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January 15, 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. 1598990
British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Fiscal 2020 to Fiscal 2021 Revenue Requirements Application
Rebuttal Evidence

BC Hydro writes in accordance with BCUC Order No. G-312-19 to provide its Rebuttal Evidence.

For further information, please contact Chris Sandve at 604-974-4641 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,

(for) Fred James
Chief Regulatory Officer

cs/rh

Enclosure

BC Hydro
Power smart

BC Hydro Fiscal 2020 to Fiscal 2021
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Rebuttal Evidence of
British Columbia Hydro and Power Authority

January 15, 2020

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1 Introduction

BC Hydro has prepared this Rebuttal Evidence to respond to aspects of the evidence of InterGroup Consultants (**InterGroup**), filed by the Association of Major Power Customers (**AMPC**).

We have focussed on the aspects of their evidence that relate to BC Hydro's revenue requirements for the Test Period and will reserve comments on some aspects until final submissions. In addition, we are not able to verify all of the numbers and calculations provided in the evidence, in the time provided. As such, our silence on a particular aspect of evidence should not be interpreted as agreement or verification.

2 BC Hydro Response to AMPC Evidence

Q1. Before addressing InterGroup's specific recommendations, do you have any general comments?

A1. Yes. We have four general comments:

First, InterGroup's basis for requesting updates to BC Hydro's forecast revenue requirements is inconsistent. For example, recommendation 14 states that "BC Hydro should update its finance charge forecasts for relevant known conditions and values to ensure the best available data is used to set rates" while Recommendation 17 states that the preferred outcome is to "retain the 3.83% pension discount rate as identified and available for testing as part of the Original RRA Application, for both the current and non-current pension costs in the test years." In general, InterGroup recommends updates that would reduce forecast revenue requirements while recommending against updates that would increase

forecast revenue requirements. BC Hydro's approach was to apply transparent principles.

Second, many of InterGroup's recommendations relate to issues that do not affect the Test Period revenue requirements. In particular, InterGroup has put forward recommendations with regards to rate design and return on equity in future test periods (i.e., Recommendations 4, 5, 6, 11 and 12). In BC Hydro's view, it would not be appropriate for the BCUC to make determinations on these matters as part of this proceeding and accordingly, we have not addressed these recommendations in our response. While we do not intend to address issues with regards to rate design in this rebuttal evidence, it is important to note that, contrary to AMPC's evidence[1], BC Hydro already completes and files a Fully Allocated Cost of Service Study (**FACOS**) each year, for rate design purposes. BC Hydro's FACOS studies use methodologies that have been reviewed and approved by the BCUC, most recently as part of the 2015 Rate Design Application, in which AMPC participated.[2]

Third, AMPC's evidence addresses the transparency of the information put forward in this proceeding.[3] Through the Application and subsequent responses to information requests, BC Hydro has clearly identified the cost increases and decreases that make up the change in its revenue requirements. With regards to uncontrollable costs, there are examples of increases (e.g., storm restoration costs) as well as decreases (e.g., the accounting adjustment related to the recognition of revenues under the Skagit River Agreement). As discussed further in our response to question Q2

1 Exhibit C11-13, AMPC response to MOVEUP IR 1.1.

2 Refer to section 2.2 of BC Hydro's 2019 Cost of Service Study for a regulatory history of BC Hydro's cost of service studies (https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/regulatory-filings/reports/00-2019-03-29-bchydro-f2019-cost-of-service-study-ff.pdf) .

3 Exhibit C11-13, AMPC response to MOVEUP IR 2.3.

below, BC Hydro's response to changes outside of its control has been to limit our revenue requirements through careful planning and prioritization.

Fourth, BC Hydro has identified some errors in InterGroup's evidence. These errors are discussed further in BC Hydro's response to question Q10 below.

Q2. InterGroup recommends that the BCUC "recognize and indicate a high priority to addressing issues of industrial rate competitiveness" (Recommendation 1). What is your response?

