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Sent via email/eFile

BC HYDRO PUBLIC EV FAST CHARGING RATE APPLICATION EXHIBIT A-10

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On behalf of Suncor Energy Inc.
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Re: British Columbia Hydro and Power Authority – Public Electric Vehicle Fast Charging Rate Application – Project No. 1599190 – Information Request No. 1 on Intervener Evidence

Dear Ms. Oleniuk,

Further to your June 24, 2021 filing of Suncor Energy Inc. (Suncor) intervener evidence in the above-noted proceeding, enclosed please find British Columbia Utilities Commission Information Request No. 1 on Suncor's intervener evidence. In accordance with the regulatory timetable, please file your responses on or before Wednesday, July 14, 2021.

Sincerely,

Original signed by:

Patrick Wruck
Commission Secretary

LC/jb
Enclosure



British Columbia Hydro and Power Authority
Public Electric Vehicle Fast Charging Service Rates Application

INFORMATION REQUEST NO. 1 TO SUNCOR ENERGY INC. (SUNCOR) ON SUNCOR'S EVIDENCE

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A. GENERAL

**1.0 Reference: Exhibit B-1 (Application), Table 2, p. 24
Petro-Canada EV Fast Charging Stations**

Below is an excerpt from Table 2 on page 24 of the British Columbia Hydro and Power Authority (BC Hydro) Public Electric Vehicle Fast Charging Service Rates Application (Application), relative to Petro-Canada:

Operator	Service	Rate (cents/min) @ Power Level	Number of Sites and Fast Chargers in B.C.
Petro-Canada	<ul style="list-style-type: none"> • 2x chargers up to 350 kW • Ample lighting, on-site amenities/staff 	27¢ up to 350 kW	<ul style="list-style-type: none"> • 12 sites • 23 chargers

- 1.1 Please confirm that the information presented in the table above is accurate. If not, please provide an accurate description of the Petro-Canada EV service and rate in BC.
- 1.2 Please confirm, or otherwise explain, that the rate of \$0.27/min is inclusive of both goods and services tax (GST) and provincial sales tax (PST).
 - 1.2.1 The BC Hydro proposed rates are exclusive of GST and PST¹. If confirmed, please indicate what is the pre-tax per-minute rate.
- 1.3 Please provide a complete list of Petro-Canada's current EV fast charging sites, including the address, hours of operation, utilization rates, number of chargers at each site (if a charger is

¹ [Exhibit B-1, Appendix B](#), pp. 4, 8 and 12.

capable to serve multiple electric vehicles (EVs) simultaneously, please specify), amenities, and the electricity service provider (i.e. BC Hydro, FortisBC Inc. (FBC), or other – please specify).

- 1.3.1 If Petro-Canada’s EV stations are not available 24 hours a day, 7 days a week, please describe what adjustments have been made to ensure that Suncor’s information is comparable to the utilization rate evidence provided by BC Hydro.
- 1.4 Please provide a list of Petro-Canada’s EV fast charging sites in BC that are no longer in service, if any, and provide the reason(s) for the closure(s).
- 1.5 Please confirm, or explain otherwise, that Petro-Canada’s current or past rates for EV fast charging are all \$ per minute, and not \$ per kWh. Please respond to this question for Petro-Canada sites in BC and across Canada.
 - 1.5.1 If any of Petro-Canada’s current or past rates include any component that is \$ per kWh, please indicate how this energy-based rate was implemented considering the lack of Measurement Canada accredited direct current (DC) meters.
- 1.6 Please confirm, or explain otherwise, that the Petro-Canada’s current or past rates for EV fast charging do not include idling fees. Please respond to this question for Petro-Canada sites in BC and across Canada.

B. LEVEL PLAYING FIELD

- 2.0 Reference: Section II – The Rate Proposal is Inconsistent with the Phase Two Report, CEA and GGRR Exhibit C20-4 (Suncor evidence), paragraph 10, p. 5; Exhibit B-4, BCUC IR 15.2 Cross-subsidization**

On page 5 of Suncor’s evidence, Suncor states:

Financial markets remind us on a daily basis that capital is highly mobile and will flow to where there is an opportunity to earn a reasonable rate of return. EV charging rates that are insufficient to allow private sector operators to even recoup their BC Hydro energy charges will certainly not attract private investment.

In response to BCUC Information Request (IR) 15.2, where BC Hydro was asked how it could play a part in levelling the playing field as much as possible considering that exempt providers of fast charging service in BC may not have access to another pool of customers/ratepayers to recover costs from if the EV fast charging rates are insufficient to recover the full cost of the fast charging service, BC Hydro responded:

BC Hydro plays a part in levelling the playing field by proposing fast charging rates that are designed to recover at least the cost of electricity (energy and demand), and that fall within the range of other operators in our service territory.

BC Hydro notes that each fast charging operator has their own business model and approach to cost recovery. We are unable to confirm that exempt providers of fast charging service do not have access to a pool of customers from which to recover their costs.

- 2.1 Please clarify whether Suncor’s statement regarding EV charging rates are not sufficient to allow private sector operators to recoup their energy charges is in reference to BC Hydro’s service area, or both BC Hydro’s service areas as well as in FBC’s service area.

