Fred James
Chief Regulatory Officer
Phone: 604-623-4046
Fax: 604-623-4407
bchydroregulatorygroup@bchydro.com

January 24, 2020

Mr. Patrick Wruck
Commission Secretary and Manager
Regulatory Support
British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

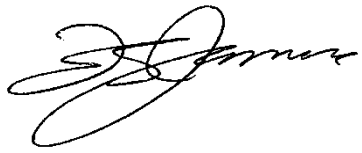
Dear Mr. Wruck:

RE: Project No. 1599032
British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Fleet Electrification Rate Application

BC Hydro writes to provide its Reply Argument in accordance with the regulatory timetable established by Commission Order No. G-314-19.

For further information, please contact Anthea Jubb at 604-623-3545 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,



Fred James
Chief Regulatory Officer

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Enclosure

BC Hydro
Power smart

Fleet Electrification Rate Application

Reply Argument of
British Columbia Hydro and Power Authority

January 24, 2020

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1 Introduction

This is BC Hydro's Reply Argument for its Fleet Electrification Rate Application[1] filed with the BCUC pursuant to sections 59 to 61 of the *Utilities Commission Act* (**UCA**). Capitalized terms in this Reply Argument have the meanings given to them in the Application, unless otherwise defined.

The BC Sustainable Energy Association (**BCSEA**), Commercial Energy Consumers (**CEC**), BC Old Age Pensioners' Organization (**BCOAPO**), Association of Major Power Customers of BC (**AMPC**) and Clean Energy Association of BC (**CEABC**) filed Final Argument and ChargePoint[2] and the Township of Langley (**Langley**)[3] filed comments in this proceeding.

BCSEA, CEC, AMPC, CEABC, ChargePoint and Langley all support BC Hydro's request for the BCUC to set the Fleet Electrification Rates, so BC Hydro will not reply to their Final Arguments and comments, with the exception of CEABC. BC Hydro will reply to aspects of CEABC's Final Argument, including its recommended adjustments to the Fleet Electrification Rates.

BC Hydro will primarily reply to the Final Argument of BCOAPO, which is the only intervener that does not support BC Hydro's request for the BCUC to set the Fleet Electrification Rates.

[1] Application, Exhibit B-1. On October 30, 2019, BC Hydro filed Exhibit B-1-1, which: (1) corrected the draft order contained in the Application to include Direction 4 that BC Hydro file updated tariff sheets within 15 business days of the date of the order; and (2) corrected the definition of Billing Demand in the rate schedule for the Overnight Rate.

[2] Exhibit D-5-1.

[3] Exhibit E-1.

2 Reply to CEABC

2.1 Recommended Adjustments to the Fleet Electrification Rates

As noted above, CEABC supports BC Hydro's application. CEABC also offers suggestions on how "this rate proposal or similar proposals might be improved in the future",[4] and submits that those future improvements could be done at "negligible cost to BC Hydro's other customers".[5] BC Hydro is skeptical that the costs would be negligible, at least in relation to the potential benefits, but understands the submissions to be in regard to future processes and, therefore, they do not need to be considered by the BCUC in this proceeding. Nevertheless, BC Hydro offers some reply submission for completeness of the record.

CEABC states that the Overnight Rate "could be made even more effective if BC Hydro were to 'relax' the Zero-Demand-Charge time period by an hour at each end."[6]

As explained in its response to BCUC IR 1.13.2, BC Hydro determined the overnight period for the Overnight Rate to be between 10:00 p.m. and 6:00 a.m. based on when BC Hydro's system has spare capacity while still recovering BC Hydro's cost of service.[7] BC Hydro also chose the overnight period to meet the customers' depot charging requirements.[8] BC Hydro conducted a sensitivity analysis of customer bills using alternative hours for the overnight period,[9] but it did not conduct such an analysis for expanding the overnight period. BC Hydro also analysed the probability of charging depots triggering distribution station upgrades based on spare capacity during the overnight period of between 10:00 p.m. and 6:00 a.m., particularly at

4 CEABC Final Argument at page 1.
5 CEABC Final Argument at page 8.
6 CEABC Final Argument at page 6.
7 See BC Hydro's responses to BCUC IR 1.13.2, Exhibit B-4, PDF 132.
8 See BC Hydro's responses to CEC IR 1.13.1, Exhibit B-5, PDF 272.
9 See BC Hydro's responses to BCUC IR 1.13.2.1, Exhibit B-4, PDF 133.

10:00 p.m., because that is the time with the lowest spare capacity.[10] BC Hydro has not conducted such an analysis based on spare capacity at 9:00 p.m., but we reasonably anticipate that the amount of spare capacity available, particularly at the distribution level, will diminish as the number of hours is extended beyond 10 p.m. to 6 a.m. Therefore, BC Hydro does not support extending the overnight period for the Overnight Rate.

CEABC recommends the following three adjustments to "enhance the effectiveness" of the Demand Transition Rate:[11]

(1) Rather than a fixed term ending in 2032 for all customers, the term could be set for each customer from the date of that customer's initial service;

(2) The Demand Charge "holiday" period should be extended to eight or even nine years, rather than six years; and

(3) Change the time definition of the peak load that is subject to the Demand Charge to exclude the period between 11:30 a.m. and 4:00 p.m.

BC Hydro addressed the first proposed adjustment (i.e., custom start dates for service under the Demand Transition Rate) in the Application. BC Hydro analyzed the impact of implementing this suggestion and concluded that the resulting complexity limits it practicality. In particular, BC Hydro estimates that providing custom start dates would result in 40 different individual rates schedules over the ten years that the Demand Transition Rate is proposed to be made available.[12] For that reason, BC Hydro proposes to set a fixed term for the Demand Transition Rate for all customers ending F2032 and does not support the term being set for each customer from the date of that customer's initial service.

