level 3 charging stations in highway gas stations.

The oil companies realize that as EVs proliferate, their interest is in attracting as many vehicles as possible to their stations to maximize their sales of food as well as fuel. Shell has begun to install level 3 charging at its gas stations in Europe. Petro-Canada has installed level 3 charging at two gas stations in Quebec (Mirabel and Repentigny) "to learn more about this emerging market." <https://retail.petro-canada.ca/en/fuelsavings/alternative-fuels.aspx>

It is important that owners of level 3 charging facilities on or near highways are regulated to ensure that they have the same level of gross margin on selling electricity as they do on selling gasoline. Otherwise oil companies and other operators allied with them in monopoly locations could have artificially high EV charging fees to retard the use of EVs for long distance travel and maximize their sales of gasoline.

Maximum fee on the sale of electricity for EV charging

According to Statistics Canada, the average price of gasoline in Vancouver in 2015 was \$1.24 of which 10 cents was gross margin or 8%. <http://www.nrcan.gc.ca/energy/fuel-prices/gasoline-reports/18031#link5>

We therefore propose a maximum level 3 charging fee of \$5 base fee plus 10% gross margin on the cost of electrical consumption. Same maximum for level 2 charging at service stations which also sell level 3 charging and/or gasoline.

Maximum level 3 charging time

During level 3 charging, most vehicle batteries will heat up as they exceed 80% capacity and the rate of charge will slow down considerably to protect the battery. If level 3 charging is in high demand, it may be desirable at that point for the EV owner to disconnect and possibly move to a level 2 station if a full battery is required. Station operators should be permitted to set a one hour maximum level 3 charging time if they also provide level 2 charging facilities.

Time based fee on the sale of electricity for EV charging

Since we recommend that most level 2 charging be unregulated, providers can set a time based fee if they wish. We do not think a time based fee should be allowed for level 3 charging because the provider will wish to recoup the cost of the maximum amount of electricity that can be consumed in the relevant period of time even if the user's consumption is much less. If level 3 consumption metering is not yet as precise as desired, this should not be used as an excuse for time based fees.