- 2.2 Please explain whether the EV fast charging rate currently charged by Petro-Canada at its EV fast charging stations in BC is sufficient to recoup the electricity costs (energy and demand) of operating the stations. Please clarify whether this response is any different for Petro-Canada's EV fast charging sites in BC Hydro's vs. FBC's service areas.
- 2.3 If Petro-Canada's EV fast charging rate in BC is set below the amount required to recover the electricity cost, please estimate the average annual revenue losses at Petro-Canada's EV fast charging stations in BC. Please specify if these revenue losses are any different between Petro-Canada's EV fast charging sites in BC Hydro's and FBC's service areas.
- 2.4 Please provide the estimated break-even EV fast charging rate in BC necessary to recoup electricity costs. Please include supporting calculations, assumptions, and any difference between Petro-Canada operations in the BC Hydro and FBC service areas.
 - 2.4.1 In a similar manner, please provide the estimated break-even EV fast charging rate to recoup all costs (i.e. electricity costs, operating and maintenance costs, and capital costs).
 - 2.4.2 Considering the mobility of capital in financial markets, would Suncor view the current situation as financially sustainable in the short term and in the long term? Please discuss.
- 2.5 Does Suncor agree with BC Hydro that if BC Hydro charges rates that are designed to recover, at a minimum, the cost of electricity (energy and demand), BC Hydro would play a part in leveling the playing field? If not, why not?
- 2.6 Does Suncor agree that a more level playing field may further encourage investments for site hosts, thereby increasing the number of EV charging sites available for public use in BC?

**3.0 Reference: Exhibit B-1, Section 4.1, p. 27
General Service Rate Schedule as the Basis for BC Hydro's Proposed Rates**

On page 27 on the Application, BC Hydro states:

Other fast charging operators (i.e., exempt utilities) in BC Hydro's service territory take General Service and are charged under the applicable General Service Rate Schedule based on their electricity Demand. Adopting General Service rates as the basis for the Proposed Rates in the Application ensures that BC Hydro's rate for fast charging service is not lower than the Energy and Demand rates BC Hydro charges to other fast charging station operators. [Emphasis added]

- 3.1 Does Suncor agree with the underlined portion of the above BC Hydro statement. If not, please explain why not.
- 3.2 Does the fact that BC Hydro has adopted the General Service rates as the basis for its Proposed Rates contribute to a level playing field with exempt utilities? If not, please explain why not.

**4.0 Reference: Exhibit B-4, BCUC IR 7.1; Exhibit B-1, Section 4.1, p. 25
Prices of Other Operators and Customers' Willingness to Pay**

In response to BCUC IR 7.1, BC Hydro states:

To encourage station utilization while maintaining a level playing field with other fast charging station operators in BC Hydro's service territory, the Proposed Rates considered the prices of other operators, the range of prices that research indicates customers are willing to pay, while to collect sufficient revenue to recover at least the cost of electricity based on BC Hydro's General Service Rate Schedules.

- 4.1 In Suncor's view, is BC Hydro's approach to set its Proposed Rates to fall within the range of other operators' rates reasonable to leveling the playing field? Why or why not?
- 4.2 Has Suncor undertaken, or does it have access to, research on customers' willingness to pay for EV fast charging service or on the price elasticity in EV driver's demand for public fast charging services? If so, please provide it.

**5.0 Reference: Exhibit B-1, Section 4.1, p. 25; Exhibit B-4, BCUC IR 11.3
Bill Comparison between BC Hydro and Petro-Canada**

On page 25 of the Application, BC Hydro states:

BC Hydro's Proposed Rates are higher than the rate to charge at home, but less than that of operators such as Tesla and Petro Canada, and also less than the equivalent of a tank of gas. For example, the average cost for a charging session at a BC Hydro fast charging station is \$6. In comparison charging at a Tesla or Petro Canada fast charging station may be \$8 or more, while charging at home under BC Hydro's residential service rate schedule may be \$2 and a tank of gasoline may be at least \$20.

In response to BCUC IR 11.3, BC Hydro stated:

For Petro-Canada fast charging stations, BC Hydro assumed that similar to BC Hydro fast charging stations, customers with a wide range of electric vehicle models from various manufacturers would utilize their service. As such, in absence of actual data from Petro-Canada, BC Hydro assumed that BC Hydro's average charging session data described on page 29 of the Application would be reasonable to be used in this calculation.

The calculated charging rate at Petro-Canada fast charging station is then rounded to \$8 from \$7.72, using the following formula:

= (Average charging session length) X (Petro-Canada fast charging rate)

= (26.8 minutes) x (27 cents per minutes)

= \$7.72

- 5.1 Please confirm, or otherwise explain, that BC Hydro's average charging session data obtained from its 50-kW stations cannot be used in the calculation of a comparative Petro-Canada bill without being adjusted first to reflect the difference in maximum power levels between the BC Hydro 50-kW station and the Petro-Canada station.
 - 5.1.1 If confirmed, please provide an adjusted Petro-Canada bill that would be comparable to the \$6 BC Hydro bill, keeping the electricity consumption constant (*i.e.*, how much would it cost to get 13.1 kWh at a Petro-Canada station when using a CCS connection versus a CHAdeMO connection?). Please provide the assumptions used in the calculations regarding state of charge, outside air temperature, EV make and model, etc.
- 5.2 Given the difficulty in comparing bills across EV fast charging networks when the maximum power level of the stations differs, please discuss which metrics could be used by the BCUC to determine that a level playing field is maintained across non-exempt and exempt utilities.