[10] See BC Hydro's responses to BCUC IR 1.17.10, Exhibit B-4, PDF 196.
[11] CEABC Final Argument at page 8.
[12] Application, Exhibit B-1, page 49.

BC Hydro addressed the second proposed adjustment (i.e., extending the period of no demand charges) in its response to AMPC IR 1.1.4. BC Hydro originally examined a five-year period of no demand charges which was intended to provide customers mitigation to the financial impacts of the demand charge while they convert their fleets to electricity. However, in response to stakeholder requests for custom start dates for service under the Demand Transition Rate, BC Hydro proposed a six-year period of no demand charges as a compromise, given that custom start dates are not practical.[13] BC Hydro notes that further extending the number of years that no demand charges apply may negatively impact the economics for all ratepayers. Accordingly, BC Hydro does not support amending the Demand Transition Rate to extend the number of years of no demand charges.

Regarding the third proposed adjustment (i.e., no demand charge between 11:30 a.m. and 4:00 p.m.), BC Hydro considered a similar request during the consultation process for time of day energy rates.[14] BC Hydro did not adopt time of day energy rates, because customer engagement indicated that in-route bus charging load has limited ability to respond to time of day energy charges and there would be incremental costs and time required to implement the metering and billing solutions required to enable time of day energy use charging.[15] BC Hydro does not support changing the time definition of the peak load that is subject to the Demand Charge to exclude the period between 11:30 a.m. and 4:00 p.m. for the same reasons - i.e., in-route bus charging load has limited ability to respond to time of day charges and there would be incremental costs and time required to implement the metering and billing solutions. BC Hydro further notes that such a change may negatively impact the economics for all ratepayers.

[13] See BC Hydro's responses to AMPC IR 1.1.4, Exhibit B-5, PDF 9.
[14] Application, Exhibit B-1, page 49.
[15] Application, Exhibit B-1, page 50.

2.2 Utility-Scale Batteries and "Smart" Charging

CEABC recommends that: "the BCUC suggest that BC Hydro study and report back on the future potential for using the latest modern battery technology and 'smart' scheduling software to more efficiently manage the customer loads to fit more efficiently within BC Hydro's system constraints."[16]

BC Hydro respectfully submits that this topic is out of the scope of its Fleet Rate Application; however, it may be relevant to the Integrated Resource Plan that BC Hydro expects to file in the spring of 2021, which would be subject to a separate proceeding.

2.3 Economic Evaluations

CEABC discusses the economic evaluations of the Fleet Electrification Rates in section F of its Final Argument. However, CEABC does not request that the BCUC do anything with its observations, either in this proceeding, or in any future proceeding, and BC Hydro notes that CEABC supports BC Hydro's application. Accordingly, BC Hydro respectfully submits that the BCUC need not give any consideration to CEABC's submissions on this issue.

2.4 The Cost of New Capacity

In section G of its Final Argument, CEABC discusses the cost of new capacity for generation, transmission and distribution in BC Hydro's analysis of the Fleet Electrification Rates. However, once again, CEABC does not request that the BCUC do anything with its observations, either in this proceeding, or in any future proceeding, and BC Hydro notes again that CEABC supports BC Hydro's application. Accordingly, BC Hydro respectfully submits that the BCUC also need not give any consideration to CEABC's submissions on this issue.

[16] CEABC Final Argument at page 9.

3 Reply to BCOAPO

BCOAPO's arguments against the Fleet Electrification Rates are founded, in essence, on an assertion that the economic and cost-of-service justifications might be less favourable if different assumptions were used in the analyses. BCOAPO offers several alternative assumptions that BC Hydro specifically addresses below in sections 3.1 and 3.2. As a general comment, BC Hydro submits that all input assumptions have a certain degree of error associated with them, and so the resulting analyses should not be seen as binary "yes" or "no" decision trees. The Fleet Electrification Rates should only be rejected if the assumptions used by BC Hydro are demonstrably unreasonable, and only if reasonable assumptions clearly result in the Fleet Electrification Rates failing both the cost of service and economic tests. BC Hydro notes that none of the interveners, including BCOAPO, dispute the importance of the public policy objective that the Fleet Electrification Rates are intended to address or the basis upon which the Fleet Electrification Rates must be justified.

BCOAPO also argues that the correction to the definition of Billing Demand in the Overnight Rate that BC Hydro filed should not be approved, and it proposes a different approach for transitioning to the full LGS energy and demand charges in the Demand Transition Rate. BC Hydro submits that the correction to the definition of Billing Demand in the Overnight Rate is justified for the reasons discussed below in section 3.3.1. BC Hydro does, however, support BCOAPO's proposed approach for transitioning to the full LGS energy and demand charges in the Demand Transition Rate as discussed below in section 3.3.3.

3.1 Economic Justification

BCOAPO discusses five concerns it has with BC Hydro's economic analyses for the Fleet Electrification Rates.

First, BCOAPO incorrectly suggests that metering and billing costs were not included in the economic analyses performed by BC Hydro, because the basic charge was not included in the revenue calculations in Appendix E of the Application. In fact, BC Hydro included an estimate of $350,000 for utilizing a transmission metering and billing solution in the economic analysis of the Overnight Rate.[17] We do not anticipate that the Demand Transition Rate will result in incremental metering and billing costs.