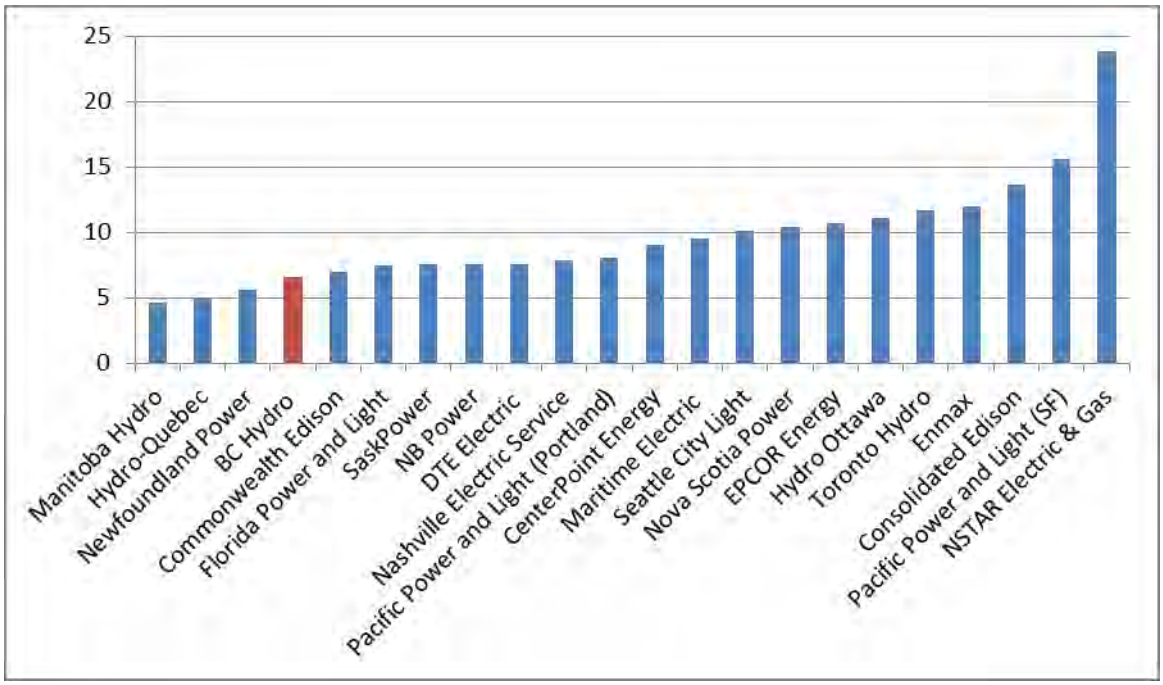
A2. BC Hydro agrees that industrial rate competitiveness is important.

Appendix A provides BC Hydro's Electricity Rate Comparison Annual Report No. 12, which was filed with the BCUC on December 9, 2019. As shown in Table 8 of that report, BC Hydro's average electricity prices for Large Power Customers[4] are fourth lowest amongst the 22 utilities surveyed.

The only utilities with average electricity prices for Large Power Customers that are lower than BC Hydro are Manitoba Hydro, Hydro-Quebec and Newfoundland Power. In other words, the analysis provided in Figure 4-1 of AMPC's Evidence compares BC Hydro against the three lowest average prices in the peer group and excludes the average prices for the remaining 18 utilities in the peer group. Figure 1 below provides the same comparison for the year 2019, with all 22 utilities included.

[4] Defined as customers with 50,000 kW power demand, 30.6 GWh monthly consumption, 120 kV supply voltage and 85 per cent load factor, consistent with AMPC's evidence.