C. FAIR MARKET RATES

6.0 Reference: Section III – The Rate Proposal Prevents a Fair and Competitive EV Charging Marketplace Exhibit C20-4, paragraph 18, p. 7; BCUC Order G-66-19 Fair Competition and Appropriate Market Prices

Directive 1 of BCUC Order G-66-19 states:

NOW THEREFORE pursuant to sections 88(1) and 88(3) of the UCA, the BCUC orders as follows:

1. A person is exempt from Part 3 of the UCA with respect to the sale, delivery or provision of electricity for EV charging services to or for the public or a corporation for compensation, except for the provisions of sections 25 and 38 relating to safety only, in the class of cases where the person is not otherwise a public utility under the UCA.

On page 7 of Suncor’s evidence, Suncor states:

In addition to impacts on private sector investment, the process required for BC Hydro to set and change rate structures will disrupt natural market dynamics under which fair competition would settle on an appropriate market price for competitive EV charging services.

- 6.1 Considering that Order G-66-19 created two categories of EV charging service providers, the exempt utilities and the non-exempt utilities, does Suncor have recommendations as to how regulatory proceedings for non-exempt utilities to set or change rates could minimize the disruption referenced to in the preamble above. If so, please elaborate on those recommendations.
- 6.2 Please confirm, or otherwise explain, that Suncor refers to BCUC regulatory proceedings when discussing “the process required for BC Hydro to set and change rate structures”.
 - 6.2.1 If confirmed, please elaborate on the nature of the disruption to natural market dynamics that such regulatory proceedings for non-exempt utilities to set or change rates will cause.
 - 6.2.2 Please clarify whether Suncor is suggesting that, if the EV fast charging service market was only comprised of exempt utilities, the natural market dynamics of a competitive market would result in more immediate price adjustments, such as what occurs on the gasoline side of the Petro-Canada business, relative to the time it takes for non-exempt utilities to set or change their rates?

7.0 Reference: Sections I and II Exhibit C20-4, paragraph 4, 7, pp. 3-4; Exhibit B-1, Section 4.2, p. 31; Exhibit B-1-1, p. 32; Exhibit B-4, BCUC IR 7.1, IR 14.2 Fair Market Rate vs. Cost of Service Rates

On page 3 of Suncor’s evidence, Suncor states:

Suncor’s evidence supports a finding by the BCUC that the Rate Proposal is unjust, unreasonable and contrary to section 59 of the *Utilities Commission Act*. For the reasons discussed below, Suncor respectfully submits that the BCUC can only approve a proposed rate that accounts for recovery of all BC Hydro’s forecasted EV-charging expenses from those EV users. [Emphasis added]

On page 4 of Suncor’s evidence, Suncor states:

Fair market rates based on commercially reasonable cost assumptions expected from any prudent private investor are necessary to achieve the ambitions of the CleanBC climate plan for greater EV adoption.

On page 31 of the Application, BC Hydro states that “based on a market study, we believe that the range of 3 to 5 per cent utilization is a reasonable estimate at this time for the 50-kW station.”

On page 32 of Exhibit B-1-1, BC Hydro states that “[t]he rate will collect sufficient revenues to recover at least electricity supply costs (Energy and Demand charges) under the MGS rate so long as the station utilization rate is 5.5 per cent or greater.”

In response to BCUC IR 7.1, BC Hydro stated that “BC Hydro expects that utilization will be higher at the 100 kW stations because they are expected to be used primarily at locations near primary travel corridors or where higher demand for charging has been demonstrated.”

On page 31 of the Application, BC Hydro presents 50-kW charging station rate by utilization and cost recovery scenarios.

Table 3 50 kW Charging Station Rate by Utilization and Cost Recovery Scenario

Utilization Rate		Scenario 1	Scenario 2	Scenario 3
(%)	Average Number of Charging Sessions per Station per Month	Electricity Costs (RS 1500 Equivalent) (\$/min)	Electricity + Station Maintenance Costs ¹⁷ (\$/min)	Full Cost of Service: Electricity + Maintenance + Capital Costs (\$/min)
3	46	0.25	0.76	1.29
3.7	57	0.21	0.62	1.06
5	77	0.17	0.47	0.79
10	153	0.11	0.26	0.42
15	230	0.09	0.19	0.29
20	307	0.07	0.15	0.23

In response to BCUC IR 14.2, BC Hydro provided a similar table for the 100-kW station:

Utilization Rate		Scenario 1	Scenario 2	Scenario 3
(%)	Average Number of Charging Sessions per Station per Month	Electricity Costs (RS 1500 Equivalent) (\$/min)	Electricity + Station Maintenance Costs (\$/min)	Full Cost of Service: Electricity + Maintenance + Capital Costs (\$/min)
3.0	46	0.45	0.96	1.69
3.7	57	0.38	0.79	1.38
5.0	77	0.29	0.59	1.03
5.5	84	0.27	0.54	0.94
10.0	153	0.17	0.32	0.54
15.0	230	0.13	0.23	0.37
20.0	307	0.11	0.18	0.29