BC Hydro expects that the ongoing operating costs of the Overnight Rate will be similar to the operating costs of Large General Service Rate customers.[18] Similar to other BC Hydro rates, the basic charge only recovers a portion of the customer related costs, such as meter reading and billing, but the remaining customer related costs are recovered in the energy charge.[19] BC Hydro intends to monitor incremental costs of the Fleet Electrification Rates, such as metering and billing, on an annual basis.[20]

BCOAPO is correct that the basic charge was not included in the revenue calculations in Appendix E of the Application - it was excluded for simplicity and is not material.[21] That means there is a slight underestimate of BC Hydro's expected revenues and, if the basic charge was included, there would be a slight increase in the Benefit Cost Ratios.

Second, BCOAPO points out that updating the rate escalation used for the economic analyses to BC Hydro's revised F2020-F2024 rate escalation per Exhibit B-11 from BC Hydro's F2020-F2021 RRA would: (i) slightly lower the five-year Benefit Cost Ratio for the Overnight Rate Base Case and (ii) slightly lower the Benefit Cost Ratio

[17] Application, Exhibit B-1, page 39.
[18] See BC Hydro's responses to BCOAPO IR 1.14.3, Exhibit B-5, PDF 92.
[19] See BC Hydro's responses to BCOAPO IR 1.14.3, Exhibit B-5, PDF 92.
[20] Application, Exhibit B-1, page 52.
[21] See BC Hydro's responses to BCUC IR 1.17.1, Exhibit B-4, PDF 177.

for the Demand Transition Rate Base Case for all three timeframes.[22] That is true, but the Benefit Costs Ratios are lowered only slightly and they are still all greater than one, with exception of the five-year Benefit Cost Ratio for the Demand Transition Rate Base Case, which was below one using the original rate escalation.[23] In other words, using the BC Hydro's revised F2020-F2024 rate escalation per Exhibit B-11 from BC Hydro's F2020-F2021 RRA does not change the conclusions of BC Hydro's economic analyses.

Third, BCOAPO argues that updating the economic analyses using the 2018 Mid-C market price forecast (instead of the 2017 Mid-C market price forecast) would reduce the Overnight and the Demand Transition Benefit Cost Ratios for all three timeframes.[24] It is true that the Benefit Cost Ratios would be slightly reduced, but updating the Mid-C market price forecast does not impact the overall conclusions - i.e., the Benefit Costs Ratios are reduced only slightly and they are still all greater than one, with exception of the five-year Benefit Cost Ratio for the Demand Transition Rate Base Case, which was below one using the 2017 Mid-C market price forecast.[25]

Fourth, BCOAPO argues that the appropriate distribution capacity marginal cost for Overnight Base Case is $25/kW-yr (i.e., $15 plus $10 (30% of the $35/kW distribution substation marginal cost)), instead of the $15/kW-yr ($2019) used by BC Hydro, which is BC Hydro's maximum distribution extension contribution.[26]

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22 BCOAPO Final Argument, page 4.

23 The five-year Benefit Cost Ratio for the Overnight Rate Base Case would only be lowered from 1.13 to 1.11. The Benefit Cost Ratio for the Demand Transition Rate Base Case would only be lowered from 0.74 to 0.73 for the five-year period, from 1.04 to 1.02 for the ten year period, and from 1.16 to 1.14 for the 15 year period: See Application, Exhibit B-1, Appendix E, pages 6 and 7 and BC Hydro's responses to BCOAPO IR 1.5.6 and 1.7.4, Exhibit B-5, PDF 41 and 52.

24 BCOAPO Final Argument, page 4.

25 The Benefit Cost Ratio for the Overnight Rate Base Case would only be lowered from 1.13 to 1.11 for the five-year period, from 1.43 to 1.38 for the ten-year period, and from 1.42 to 1.39 for the 15-year period. The Benefit Cost Ratio for the Demand Transition Rate Base Case would only be lowered from 0.74 to 0.73 for the five-year period, from 1.04 to 1.02 for the ten-year period, and from 1.16 to 1.15 for the 15-year period: See Application, Exhibit B-1, Appendix E, pages 6 and 7 and BC Hydro's responses to BCOAPO IR 1.14.2.1 and 1.18.2.1, Exhibit B-5, PDF 91 and 106.

26 BCOAPO Final Argument, page 4.

BC Hydro acknowledges there that is some uncertainty regarding what distribution capacity marginal cost to use in the economic analysis, because it will vary by customer site. That is why BC Hydro used a range of distribution capacity marginal cost in Appendix E of the Application. The distribution capacity marginal cost of $25/kW-yr suggested by BCOAPO is reflected in Scenario 2 for the Overnight Rate, which results in slightly lower Ratepayer Benefit Cost Ratios.[27] As a result of this uncertainty, BC Hydro intends to evaluate cost recovery and economic impact on ratepayers on an annual basis.[28]

Fifth, BCOAPO argues that, while the Fleet Electrification Rates may accelerate the introduction of fleet electrification in the short-term, some of the load would materialize over the next 15 years even if BC Hydro did not offer the Fleet Electrification Rates.[29] However, that submission is not consistent with the evidence on the record of this proceeding.

BCOAPO points to the letters that BC Hydro received from BC Transit and TransLink to show that they have plans to electrify their fleets;[30] however, those letters do not state that BC Transit and TransLink would electrify their fleets in the absence of the Fleet Electrification Rates. To the contrary, the support letter from TransLink states that they are: "currently developing a Low Carbon Fleet Implementation Plan, which will identify specific investments in vehicles and charging infrastructure, and necessary funding and policy support, such as the BC Hydro rate design option … [emphasis added]."[31] The record of this proceeding makes clear that the LGS Rate demand charge is a barrier to meeting the electrification goals of BC Transit, TransLink and the Port of Vancouver.[32]

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27 Application, Exhibit B-1, Appendix E, page 7.