Figure 1 Comparison of average electricity prices for Large Power Customers (cents per kWh)



We recognize that many of our large industrial customers face challenging economic conditions and highly competitive markets. In addition to limiting our revenue requirements through careful planning and prioritization[5], we have taken steps to retain and increase load by providing options to help customers be more competitive. For example, in October 2019, BC Hydro submitted an application to seek approval of the Freshet Rate and the Incremental Energy Rate Pilot.[6]

[5] For examples refer to: Chapter 4, section 4.3 which describes the steps BC Hydro has taken to reduce IPP energy costs; Chapter 5, section 5.5 of which explains that controllable cost pressures were absorbed within existing budgets and that BC Hydro has achieved a number of reductions in controllable costs; Chapter 6, section 6.3 which describes our Enterprise Capital Planning Process which appropriately balances affordability and system performance; and Chapter 10, section 10.4 which describes BC Hydro's moderation approach to demand side management expenditures.

[6] For further information refer to: https://www.bcuc.com/ApplicationView.aspx?ApplicationId=722.

Q3. InterGroup recommends that the BCUC find that absent the redirection of Deferral Account Rate Rider funds into a Government-directed Return on Equity, "customers would have seen a material rate reduction in fiscal 2020, all else being equal" (i.e., Recommendation 2). What is your response?

A3. BC Hydro has put forward a reasonable proposal to recover its forecast revenue requirements in the Test Period and has compared that proposal against a number of different scenarios.[7]

Contrary to InterGroup's statements in section 4.2 of their evidence, there has been no direction of Deferral Account Rate Rider (**DARR**) funds into a government-directed Return on Equity. Rather, BC Hydro is proposing that the DARR be reduced to 0 per cent in both fiscal 2020 and fiscal 2021 and that the net credit balance in the Cost of Energy Variance Accounts be returned to customers over the Test Period. This means that no DARR funds are being collected in fiscal 2020 and fiscal 2021.

The proposed net bill increase of 1.76 per cent in fiscal 2020 and the proposed net bill decrease of 0.99 per cent in fiscal 2021 reflect BC Hydro's proposed general rate changes as well as the reduction of the DARR to 0 per cent. In other words, if the DARR had remained at 5 per cent and the revenue collected was recorded in the Cost of Energy Variance Accounts, this would have offset the required general rate changes and the resulting net bill changes would have been the same. This is shown in Table 1 below.

[7] Refer to BC Hydro's response to BCUC IR 3.296.3.

Table 1 Revenue Requirement (Proposed vs. DARR at 5 per cent)

Table 1

	($ million)	App. A Reference	Proposed		If DARR remained at 5%	
			Fiscal 2020	Fiscal 2021	Fiscal 2020	Fiscal 2021
1	Total Revenue Requirement		5,223.9	5,198.4	5,223.9	5,198.4
2	DARR Revenue	1.0 L22	-	-	248.8	247.5
3	Rate Revenue Requirement	1.0 L23	5,223.9	5,198.4	4,975.2	4,950.8
4	Total Revenue Collected	L2 + l3	5,223.9	5,198.4	5,223.9	5,198.4
5	General Rate Increase [4]	1.0 L30	6.85%	(0.99%)	1.76%	(0.99%)
6	Deferral Account Rate Rider (DARR)	1.0 L31	-	-	5.00%	5.00%
7	Net Bill Increase	1.0 L32	1.76%	(0.99%)	1.76%	(0.99%)

[4] Offsetting the requested general rate increase of 6.85 per cent with the requested reduction of the DARR from 5 per cent to 0 per cent reduces the net bill increase by more than 5 per cent because the DARR is applied after general rate increases. The following equation demonstrates how this works:

Start: Bill with 5 per cent DARR: $105.00.
Adjust: DARR from 5 per cent to 0 per cent: $100.00.
Adjust: General Rate Increase of 6.85 per cent: $106.85.
$106.85/$105.00 = 1.0176.

InterGroup views BC Hydro's rate proposals for the Test Period to be an "unfortunate outcome" for ratepayers and seems to prefer the structure of the previous 10 Year Rates Plan. BC Hydro's proposals in the Test Period, following the outcomes of Phase 1 of the Comprehensive Review (including the write-off of the Rate Smoothing Regulatory Account), have resulted in proposed and forecast bill impacts that are significantly lower than the 2.6 per cent annual bill impacts proposed under the previous 10 Year Rates Plan for the fiscal 2020 to fiscal 2024 period.