- 7.1 Assuming Scenario 1 was revised to include all electricity costs (*i.e.*, including stand-by power and basic charge), please confirm, or otherwise explain, that Suncor supports the approval of full cost of service (COS) rates for BC Hydro’s fast charging stations, which correspond to rates shown in Scenario 3 of the above tables.
- 7.2 Does Suncor agree that the full COS per-minute rate is highly dependent on utilization rate of the stations. Please explain why or why not.
- 7.2.1 Does Suncor agree that if the station utilization is unknown, it is not possible to know with certainty what COS rate should be set to recover the full COS. For example, if the utilization rate is 3 percent the COS rate would be \$1.29/min and if the utilization rate is 20 percent, the COS rate would be \$0.23/min. Please explain your response.
- 7.3 Does Suncor agree with BC Hydro that the utilization rate for the 50-kW station is likely to range from 3 to 5 percent and be 5.5 percent for the 100-kW stations at this time. Please explain why or why not. Does Suncor anticipate those utilization rates to remain the same over the next three years, during which BC Hydro proposes that its Proposed Rates be in effect.
- 7.3.1 If not, based on Suncor’s experience, what would be a reasonable estimate for the utilization rate of the 50-kW station and 100-kW station at this time and over the next three years? Please provide supporting evidence and the timeframe for the utilization rates.
- 7.3.2 Based on Suncor’s view of a reasonable utilization rate estimate, please indicate which per-minute rate would Suncor support approval of for the 50-kW and 100-kW station respectively.
- 7.3.2.1 Please confirm, or otherwise explain, that Suncor would consider these rates to be “fair market rates based on commercially reasonable cost assumptions expected from any prudent private investor”.

8.0 Reference: Section II – The Rate is Inconsistent with the Phase Two Report, CEA and GGRR Exhibit B-1, Section 1.3.3, p. 8; Exhibit C20-4, paragraph 10, p. 5 Exhibit B-4, BCUC IR 14.9 Linkages between Per-minute rates, Utilization Rate and Cross-subsidization

On page 8 of the Application, BC Hydro states:

Section 18 does not specify from whom the revenue should be collected. For fast charging stations that qualify as prescribed undertakings, BC Hydro can recover costs from all ratepayers and not just from those who use the service. The Proposed Rates, if approved, would allow BC Hydro to collect revenues directly from those who use the fast charging service, which will reduce costs that need to be recovered from all ratepayers.

On page 5 of Suncor’s evidence, Suncor states:

The Rate Proposal also unfairly, unnecessarily and inappropriately proposes to cross-subsidize the costs of its EV charging infrastructure by burdening all ratepayers to pay costs associated with infrastructure and services for the benefit of a demographic that currently constitutes only 9.4% of all drivers on the road.

In response to BCUC IR 14.9, BC Hydro stated:

At [sic] shown in Table 3 of the Application, full cost recovery from fast charging service

Customers would require either a rate of over \$1.00 per minute at low utilization levels, or a rate similar to the Proposed Rates with utilization of 20 per cent.

A rate of over \$1.00 per minute would be far greater than any other fast charging service provider (please refer to Table 2 of the Application). We reasonably expect that such a rate would result in Customers avoiding using BC Hydro's fast charging service, which would reduce revenue from the fast charging service and increase cross subsidization from other ratepayers.

A utilization of 20 per cent is a longer-term objective, but BC Hydro has no evidence to indicate that such utilization levels will be achieved over the near term. As described on page 32 of the Application, when the service was free, the average utilization was 15 per cent; however, potential station users indicated that they may stop using the service if a rate is introduced which shows they are price sensitive.

8.1 Does Suncor agree with BC Hydro that if BC Hydro were to charge a rate of over \$1.00/min, it is reasonable to expect that customers would avoid using BC Hydro's fast charging stations, considering the rates currently charged by other providers. If not, please explain why not. Please provide evidence/data to support your response.

8.1.1 If so, does Suncor also agree with BC Hydro that, if customers stopped using the BC Hydro service, the cross-subsidization from other BC Hydro ratepayers would increase relative to a scenario where the Proposed Rates would be approved, in light of s. 18(2) of the *Clean Energy Act*.

8.1.1.1 If not, please explain why not.

8.1.1.2 If yes, does Suncor have any suggestions to prevent this from happening?

8.2 If BC Hydro's rates were set to be higher than \$1.00/min to recover the full cost of service at low utilization levels, would Suncor be able to increase its per-minute rates to a level that would be considered fair market rates based on commercially reasonable cost assumptions? Please explain why or why not.

8.2.1 If so, what would that rate be?

9.0 Reference: Exhibit B-1, Table 2, p. 24; Petro-Canada website, Electric Highway section Suncor's BC's Service and Rate for EV Fast Charging Stations

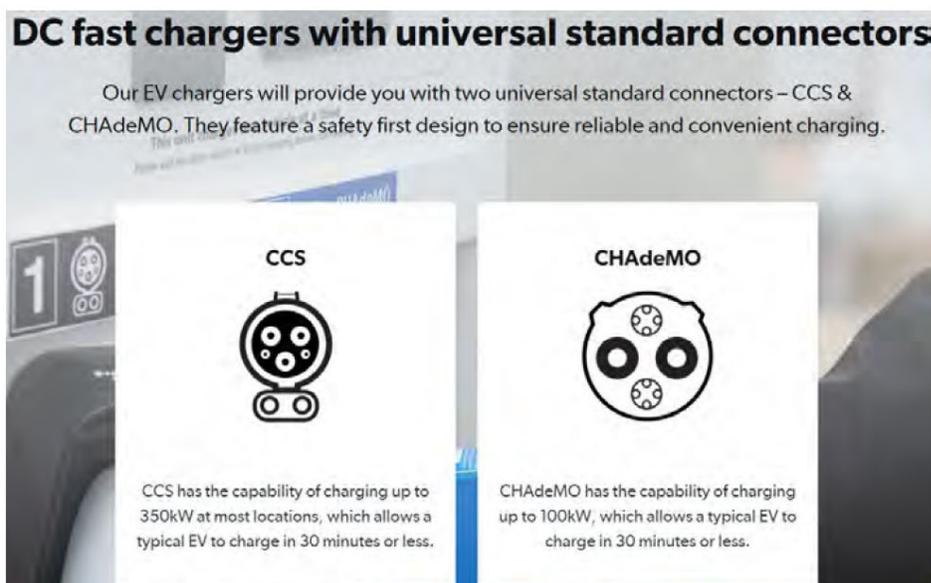
On its website, Petro-Canada states:²

² <https://www.petro-canada.ca/en/personal/fuel/canadas-electric-highway>

Pay only for the time you charge.