28 Application, Exhibit B-1, section 7; see also BC Hydro's responses to BCUC IR 1.10.6.1, Exhibit B-4, PDF 81.

29 BCOAPO Final Argument, page 4.

30 Application, Exhibit B-1, Appendix C.

31 Application, Exhibit B-1, Appendix C.

32 See BC Hydro's responses to BCOAPO IR 1.1.2, Exhibit B-5, PDF 23.

3.2 Cost of Service Justification

BCOAPO discusses four concerns it has with BC Hydro's cost-of-service analysis for the Overnight Rate.

First, BCOAPO points out that updating the rate escalation used for the cost-of-service analysis for the Overnight Rate to BC Hydro's revised F2020-F2024 rate escalation per Exhibit B-11 from BC Hydro's F2020-F2021 RRA would lower the F2029 Revenue to Cost Ratio to 99 per cent.[33] That is true, but, given the result is still very close to unity, BC Hydro submits the cost of service justification holds.

Second, BCOAPO argues the costs used in the cost-of-service analysis should have been escalated by the same percentage as the rate escalation, which would increase the denominator in the revenue-to-cost ratio calculation and reduce the revenue-to-cost ratio.[34] The only rationale that BCOAPO presents for this argument is that it: "would be consistent with BC Hydro's assumption that the total load and the number of total customer accounts was unchanged aside from new fleet rate customer accounts."[35]

BC Hydro confirms that costs were escalated by the consumer price index (**CPI**). The rate escalator reflects how BC Hydro is going to recover our overall costs of service in the future. However, individual cost items will not necessarily all increase in the same manner as the rate escalator. We believe that the CPI, which, by definition, measures the increase in prices of goods and services, is more general and applicable to the costs escalation than the rate escalator would be.

Third, BCOAPO argues that, for purposes of allocating capacity costs, the higher hourly capacity values should be used as they reflect the capacity that is required to serve the load.[36] BC Hydro confirms that our standard methodology for fully

[33] BCOAPO Final Argument, page 7.
[34] BCOAPO Final Argument, page 7.
[35] BCOAPO Final Argument, page 7.
[36] BCOAPO Final Argument, page 7.

allocated cost of service studies was used, which relies on hourly energy data. Hourly energy data is used for BC Hydro's fully allocated cost of service studies, because demand data is not available across all our rate classes (for example the Residential Rate Class). Using demand data for rate classes that have demand metering, and hourly energy data for rate classes that do not have demand data would produce results that are not internally consistent.

Fourth, BCOAPO argues that:[37]

> …while BC Hydro claims that the revenue to cost ratios should be stable year over year, the revenue to cost ratio for F2024 is materially less than the one calculated for F2029. (Note: It is not clear if the F2024 value is 91% or 94% as the former value is quoted in the text portion of BCUC 1.21.5 while the latter value is the one set out in the accompanying table.)

BC Hydro acknowledges that the value of 91 per cent in F2024 in the text portion of our response to BCUC IR 1.21.5 was a typographical error - the correct value is 94 per cent. BC Hydro also clarifies that we expect the revenue to cost ratios to be stable after F2029 once fleet conversion is substantially complete.

For the above reasons, as well as the reasons discussed in the Application and BC Hydro's Final Argument, the Overnight Rate is justified on a cost-of-service basis. Even if the Overnight Rate is not justified on that basis, though, it is justified on an economic basis, so it is still lawful and within the BCUC's jurisdiction to approve.

3.3 Other Considerations

BCOAPO discusses three other considerations regarding contributions toward extensions and the energy charge under the Overnight Rate, as well as an

[37] BCOAPO Final Argument, page 7.

alternative approach for transitioning the demand rates under the Demand Transition Rate to the LGS rates.[38] BC Hydro replies to each of those considerations below.

3.3.1 Overnight Rate – Contribution Towards Extensions

BC Hydro filed a correction to the definition of Billing Demand so that its contribution towards an extension is based on the highest kW demand during all hours, not just between 06:00 and 21:59.[39] BCOAPO argues that the corrected definition of Billing Demand should not be approved, because "there are only incremental revenues associated with demand that occurs between the hours 06:00 and 21:59 daily in the Billing Period" and it "is inconsistent with the principles underlying the determination of the extension allowance."[40]

As pointed out by BCOAPO, BC Hydro's contribution towards an extension is meant to recognize that "the new load also represents future incremental revenue."[41] The contribution is usually determined based on the estimated billing demand of the new or increased loads.[42] However, in the case of the Overnight Rate, limiting Billing Demand to the highest kW Demand between the hours 06:00 and 21:59 would limit BC Hydro's contribution towards an extension, because BC Hydro expects customers will charge their fleets under the Overnight Rate mostly between the hours 22:00 and 05:59.[43]

BC Hydro submits that limiting Billing Demand to the highest kW Demand between the hours 06:00 and 21:59 would make the Overnight Rate less attractive for potential customers, which means the Overnight Rate may be less successful in achieving its fleet electrification objectives.[44]

38 BCOAPO Final Argument, section 3, page 8.
39 Exhibit B-1-1.
40 BCOAPO Final Argument, page 9.
41 BCOAPO Final Argument, page 9, citing BC Hydro's responses to BCUC IR 1.12.3, Exhibit B-4, PDF 116.
42 See BC Hydro's responses to BCUC IR 1.12.3, Exhibit B-4, PDF 116.
43 See Exhibit B-1-1.
44 See Exhibit B-1-1, page 2.