Q4. InterGroup recommends that the BCUC "direct BC Hydro to simplify the regulatory and deferral accounts as a long-term priority, to help ensure BC Hydro's costs are fully regulated, and are transparent to the regulator and impacted parties" (Recommendation 7). What is your response?

A4. InterGroup does not explain precisely what it is seeking beyond an order to "simplify the regulatory and deferral accounts as a long-term priority …". In response to information requests, AMPC suggests that the scope of BC Hydro's regulatory accounts should be narrowed but does not identify any specific accounts where a revision in scope may be warranted.

BC Hydro's approach to Regulatory Accounts is transparent. The information provided in the Application, and in response to information requests[8], is consistent with the information requirements established by the BCUC. The BCUC's Deferral Account Checklist[9] states:

> "The purpose of this Regulatory Account Filing Checklist is to assist regulated entities in the preparation of an application requesting deferral or regulatory account treatment (both referred to as regulatory account treatment for the purpose of this checklist) in order to facilitate an efficient review of these applications by the British Columbia Utilities Commission (Commission).
>
> The Regulatory Account Filing Checklist is intended to provide guidance regarding the information a regulated entity is expected to provide when applying for regulatory account treatment. Applications for regulatory account treatment filed either as a standalone application or as part of a larger application should be prepared in accordance with this checklist.

[8] For examples refer to BC Hydro's responses to BCUC IRs 3.294.3, 3.300.5, 3.301.1, 3.301.5, 3.301.5.1 and 3.301.6.2.

[9] For further information refer to: https://www.bcuc.com/Documents/Guidelines/2017/05-03-2017_RegulatoryAccountFilingChecklist.pdf.

> This checklist is applicable to regulated entities that are requesting approval to either establish a new regulatory account or to modify or change the scope of a previously approved regulatory account."

Further, the Application includes information on the history of each regulatory account[10] as well as the costs and recoveries associated with each account so that the BCUC and interveners can identify the amounts included in the revenue requirements and rates.[11] BC Hydro also provides eight years of actual and forecast balances for each account.[12]

BC Hydro's accounts are all established and maintained in accordance with accounting standards and BCUC Orders. Determinations with regards to regulatory and deferral accounts should be made on an account by account basis, with reference to the considerations in identified in the BCUC's Deferral Account Checklist.

BC Hydro is proposing to close four regulatory accounts in the Test Period and has identified an additional four accounts that may be able to be closed by fiscal 2024.[13] BC Hydro will propose to close accounts when the balances are recovered and the accounts are no longer required.

BC Hydro acknowledges that regulatory accounts and regulatory accounting are not simple. BC Hydro believes that its approach of providing extensive information in this regard helps to enhance the understanding of all parties.

[10] Refer to Chapter 7, sections 7.7 and 7.8 of the Application.
[11] Refer to Schedule 2.1 and Schedule 2.2 of Appendix A of Exhibit B-19.
[12] Refer to Table 7-2 of Chapter 7 of the Application and to Table D-2 of Appendix D of Exhibit B-19.
[13] Refer to Table 7-9 of Chapter 7 of the Application and BC Hydro's response to BCUC IR 1.40.3.1.

Q5. In response to information requests, InterGroup provided information about the deferral accounts used by some other utilities.[14] Have you had an opportunity to verify InterGroup's discussion?