We've now implemented time-based, competitive pricing at our charging stations. Pay only **\$0.27 per minute** in British Columbia when you visit us on Canada's Electric Highway™, with no connection or idling fees.*

Charging speeds reach between 4 km and 30 km of range per minute of charging. Each of our EV charging stations offer up to a maximum of 200kW or 350kW of power output, depending on the station.



- 9.1 Please confirm, or otherwise explain, that at any Petro-Canada EV charging location, each station has two connectors: 1) the CCS connector has the capability of charging up to a maximum of 200 kW or 350 kW depending on the location; and 2) the CHAdeMO connector has the capability of charging up to a maximum of 100 kW at every location.
- 9.1.1 If confirmed, please clarify why the CHAdeMO connector is only capable of charging up to a maximum of 100 kW while the CCS connector can charge up to a maximum that is 2 to 3.5 times higher. Is it a technological limitation of the CHAdeMO? Also, please clarify why some CCS connectors can charge up to a maximum of 200kW and others up to 350 kW.
- 9.1.2 Does the power level difference between the two connectors mean that, when charging at a Petro-Canada station, an EV with a CCS connector would charge much faster than an EV with a CHAdeMo connector to get the same amount of electricity? If not, please explain why not.
- 9.1.2.1 If so, does it mean that the CCS-compatible EV would pay less for the same amount of electricity than a CHAdeMo-compatible EV? If not, please explain why not.
- 9.2 Please discuss the rationale for setting the same per-minute rate for both the CCS and CHAdeMO.
- 9.2.1 Has Petro-Canada considered setting two distinct per-minute rates, one for the CCS and one for the CHAdeMO to take into the difference in power level of those two connectors? If not, why not?

10.0 Reference: Section II – The Rate is Inconsistent with the Phase Two Report, CEA and GRR Exhibit C20-3, p. 2; Exhibit C20-4, paragraphs 10, 7, 12, pp. 5-6 Suncor’s Business Model for the Petro-Canada EV Fast Charging Stations

On page 2 of Exhibit C20-3, Suncor states:

As the dominant operator of EV chargers in the province, BC Hydro’s rates have a disproportionately negative impact on private EV charging operators. BC Hydro’s early offering of free charging at its EV chargers at a period of time when the EV market was nascent put downward pressure on the price that privately owned EV charging operators like Petro-Canada could reasonably post. In BC Hydro’s rate application, comparisons are made with private operators such as Petro-Canada to determine proposed new rates for BC Hydro chargers. By implication, this assumes that Petro-Canada EV charging stations are currently operating in a financially sustainable manner, which they are not. In fact, we have had to lower rates for Petro-Canada EV chargers in BC compared to what is charged in other provinces in order to remain competitive, which is not financially sustainable.

On page 5 of Suncor’s evidence, Suncor states:

EV charging rates that are insufficient to allow private sector operators to even recoup their BC Hydro energy charges will certainly not attract private investment.

Further, on pages 5-6, Suncor also states:

BC Hydro’s expectation is to have ratepayers subsidize their unrecovered costs (including capital, maintenance, utility, software, support) related to EV charging investments. This does not create a “level playing field” where all public and privately funded EV charging station operators compete for customers through compelling and competitively priced service offerings.

- 10.1 Please discuss whether Suncor would be considered a price taker or a price maker in the EV fast charging service and why. Please discuss whether there is any difference between BC Hydro and FBC’s service areas.
- 10.2 Please describe Suncor’s rate-setting methodology when setting rates for its Petro-Canada fast charging stations and any rate-setting principles that it follows. For example, is Suncor aiming to recover all its costs (electricity costs, capital costs and operating and maintenance costs) plus earning a return on investment, or is it setting rates based on what Suncor views the market can bear?
- 10.3 Please indicate how often Suncor changes the rates or expect to change the rates at its Petro-Canada fast charging stations and the rationale supporting this frequency for rate change.
- 10.4 Hypothetically, if BC Hydro had not been offering a free fast charging service since 2013, please indicate at what level would Suncor have set its Petro-Canada fast charging rate in BC at the start of its service and why. Would that rate be considered financially sustainable? Why or why not?
 - 10.4.1 Suncor had charged that higher rate from the start, does Suncor believe that the utilization rate of its stations would have been lower? Why or why not.

- 10.5 Does Suncor believe that the utilization rate of its stations would be negatively impacted if it increased the current per-minute rate to a level that would be financial sustainable? Why or why not.