BC Hydro also submits that it would be unfair to customers of the Overnight Rate not to receive a contribution towards an extension, because the energy charge of the Overnight Rates captures a portion of demand costs. This is evident, because the Overnight Rate energy charge is higher than the energy charge used in BC Hydro's LGS Rate since it was calculated to recover BC Hydro's residual embedded cost of service, and the Overnight Rate only has a demand charge between the hours 06:00 and 21:59.[45]

BC Hydro further notes that customers from a number of rate classes, including some who do not pay billing demand such as Residential and Small General Service, are eligible for BC Hydro contribution towards distribution extension costs as described in section 8 of the Electric Tariff. BC Hydro does not support excluding Overnight Rate customers from being eligible for extension contribution.

3.3.2 Overnight Rate – Energy Charge

BCOAPO argues that there has been no clear statement of the principle used to set the level of the energy charge for the Overnight Rate for F2020 and should therefore not be approved.[46] However, BC Hydro did, in fact, clearly state the principle in the Application: "The proposed flat energy charge of 7.41 c/kWh applies to energy usage at any time of day, which is higher than the energy charge used in BC Hydro's LGS Rate as it was calculated to recover BC Hydro's residual embedded cost of service [emphasis added]."[47] BC Hydro also stated in its response to BCOAPO IR 1.5.5 that:[48]

> BC Hydro notes that the fiscal year 2022 energy rate (7.41 cents/kWh) was calculated by establishing as base fiscal 2020 energy rate of 7.20 cents/kWh and escalating it based on BC Hydro's Fiscal 2020 - Fiscal 2021 Revenue Requirements Application, Exhibit B-1. The fiscal year 2019

[45] Application, Exhibit B-1, page 34.
[46] BCOAPO Final Argument, page 10.
[47] Application, Exhibit B-1, page 34.
[48] See BC Hydro's responses to BCOAPO IR 1.5.1, Exhibit B-5, PDF 37.

> energy rate of 6.738 cents/kWh (per Exhibit E, Attachment 1, Base Case for Overnight Rate Tab, Cell Z6), was based on decreasing the fiscal year 2020 energy rate of 7.20 cents/kWh by the rate escalation for fiscal year 2020.

Accordingly, BC Hydro submits that the way in which the energy charge for the Overnight Rate was determined has been adequately explained and the energy charge should be approved as requested.

BCOAPO also states that, in its view, there should be a cost of service basis to the energy charge in order for it to be acceptable.[49] As explained above, the proposed flat energy charge of 7.41 c/kWh was, in fact, calculated to recover BC Hydro's residual embedded cost of service.[50]

3.3.3 Demand Transition Rate – Transitioning to LGS Rates

BCOAPO proposed a different approach for transitioning to the full LGS energy and demand charges. Specifically, BCOAPO proposes the following:[51]

> BCOAPO submits that a more straightforward approach for F2026 would be to move the demand rate 1/6th of the way to the actual approved LGS demand rate for that year and, similarly, move the energy rate 1/6th of the way to the actual approved LGS energy rate for that year. In F2027, the demand rates would then be adjusted to eliminate 1/5th of the difference between the F2026 demand rates and the approved F2027 demand rate. A similar approach could be used for transitioning the energy rate in F2027. This same approach would also be used in each subsequent year with the fraction used based on the remaining years until F2032.

BC Hydro has considered BCOAPO's proposal and acknowledges that it would reduce uncertainty about the F2032 LGS energy and demand charges. It would also smooth out the rate impacts somewhat in F2027. While there is no quantitative evidence on the record of this proceeding regarding how BCOAPO's approach

[49] BCOAPO Final Argument, page 10.
[50] Application, Exhibit B-1, page 34.
[51] BCOAPO Final Argument, page 12.

would impact the economic analysis for the Demand Transition Rate, BC Hydro confirms that the Ratepayer Benefit Cost Ratio would remain the same in the five year time period and only slightly reduced in the 10 and 15 year time periods.[52] BC Hydro is, therefore, supportive of BCOAPO's proposed approach for transitioning to the full LGS energy and demand charges.

However, BC Hydro notes that it proposes for the transition to begin in F2027, as BC Hydro originally proposed, as opposed to F2026, which is proposed by BCOAPO. It is unclear why BCOAPO proposes for the transition to begin in F2026. BC Hydro proposes for the transition to begin in F2027 so that there is still a six year transition period until F2032 as proposed in the application.

BC Hydro has included Attachment 1 to this Reply Argument which contains updated clean and blacklined versions of the Demand Transition Rate Schedules (1650, 1651, 1652, 1653) to incorporate BCOAPO's proposed approach for transitioning to the full LGS energy and demand charges for the BCUC's consideration. Attachment 2 to this Reply Argument includes a revised draft Order.

4 Conclusion

BCSEA, CEC, AMPC, CEABC, ChargePoint and Langley all support BC Hydro's request for the BCUC to set the Fleet Electrification Rates. BCOAPO is the only intervener that does not support BC Hydro's request.

For the reasons discussed above and in BC Hydro's Final Argument, the Fleet Electrification Rates should be approved by the BCUC, because they have a cost-of-service and/or economic basis and they are supported by the Bonbright Criteria, so they therefore satisfy the legal test of being "fair, just and not unduly discriminatory".

[52] The Ratepayer Benefit Cost Ratio for the five year time period would remain 0.74, and it would be reduced from 1.04 to 1.02 and from 1.16 to 1.15 for the 10 and 15 year time periods, respectively.