A5. BC Hydro is not able complete a comprehensive assessment of this information, in the time provided for this rebuttal evidence. However, we would like to make the BCUC aware of the following two points:

First, mechanisms to defer load variances are common amongst utilities. A November 12, 2019 report from S&P Global Market Intelligence on Adjustment Clauses states:

> "Over the ensuing years, the use of adjustment clauses has expanded greatly. Adjustment clauses are generally reserved for expenses that are outside the control of the utility or are required by law or rule. Some jurisdictions have approved the use of adjustment clauses for recovery of environmental compliance, energy efficiency and conservation program expenses, transmission charges allocated to the utility by the Federal Energy Regulatory Commission, and/or expenses related to meeting renewable resource requirements. Such mechanisms have also been approved to pass through to customers all or a portion of the margins that the company receives from selling excess power or pipeline capacity in the open market through off-system sales.
>
> Another type of adjustment clause, a decoupling mechanism, enables utilities to offset the effect on revenues of fluctuations in sales caused by customer participation in energy efficiency programs, deviations from "normal" temperature patterns, or economic conditions. [Regulatory Research Associates (RRA)] considers a decoupling mechanism that adjusts for all three of these factors to be a "full" decoupling mechanism and designates those that address only one or two of these factors as "partial" decoupling mechanisms. RRA also assigns a partial decoupling tag to those mechanisms that include rate caps or other limitations.

[14] Refer to AMPC's responses to CEC IRs 5.1 and 5.2.

> More recently and with greater frequency, commissions have approved mechanisms that permit the costs associated with the construction of new generation capacity or delivery infrastructure to be reflected in rates, effectively including these items in rate base without a full rate case. In some instances, these mechanisms may even provide the utilities a cash return on construction work in progress. As shown in the top image on the next page, these types of mechanisms are more common in the Eastern U.S. and less so in the West.
>
> As shown in the graphic on the next page, certain types of adjustment clauses are more prevalent than others. For example, those that address electric fuel and gas commodity charges are in place in all jurisdictions. Also, about two-thirds of all utilities have riders in place to recover costs related to energy efficiency programs, and roughly half of the utilities utilize some type of decoupling mechanism."

BC Hydro has provided the full report from S&P Global Market Intelligence as Appendix B. This appendix is being filed as a confidential attachment because it was obtained from a subscription service; however, it is available to anyone who pays the required subscription fee. It includes a table showing a large sample of utilities and whether those utilities have full or partial decoupling mechanisms.

In addition, by Order No. G-110-12, the BCUC approved a revenue variance account for Fortis BC Inc., to capture any variances between forecast and actual sales revenue. By Order No. G-139-14, the BCUC discontinued this specific account but maintained the same treatment by ordering that revenue variances be deferred through the flow-through mechanism as part of FortisBC Inc.'s 2014-2019 performance-based ratemaking plan. In its Decision to approve the revenue variance account, the BCUC stated:

> "The Commission Panel notes that these accounts for the most part represent variances in current period expenses which are proposed to be trued up in the short-term. In the Panel's view, the creation of these deferral accounts represents a reasonable

> attempt to manage the uncertainty and unpredictability associated with accounts which are largely uncontrollable in nature."[15]

Second, in response to AMPC IR 1.6.5, BC Hydro did provide information on the number of regulatory accounts at a sample of other utilities. That sample included Hydro One and Ontario Power Generation, which have 20 and 23 accounts, respectively. These utilities were not included in InterGroup's analysis. In the Application, BC Hydro is proposing to close four regulatory accounts which would bring the total number of accounts to 25 and has identified four additional accounts that may be closed by fiscal 2024.

Ultimately, BC Hydro believes it is important to look at the reason for each regulatory account, with regard to the BCUC's guidelines, rather than just tallying the numbers.

Q6. InterGroup recommends that "[c]oncerns tied solely to the magnitude of regulatory account balances should be viewed with caution" (Recommendation 8). What is your response?

A6. BC Hydro agrees with this recommendation. The amortization period for each regulatory account should reflect the nature of the costs in the account. Once an appropriate amortization period for an account is established, adjustments should only be made in response to changes in the nature of the costs recorded in the account.

For example, a significant portion of the net credit balance in the Cost of Energy Variance Accounts is due to a one-time accounting adjustment stemming from a change in applicable accounting rules which resulted in a retroactive decrease in unearned revenues. [16] The effect of this is that had the

[15] Refer to BCUC Order No. G-110-12, page 115 and BCUC Order No. G-139-14, page 228.
[16] For further information refer to BC Hydro's response to BCUC IR 1.148.5.

change in accounting rules been in place in prior years, ratepayers in those years would have paid less. Accordingly, BC Hydro is proposing to refund the net credit balance over the Test Period, which allows ratepayers to realize the benefit immediately.