The following table has been compiled by BCUC Staff from information taken on Petro-Canada’s website:³

Province	Petro-Canada Rates for EV Fast Charging Service
British Columbia	\$0.27/minute
Alberta	\$0.33/minute
Manitoba	\$0.33/minute
New Brunswick	\$0.33/minute
Newfoundland and Labrador	\$0.25/minute
Ontario	\$0.33/minute
Quebec	\$0.20/minute
Saskatchewan	\$0.33/minute

- 10.6 Please confirm the Petro-Canada fast charging rates in the above table are correct. If not, please revise the rate accordingly.
- 10.7 Does Suncor consider that any of the rates compiled in the above table is a fair market rate based on commercially reasonable cost assumptions. If so, please indicate which ones and why. If not, please clarify why Suncor did not set rates in those provinces that would be considered a fair market rate based on commercially reasonable cost assumptions.

D. BC HYDRO’S COST CALCULATIONS ASSUMPTIONS

11.0 Reference: Section IV – BC Hydro’s Cost Calculations for energy and utilization are flawed Exhibit C20-4, paragraph 19, p. 7 Flawed Calculations

On page 7 of Suncor’s evidence, Suncor states:

As noted above, BC Hydro’s application acknowledges that BC Hydro is not seeking to recover costs on expenses outside their utility cost (for example software, maintenance, capital costs, other operating costs), and instead will be seeking rates that are sufficient to account for the cost of electricity.^[footnote omitted] Suncor has reviewed the data and calculations in support of the Rate Proposal, and believes the calculations to be flawed on the basis of Suncor’s own experience as a private EV charging station operator.

- 11.1 Please clarify whether Suncor believes that BC Hydro’s calculations to support the Proposed Rates are flawed because they do not capture the full cost of service or because BC Hydro omitted some costs that should be included in the electricity cost component.

12.0 Reference: Section IV – BC Hydro’s Cost Calculations for energy and utilization are flawed Exhibit C20-4, paragraphs 22-25, Figure 1, pp. 7-9 Exhibit C12-4, Flintoff’s evidence, p. 2 Power Loss through Ongoing Operations

On pages 7-8 of Suncor’s evidence, Suncor states that its evidence demonstrates that:

³ <https://www.petro-canada.ca/en/personal/fuel/canadas-electric-highway>

In Suncor’s experience, the information and data collected from the Langley Station is a fair representation of a typical Suncor EV charging site located in BC. This evidence demonstrates that:

[...]

- not all energy consumed at an EV charging site is billed to an EV driver – the power draw related to power towers and charging equipment can be up to 2-4x the electricity actually sold to a consumer – this is not specifically identified or adequately considered in BC Hydro’s utility cost recovery calculations. [Emphasis added]

- 12.1 Please clarify why the data collected from the Langley station in respect of the power draw from the power towers and charging equipment would be applicable to BC Hydro’s case. In particular, can Suncor confirm that the equipment used by Suncor is sufficiently similar to the equipment used by BC Hydro to conclude that the power draw related to BC Hydro’s charging equipment would also be up to 2 to 4 times the amount of electricity sold to a consumer? If so, please provide supporting evidence.
- 12.2 Similarly, does Suncor believe that its evidence related to the Langley station would also be applicable to all other public or private operators of fast charging stations in BC? Please explain why or why not.
- 12.3 Assuming that the same conclusion can be drawn for BC Hydro based on the Langley Station, please confirm, or otherwise explain, that Suncor’s underlined statement above means that when BC Hydro sells 746.7 kWh of electricity to customers in a month (13.1 kWh x 57 sessions), BC Hydro’s own equipment would use an additional 1,493.4 kWh to 2,986.8 kWh of electricity.
- 12.3.1 If so, please confirm, or otherwise explain, that an amount of electricity ranging from 1,493.4 to 2,240.1 kWh per month is not billed to BC Hydro’s EV customers under the Proposed Rates.
- 12.4 Please confirm, or otherwise explain, that Suncor uses the terms “power draw of the charging equipment” (paragraph 22) and “standby power to keep the EV charging stations energized and ready to connect to a customer’s EV” (paragraph 23) interchangeably.
- 12.5 Please explain what factors cause the power draw of the power towers and charging equipment to vary between 2 and 4 times the amount of electricity sold to customers.
- 12.6 Can Suncor implement strategies to minimize or eliminate the power draw related to the charging equipment? If so, please discuss the likely impact of such mitigation strategies. If not, please explain why not.

In Mr. Flintoff’s intervener evidence in Exhibit C12-4, with references in footnotes, he states:

The charger efficiency is about 94% at nominal output power. Depending on the electronics used in the conversion of AC to DC, the efficiency may be even greater than 94% by using switching technology in the conversion.

- 12.7 Please explain whether Suncor agrees that EV fast charging stations can achieve 94% efficiency levels as noted above considering that, from Suncor’s experience, the power draw can be up to 2-4x the electricity actually sold to a consumer.

In Figure 1 on page 8 of Suncor’s evidence, Suncor refers to “anticipated no load power from operations,” which totals 50.4 and 108.0 for the 50-kW and 100-kW station respectively.

- 12.8 Please confirm, or otherwise explain, that the unit for the figures 50.4 and 108.0 is “kWh.”
- 12.9 Please provide Suncor’s supporting calculations to derive the 50.4 and 108.0 figures.
- 12.10 Is Suncor using the term “anticipated no load power from operations” to mean the same as “power draw” and “standby power” referenced in paragraphs 22 and 23 respectively? If not, please clarify what is meant by “anticipated no load power from operations”.
- 12.10.1 If so, please confirm, or otherwise explain, that 50.4 [kWh] represents only a fraction (6.7%) of the monthly energy sold to customers at 50-kW stations (746.7 kWh), rather than being 2 to 4 times the electricity actually sold to customers.