BC Hydro acknowledges the adjustments to the Fleet Electrification Rates recommended by CEABC; however, for the reasons discussed above, BC Hydro does not support them being adopted.

BC Hydro submits that the shortcomings alleged by BCOAPO are either incorrect or they do not change the conclusions of BC Hydro's analyses that both Fleet Electrifications Rates are justified on an economic basis and the Overnight Rate is justified on a cost of service basis. BC Hydro does, however, support BCOAPO's proposed approach for transitioning to the full LGS energy and demand charges in the Demand Transition Rate.

ALL OF WHICH IS RESPECTFULLY SUBMITTED JANUARY 24, 2020

Per: 

Brandon Mewhort, Sr. Solicitor & Counsel, British Columbia Hydro and Power Authority

BC Hydro
Power smart

BC Hydro Fleet Electrification
Rate Application

Attachment 1-A

Rate Schedules 1650, 1651,1652,1652
Clean

2. GENERAL SERVICE

RATE SCHEDULES 1650, 1651, 1652, 1653 – DEMAND TRANSITION RATE (150 KW AND OVER)

Availability	For Customers who qualify for General Service where the Customer is a business, government agency or other organization. For use only for separately metered charging of Electric Fleet Vehicles or Vessels owned or leased by, and operated by, the Customer, at Maximum Demand equal to or greater than 150 kW. Supply is 60 hertz, single or three phase at Secondary or Primary Voltage. BC Hydro reserves the right to determine the voltage of the Service Connection.
Applicable in	Rate Zone 1.
Termination Date	These Rate Schedules will terminate effective March 31, 2032. As of April 1, 2032 customers will be migrated to Rate Schedules 16xx or the otherwise applicable rate.
Rate	**Basic Charge:** 26.92 ¢ per day plus **Demand Charge:** $0 per kW of Billing Demand until March 31, 2026 plus **Energy Charge:** 9.24 ¢ per kWh
Discounts	1. A discount of 1½% will be applied to the above charges if a Customer's supply of Electricity is metered at a Primary Voltage. 2. A discount of 25 ¢ per Billing Period per kW of Billing Demand will be applied to the above charges if a Customer supplies Transformation. 3. If a Customer is entitled to both of the above discounts, the discount for metering at a Primary Voltage will be applied first.

Monthly Minimum Charge	50% of the highest Demand Charge billed in any Billing Period wholly within an on-peak period during the immediately preceding 11 Billing Periods. For the purpose of this provision an on-peak period commences on November 1 in any year and terminates on March 31 of the following year.
Rate Schedules	1. Rate Schedule 1650: Applies if a Customer's supply of Electricity is metered at a Secondary Voltage and BC Hydro supplies Transformation. 2. Rate Schedule 1651: Applies if a Customer's supply of Electricity is metered at a Primary Voltage and BC Hydro supplies Transformation. 3. Rate Schedule 1652: Applies if a Customer's supply of Electricity is metered at a Secondary Voltage and the Customer supplies Transformation. 4. Rate Schedule 1653: Applies if a Customer's supply of Electricity is metered at a Primary Voltage and the Customer supplies Transformation.
Definitions	1. Billing Demand The Billing Demand will be the highest kW Demand in the Billing Period. 2. Billing Period A month between regular meter readings, provided that where meter readings are not available or are delayed for any reason BC Hydro may vary the number of days in the Billing Period.

	3. Electric Fleet Vehicle or Vessel A Vehicle or Vessel that: (a) Is powered entirely or partially by electricity; and (b) Is part of a group of similar vehicles or Vessels that are used for similar purposes. 4. Vehicle A vehicle used for transportation, not run on rails, and includes, without limitation, buses, medium duty trucks and heavy duty trucks. 5. Vessel A watercraft used for transportation and includes, without limitation, passenger and vehicle ferries, tugs and barge transportation.
Special Conditions	1. Demand and Energy Charge Pricing The Demand and Energy Charge Pricing over the period that these Rate Schedules are in effect is provided in the following table. No Demand Charge shall apply to Customers receiving service under these Rate Schedules for the first six years of the rate, from April 1, 2020 to March 31, 2026. As of April 1, 2026 the Demand Charge will be transitioned to the Rate Schedules 1600, 1601, 1610 and 1611 (Large General Service) Demand Charge over six years and completed by March 31, 2032, unless otherwise authorized by the Commission. The Energy Charge will be subject to general rate increases during the period of April 1, 2020 to March 31, 2026. As of April 1, 2026 the Energy Charge will be transitioned to the Rate Schedules 1600, 1601, 1610 and 1611 (Large General Service) Energy Charge over six years, to March 31, 2032, unless otherwise authorized by the Commission.

		Effective Date	Fiscal Year	Demand Charge	Energy Charge
		April 1, 2020	F2021	$0	9.24 ¢ per kWh
		April 1, 2021	F2022	$0	F2021 Energy Charge x RRA increase
		April 1, 2022	F2023	$0	F2022 Energy Charge x RRA increase
		April 1, 2023	F2024	$0	F2023 Energy Charge x RRA increase
		April 1, 2024	F2025	$0	F2024 Energy Charge x RRA increase
		April 1, 2025	F2026	$0	F2025 Energy Charge x RRA increase
		April 1, 2026	F2027	F2026 Demand Charge + [F2027 LGS Demand Charge ÷ 6]	F2026 Energy Charge + [F2027 LGS Energy Charge] ÷ 6
		April 1, 2027	F2028	F2027 Demand Charge + [F2028 LGS Demand Charge-F2027 Demand Charge] ÷ 5	F2027 Energy Charge + [F2028 LGS Energy Charge-F2027 Energy Charge] ÷ 5
		April 1, 2028	F2029	F2028 Demand Charge + [F2029 LGS Demand Charge-F2028 Demand Charge] ÷ 4	F2028 Energy Charge + [F2029 LGS Energy Charge-F2028 Energy Charge] ÷ 4
		April 1, 2029	F2030	F2029 Demand Charge + [F2030 LGS Demand Charge-F2029 Demand Charge] ÷ 3	F2029 Energy Charge + [F2030 LGS Energy Charge-F2029 Energy Charge] ÷ 3
		April 1, 2030	F2031	F2030 Demand Charge + [F2031 LGS Demand Charge-F2030 Demand Charge] ÷ 2	F2030 Energy Charge + [F2031 LGS Energy Charge-F2030 Energy Charge] ÷ 2
		April 1, 2031	F2032	F2032 LGS Demand Charge	F2032 LGS Energy Charge