BC Hydro agrees with InterGroup that adjustments to the amortization period of a regulatory account solely in response to concerns regarding the specific account balance or the total balance in all regulatory accounts could create intergenerational inequity.

Q7. InterGroup recommends that "BC Hydro should update its Test Year forecasts to include F2019 actuals in its Powerex Net Income forecast methodology and adjust rates accordingly" (Recommendation 13). What is your response?

A7. Forecast Trade Income is based on a five-year average and ratepayers receive the benefit of actual Trade Income through the use of the Trade Income Deferral Account. BC Hydro continues to believe that the five-year average approach is appropriate and expects to include fiscal 2019 actual Trade Income in the five-year average calculation for forecasting Trade Income in its next Revenue Requirements Application.

BC Hydro limited the scope of the Evidentiary Update to targeted adjustments primarily related to fiscal 2019 actuals and the new Cost of Energy forecast. In BC Hydro's view, considering the historical range of actual Trade Income, the current Trade Income forecast of $120.6 million, based on fiscal 2014 to fiscal 2018 actuals, continued to be a reasonable estimate at the time the Evidentiary Update was prepared. In contrast, BC Hydro updated the Cost of Energy forecast in the Evidentiary Update because changing conditions meant that the original forecast was no longer reasonable.

Ratepayers are receiving the benefit of actual fiscal 2019 Trade Income because BC Hydro updated the forecast amortization of its regulatory accounts over the Test Period to account for actual fiscal 2019 closing balances. This means that ratepayers will receive the benefit of the actual fiscal 2019 Trade Income through the refund of the net balance of the Cost of Energy Variance Accounts over the Test Period.

Q8. InterGroup recommends that the finance charge forecasts should be updated for relevant known conditions and values (Recommendations 14, 15, 16). What is your response?

A8. The Evidentiary Update used the most recent interest rates forecast available to BC Hydro from the Government of B.C., at the time the forecast was prepared. This forecast was as of January 4, 2019. In BC Hydro's view, the interest rates forecast used for the Evidentiary Update is reasonable. Continuing to update finance charge forecasts is impractical given that markets change on a daily basis. Through the use of regulatory accounts, ratepayers will ultimately pay the actual costs over time.

Q9. InterGroup recommends that "the BCUC should strive to encourage consistency in treatment between the experienced gain for MSP premiums and the pension plan discount rate, in terms of known and projected information at a given point in time." It indicates that the "preferred outcome" is that the discount rate used to calculate pension costs should not be updated or alternatively, that the gain related to MSP premiums be included in the Test Period (Recommendation 17). What is your response?

A9. BC Hydro's treatment of both the pension plan discount rate and the gain from MSP premiums was consistent with accounting rules.

BC Hydro's treatment of the amortization of the Non-Current Pension Costs Regulatory Account is in accordance with BCUC Order No. G-47-18.

InterGroup's recommendation would contravene BCUC Orders and would be inconsistent with accounting rules.

In accordance with accounting rules, the gain related to the elimination of MSP premiums was not able to be recognized until the elimination of MSP premiums became law, which occurred on May 16, 2019. As a result, the gain was recognized in the first quarter of fiscal 2020 and included in the Non-Current Pension Costs Regulatory Account. BCUC Order No. G-47-18 requires that transfers to the Non-Current Pension Costs Regulatory Account commence amortization starting in the next test period.

In its Decision on the Previous Application, the BCUC directed BC Hydro to use the discount rate in effect at the time the forecast is prepared to determine post-employment benefit costs and liabilities. The discount rates impact BC Hydro's forecast for both non-current pension costs and current service pension costs.