In Figure 1 on pages 8 of Suncor’s Evidence, Suncor refers to “energy cost (operations) (~2x sold energy)”, which totals \$4.85 and \$10.40 for the 50-kW and 100-kW station respectively.

- 12.11 Please confirm, or otherwise explain, that Suncor calculated these figures by multiplying 50.4 and 108.0 by \$0.0963.
- 12.12 Please clarify why Suncor states that these figures represent “2x sold energy” when the line “Energy (sold)” is more than an order of magnitude greater than the energy from operations (746.7 versus 50.4 and 1,100.4 versus 108.0).

On page 9 of Suncor’s evidence, Suncor states:

Based on the above scenario, when considering power loss through on-going operations, Suncor’s evidence is that BC Hydro will not be able to recover its electricity costs (excluding maintenance, capital, and other operating costs) with a 21 cent per minute rate structure for 50kW charging stations, or with a 27 cent per minute rate structure for 100kW charging stations based on their own Cost Recovery Calculations provided in section 4.2 of the application.

- 12.13 According to Figure 1, please confirm, or otherwise explain, that Suncor believes that BC Hydro should, at minimum, charge \$0.28/min for the 50-kW station and \$0.35/min for the 100-kW station if it wants to recover at least the cost of electricity (energy and demand) of its charging stations.
- 12.14 In Suncor’s view, should Figure 1 be revised to also take into account the Medium General Service (MGS) Basic Charge of \$0.2661/day, which would add an additional \$7.98 per month to the electricity costs of the 50-kW and 100-kW for a respective monthly total of \$354.24 and \$663.35 and respective cost per charge of \$6.21 and \$7.90.
- 12.14.1 If so, please confirm, or otherwise explain, that the loss per transaction would increase to \$0.20 and \$0.18 for the 50-kW and 100-kW station respectively.
- 12.14.2 If not, please explain why the MGS Basic Charge should not be included in the calculations of electricity costs.
- 12.14.3 Does Suncor currently pay BC Hydro’s Basic Charge of \$0.2661/day as part of its Large General Service bills for the electricity used at its fast charging stations?

13.0 Reference: Section IV – BC Hydro’s Cost Calculations for energy and utilization are flawed Exhibit C20-4, paragraph 24, Figure 1, p. 8 BC Hydro’s Data Assumptions for the 100-kW Station

The following is an excerpt of Figure 1:

	50 kW	100 kW
Energy per session (monthly) per 4.2 Cost Recovery Calculations	13.1	13.1
Time per charge per 4.2 Cost Recovery Calculations	28.6	28.6

- 13.1 Based on Suncor’s experience, how plausible is it that a customer spending the same amount of time (e.g., 28.6 minutes) at a 50-kW station and at a 100-kW station would end up getting the same amount of electricity (e.g., 13.1 kWh).
- 13.1.1 Please confirm, or otherwise explain, that Suncor would expect that a customer charging its car for 28.6 minutes at a 100-kW station would be getting more than the 13.1 kWh obtained at the 50-kW station. Or said differently, please confirm, or otherwise explain, that Suncor would expect that a customer getting 13.1 kWh at a 100-kW station would be spending less than 28.6 minutes charging than at a 50-kW station.
- 13.2 In Suncor’s view, should BC Hydro adjust the 50-kW data in order to derive the electricity cost component of its Proposed Rate for the 100-kW? Why or why not?
- 13.3 Based on Suncor’s experience, how should BC Hydro adjust its 50-kW data to take into account that the stations’ power level difference has an inherent impact on the data that BC Hydro subsequently uses to calculate the cost recovery scenarios in Table 3 of BC Hydro’s Application.

E. PEAK DEMAND CHARGES

14.0 Reference: Section IV A. Peak Demand Charges (medium and large general service) Exhibit C20-4, paragraphs 10, 26, pp. 5, 9 Demand Charges and Level Playing Field

On page 9 of Suncor’s evidence, Suncor states that:

Per Suncor’s evidence relating to EV charging costs as compared to profitability and the role of peak demand on driving unsustainable cost structure for DCFC EV charging stations, Suncor would point to Hydro Quebec’s decisions to remove peak demand pricing related to EV chargers.^[footnote omitted] This action should be taken by BC Hydro in order to support growth in EV charging infrastructure, maintain affordability for EV drivers, provide a greater potential for reasonable profitability without impacting early adoption of EV drivers, and stimulate greater investment from private companies such as Suncor. Such an initiative is needed to ensure that BC’s Clean BC climate plan will be achieved.

On page 5 of Suncor’s evidence, Suncor states:

The Rate Proposal also unfairly, unnecessarily and inappropriately proposes to cross-subsidize the costs of its EV charging infrastructure by burdening all ratepayers to pay costs associated with infrastructure and services for the benefit of a demographic that currently constitutes only 9.4% of all drivers on the road.

- 14.1 With respect to Hydro-Quebec’s decision to remove peak demand pricing related to EV chargers, please indicate whether this resulted from a government-mandated directive or a utility proposal to the regulator.
- 14.2 Does Suncor believe that peak demand charges also render BC Hydro’s cost structure for DCFC EV charging stations unsustainable? Please explain why or why not.

15.0 Reference: Section IV A. Peak Demand Charges (medium and large general service) Exhibit C20-4, paragraphs 27, 29, and 33, pp. 9-10, 14 Demand Charges and BC Hydro’s Demand Transition Rate

On page 9 of Suncor’s evidence, Suncor states: “These are not currently available to public charging despite being a significant cost driver, and barrier to advancing BC’s public charging infrastructure needed to advance the adoption of electric vehicles.”