	2. Metering Metering Equipment with both Demand and Energy measurement capability will be installed. Only charging of Electric Fleet Vehicles or Vessels and related equipment will be served under this rate schedule. 3. Migration Customers taking service under these Rate Schedules will not be migrated to Rate Schedules 1300, 1301, 1310, or 1311 (Small General Service) or Rate Schedules 1500, 1501, 1510 or 1511 (Medium General Service) due to changes in load size. BC Hydro will review this Special Condition in its evaluation report planned for the third year after which the rate commences. 4. Concurrent Service under other Rate Schedules BC Hydro will not provide service to equipment installed for service under these Rate Schedules under any other rate schedule except Rate Schedule 1901.
Rate Rider	The Deferral Account Rate Rider as set out in Rate Schedule 1901 applies to all charges payable under these Rate Schedules, before taxes and levies.
Rate Increase	Effective April 1, 2020 the rates under these Rate Schedules include an interim rate increase of 0.72% before rounding, approved by BCUC Order No. G-XX-XX.

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Attachment 1-B

Rate Schedules 1650, 1651,1652,1652
Blacklined

2. GENERAL SERVICE

RATE SCHEDULES 1650, 1651, 1652, 1653 – DEMAND TRANSITION RATE (150 KW AND OVER)

Availability	For Customers who qualify for General Service where the Customer is a business, government agency or other organization. For use only for separately metered charging of Electric Fleet Vehicles or Vessels owned or leased by, and operated by, the Customer, at Maximum Demand equal to or greater than 150 kW. Supply is 60 hertz, single or three phase at Secondary or Primary Voltage. BC Hydro reserves the right to determine the voltage of the Service Connection.
Applicable in	Rate Zone 1.
Termination Date	These Rate Schedules will terminate effective March 31, 2032. As of April 1, 2032 customers will be migrated to Rate Schedules 16xx or the otherwise applicable rate.
Rate	**Basic Charge:** 26.92 ¢ per day plus **Demand Charge:** $0 per kW of Billing Demand until March 31, 2026 plus **Energy Charge:** 9.24 ¢ per kWh
Discounts	1. A discount of 1½% will be applied to the above charges if a Customer's supply of Electricity is metered at a Primary Voltage. 2. A discount of 25 ¢ per Billing Period per kW of Billing Demand will be applied to the above charges if a Customer supplies Transformation. 3. If a Customer is entitled to both of the above discounts, the discount for metering at a Primary Voltage will be applied first.

Monthly Minimum Charge	50% of the highest Demand Charge billed in any Billing Period wholly within an on-peak period during the immediately preceding 11 Billing Periods. For the purpose of this provision an on-peak period commences on November 1 in any year and terminates on March 31 of the following year.
Rate Schedules	1. Rate Schedule 1650: Applies if a Customer's supply of Electricity is metered at a Secondary Voltage and BC Hydro supplies Transformation. 2. Rate Schedule 1651: Applies if a Customer's supply of Electricity is metered at a Primary Voltage and BC Hydro supplies Transformation. 3. Rate Schedule 1652: Applies if a Customer's supply of Electricity is metered at a Secondary Voltage and the Customer supplies Transformation. 4. Rate Schedule 1653: Applies if a Customer's supply of Electricity is metered at a Primary Voltage and the Customer supplies Transformation.
Definitions	1. Billing Demand The Billing Demand will be the highest kW Demand in the Billing Period. 2. Billing Period A month between regular meter readings, provided that where meter readings are not available or are delayed for any reason BC Hydro may vary the number of days in the Billing Period.

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Special Conditions	1. Demand and Energy Charge Pricing The Demand and Energy Charge Pricing over the period that these Rate Schedules are in effect is provided in the following table. No Demand Charge shall apply to Customers receiving service under these Rate Schedules for the first six years of the rate, from April 1, 2020 to March 31, 2026. As of April 1, 2026 the Demand Charge will be transitioned to the Rate Schedules 1600, 1601, 1610 and 1611 (Large General Service) Demand Charge over six years and completed by March 31, 2032, unless otherwise authorized by the Commission. The Energy Charge will be subject to general rate increases during the period of April 1, 2020 to March 31, 2026. As of April 1, 2026 the Energy Charge will be transitioned to the Rate Schedules 1600, 1601, 1610 and 1611 (Large General Service) Energy Charge over six years, to March 31, 2032, unless otherwise authorized by the Commission.