On page 14 of Suncor’s evidence, Suncor states: “Suncor also notes that the trend toward increased rates of charge is expected to continue as more OEMs release models with >100kW peak charging capability.”

- 15.1 Please confirm, or otherwise explain, that Suncor refers to “demand charges” as being the significant driver and barrier to advancing BC’s public charging infrastructure.
- 15.2 Please confirm, or otherwise explain, that the trend towards more models with >100 kW peak charging capability would exacerbate the issue created by demand charges.

On page 10 of Suncor’s, Suncor states: “Suncor notes that this demand charge subsidy would achieve greater results targeting light-duty passenger vehicles and trucks, by supporting public EV charging infrastructure that fall into the large general service category.”

- 15.3 Please discuss whether Suncor would be supportive of an expansion of BC Hydro’s Demand Transition Rate to include EV fast charging infrastructure for non-fleet stations or the creation of a new Rate Schedule specifically designed for EV fast charging network operators that would remove or defer demand charges.
- 15.3.1 If so, should the BCUC review BC Hydro’s demand charges as part of this proceeding or a separate proceeding. Please explain your response.
- 15.4 Please discuss how applying a Rate Schedule with no demand charges to Suncor’s EV fast charging business would change Suncor’s financial model. If Suncor was no longer billed demand charges would the current Petro-Canada rate of \$0.27/min be financially sustainable? Why or why not?

F. BC HYDRO’S 50 KW UNITS

16.0 Reference: Section V – BC Hydro proposes to use outdated 50 kW units with costs borne by ratepayers Exhibit C20-4, paragraphs 30-31, p. 10; Appendix B, British Columbia Public Light-Duty Zero-Emission Vehicle Infrastructure Study, dated May 2021 Exhibit A2-3, Geotab Energy, EV growing pains: The evolution of electric vehicles and their growing impact on the electric grid⁴, dated April 22, 2020 Capital Upgrades

On page 10 of Suncor’s evidence, Suncor states that:

⁴ <https://image.info.fleetcarma.com/lib/fe321171716404797c1674/m/1/002159cb-9dd1-42d9-bb22-620882710895.pdf>

The proposed deployment of single 50 kW charging stations based on BC Hydro’s proposed rate is an ineffective and inefficient use of ratepayer capital. Suncor believes that these chargers will prematurely require additional future investment for upgrades and re-assessment of power requirements well before the end of the charging station’s useful life.

For several years now, automotive manufacturers have moved away from the limitations of first generation EV’s which could only support 50kW charging (if they were able to at all). Newer vehicles can accept a charge rate as high as 270kW while still supporting legacy first generation EVs. Battery size has increased significantly since EVs were first introduced to the market and fast EV charging station operators have been progressively innovating to deliver higher outputs to match. Some EVs are now capable of charged rates up to 350kW. This highlights the consumer’s desire for increasingly faster charging capability in the public on-the-go EV charging marketplace in order to reach the same level of convenience and time as compared with refueling an internal combustion engine vehicle. [Emphasis added]

In the BC Public Light-Duty Zero-Emission Vehicle Infrastructure Study dated May 2021, the BC Government provides the following assumption regarding fast charging power output by year:

Historically, fast charging deployments have largely used chargers with 50 kW of output power (although some 25 kW chargers have been installed in the province, as indicated in Appendix A), aside from Tesla beginning with 90 kW chargers in 2014 and increasing since then.

Table 2. Assumed fast charging power output by year

	2020	2025	2030	2035	2040
Assumed Fast Charging Output Power (kW)	75*	100	150	250	300

** While much of the public charging infrastructure deployment currently planned for 2020/2021 still focuses on 50 kW units, the power levels in this table represent the average of all ports deployed within the province, including those deployed by industry at power levels much higher than 75 kW.*

If the typical output power of fast charging infrastructure were to exceed these assumptions, that could drive a decrease in the total number of ports needed and vice versa.

On page 14 of the April 2020 Geotab Energy Report (Exhibit A2-3), it states:

The impact EVs have on the grid, particularly this risk they pose to damaging distribution assets, has changed dramatically over the last 5 years. Long-range BEVs are very different from older electric vehicles: they are driven more, they consume more energy, they draw power at a higher level and they are less predictable. As the fastest-growing vehicle type, long-range BEVs continue to represent a larger proportion of new EV sales.

16.1 In Suncor’s experience, please discuss how fast could BC Hydro’s 50-kW charging stations become outdated considering the rate of EV adoption in BC, the significantly increased battery size in newer makes and models, and consumers’ desire for increasingly fast charge.

16.1.1 Considering the response to the previous question, does Suncor believe that BC Hydro should amortize the capital cost of its 25-kW and 50-kW stations sooner than 10 years? If so, what would be a reasonable timeframe to amortize such assets?

16.2 In Suncor’s experience, can a 50-kW charging station be upgraded to become a 100-kW charging station? If so, at what cost? If not, would they become stranded assets? Could these stations have a residual value in other markets?

- 16.3 Petro-Canada's EV fast charging equipment currently can charge up to 350 kW. Please discuss the expected useful life of Petro-Canada's existing EV fast charging equipment and when will the technology of these equipment become obsolete.
- 16.3.1 What factors would Suncor consider when making future investments and deploying EV charging stations? For example, how would Suncor consider the two studies above, if at all?