Effective Date	Fiscal Year	Demand Charge	Energy Charge
April 1, 2020	F2021	$0	9.24 ¢ per kWh
April 1, 2021	F2022	$0	F2021 Energy Charge x RRA increase
April 1, 2022	F2023	$0	F2022 Energy Charge x RRA increase
April 1, 2023	F2024	$0	F2023 Energy Charge x RRA increase
April 1, 2024	F2025	$0	F2024 Energy Charge x RRA increase
April 1, 2025	F2026	$0	F2025 Energy Charge x RRA increase
April 1, 2026	F2027	F2026 Demand Charge + [F20~~32~~27 LGS Demand Charge ~~- F2026 Demand Charge]~~ ÷ 6]	F2026 Energy Charge + [F20~~32~~27 LGS Energy Charge~~- F2026 Energy Charge~~] ÷ 6
April 1, 2027	F2028	F2027 Demand Charge + [F20~~32~~28 LGS Demand Charge-F202~~6~~7 Demand Charge] ÷ ~~6~~5	F2027 Energy Charge + [F20~~32~~28 LGS Energy Charge-F202~~6~~7 Energy Charge] ÷ ~~6~~5
April 1, 2028	F2029	F2028 Demand Charge + [F20~~32~~29 LGS Demand Charge-F202~~6~~8 Demand Charge] ÷ ~~6~~4	F2028 Energy Charge + [F20~~32~~29 LGS Energy Charge-F202~~6~~8 Energy Charge] ÷ ~~6~~4
April 1, 2029	F2030	F2029 Demand Charge + [F203~~2~~0 LGS Demand Charge-F202~~6~~9 Demand Charge] ÷ ~~6~~3	F2029 Energy Charge + [F203~~2~~0 LGS Energy Charge-F202~~6~~9 Energy Charge] ÷ ~~6~~3
April 1, 2030	F2031	F2030 Demand Charge + [F203~~2~~1 LGS Demand Charge-F20~~26~~30 Demand Charge] ÷ ~~6~~2	F2030 Energy Charge + [F203~~2~~1 LGS Energy Charge-F20~~26~~30 Energy Charge] ÷ ~~6~~2

		April 1, 2031	F2032	F2032 LGS Demand Charge	F2032 LGS Energy Charge
	2. Metering Metering Equipment with both Demand and Energy measurement capability will be installed. Only charging of Electric Fleet Vehicles or Vessels and related equipment will be served under this rate schedule. 3. Migration Customers taking service under these Rate Schedules will not be migrated to Rate Schedules 1300, 1301, 1310, or 1311 (Small General Service) or Rate Schedules 1500, 1501, 1510 or 1511 (Medium General Service) due to changes in load size. BC Hydro will review this Special Condition in its evaluation report planned for the third year after which the rate commences. 4. Concurrent Service under other Rate Schedules BC Hydro will not provide service to equipment installed for service under these Rate Schedules under any other rate schedule except Rate Schedule 1901.				
Rate Rider	The Deferral Account Rate Rider as set out in Rate Schedule 1901 applies to all charges payable under these Rate Schedules, before taxes and levies.				
Rate Increase	Effective April 1, 2020 the rates under these Rate Schedules include an interim rate increase of 0.72% before rounding, approved by BCUC Order No. G-XX-XX.				

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Attachment 2

Draft Order

bcuc
British Columbia
Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

ORDER NUMBER
G-xx-xx

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

British Columbia Hydro and Power Authority (BC Hydro)
Fleet Electrification Rate Application (the Application)

BEFORE:
Commissioner
Commissioner
Commissioner

on Date

ORDER

WHEREAS:

A. On August 7, 2019, BC Hydro filed an Application which seeks an order approving Rate Schedules 164x -Overnight Rate (150 kW and over) and Rate Schedules 165x – Demand Transition Rate (150 kW and over) as shown in the rate schedules contained in Appendix B of the Application;

B. Both rates are proposed to be optional and available for charging of Electric Fleet Vehicle and Vessels. BC Hydro has had requests from potential electric fleet customers for Large General Service rate options that would help mitigate the impact of demand charges to support the electrification of bus fleets;

C. The Overnight Rate does not have a demand charge during the overnight period. This rate is intended for depot and overnight charging of fleet vehicles and vessels. The Demand Transition Rate provides demand charge relief for a fixed period of years after which it transitions to the Large General Service rate. The Demand Transition Rate is intended for in route and daytime charging of fleet vehicles and vessels;

D. BC Hydro states that the Overnight Rate is modelled to fully recover BC Hydro's embedded cost of service and that the Overnight Rate, as proposed, may also provide economic benefits to all ratepayers. BC Hydro also states that the Demand Transition Rate, as proposed, is justified on an economic basis and will provide benefits to all ratepayers over time;

E. BC Hydro has consulted with customers who could potentially be eligible for the proposed rate options. Additionally BC Hydro held a workshop on May 28, 2019 with customers and stakeholder groups to review rate design options for fleet electrification in order to gather feedback to inform its proposals. BC Hydro has indicated that there is strong customer support for its proposed rate options.

NOW THEREFORE the Commission, pursuant to sections 58 to 61 of the *Utilities Commission Act*, orders as follows:

1. The RS 164x - Overnight Rate (150 kW and Over), as shown in Appendix B of the Application, is approved effective April 1, 2021.

2. The RS 165x – Demand Transition Rate (150 kW and Over), as attached to BC Hydro's Reply Argument, is approved effective April 1, 2020 and will terminate effective March 31, 2032.

3. BC Hydro shall submit a three year evaluation report for the Demand Transition Rate by December 30, 2023 and a three year evaluation report for the Overnight Rate by December 30, 2024.

4. BC Hydro is directed to file updated tariff sheets regarding the Overnight Rate and Demand Transitiuon Rate proposal within 15 business days of the date of this Order.

DATED at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)
Commissioner

Attachment Options