For non-current service costs, the Application used the September 30, 2018 discount rate to forecast actuarial gains/losses in fiscal 2019, which was the discount rate in effect at the time the Application was prepared. In the Evidentiary Update, the actual non-current pension costs for fiscal 2019 were known and therefore, BC Hydro updated its Application for these results.

For current service costs, the Application also used the September 30, 2018 discount rate to forecast fiscal 2020 and fiscal 2021 current service pension costs, which was the discount rate in effect at the time the Application was prepared. In the Evidentiary Update, BC Hydro updated the discount rate to the March 31, 2019 discount rate because, in accordance with accounting rules, current service costs for fiscal 2020 are determined based on the

discount rate at the start of the fiscal year. To be consistent, BC Hydro also used the March 31, 2019 discount rate to forecast fiscal 2021 current service costs in the Evidentiary Update.

Q10. InterGroup states that there is "significant basis for concern that BC Hydro's depreciation rates do not reflect reliable estimates of asset life" and that the BCUC should direct BC Hydro to complete a full depreciation study prior to the next Revenue Requirements Application. What is your response?

A10. BC Hydro has no reason to believe its depreciation rates are unreliable. BC Hydro has received unqualified audit opinions on its financial statements, demonstrating that BC Hydro's third party financial statement auditors consider depreciation expense to be fairly stated in all material respects.[17]

BC Hydro performed a review of asset useful lives in fiscal 2010. The review indicated that the aggregate impact of the potential life changes on depreciation expense was less than $1 million.[18]

BC Hydro complies with accounting rules regarding useful life review by considering whether there have been any changes in the factors that affect the useful lives of asset classes that are expected to have a material impact on BC Hydro's depreciation expense. Management annually considers whether there are any impaired assets, assets that are no longer being used or significant write-offs of assets in-service that have been recorded.[19]

[17] BC Hydro's auditor has issued their opinion stating "financial statements present fairly, in all material respects, the consolidated financial position of the Entity as at March 31, 2019, March 31, 2018 and April 1, 2017 and its consolidated financial performance and its consolidated cash flows for the years ended March 31, 2019 and March 31, 2018 in accordance with International Financial Reporting Standards (**IFRS**)".

[18] Refer to BC Hydro's response to AMPC IR 2.41.2.

[19] Refer to BC Hydro's response to AMPC IR 2.41.9.

In addition, InterGroup provides a schedule of asset classes that may warrant life extensions which identifies BC Hydro's useful lives and the useful life ranges of peers.[20] BC Hydro's asset lives are within the range shown for the peer utilities for nine of the 10 identified asset classes.

BC Hydro currently has no indication that asset life expectations are incorrect in a way that would have a material impact on depreciation expense. BC Hydro believes that the cost and effort of performing the study would outweigh the benefits.

Notwithstanding the above, if the BCUC were to direct BC Hydro to conduct a depreciation study prior to the next Revenue Requirements Application, as suggested by InterGroup, BC Hydro expects that it would not have sufficient time to complete the study in time to inform its next application. The previous study took approximately one year to complete from the completion of the Terms of Reference to the final report.

Q11. Have you identified any specific factual errors in InterGroup's evidence that you wish to correct?

A11. Yes. We have identified the following errors in InterGroup's evidence:

- On page A-9, Appendix A, InterGroup indicates that "BC Hydro expects to increase the DARR rate in subsequent test periods, starting in F2022." and references Exhibit B-5, BCUC IR 1.142.2.1.

  In BC Hydro's response to BCUC IR 1.142.2.1, BC Hydro indicates that "BC Hydro expects to propose to return to the DARR table mechanism approved by the BCUC in its Decision on the Fiscal 2009 to Fiscal 2010 Revenue Requirements Application in the subsequent test period starting in fiscal 2022" but BC Hydro does not indicate that it expects to

[20] Refer to footnote 127 of page 54 of AMPC's Evidence.

increase the DARR rate. The DARR table mechanism approved by the BCUC could result in both increases and decreases to the DARR rate in future years;

- In Table 5-9: Pension Cost Impact on Test Years – Original Plan compared to Evidentiary Update ($ millions), the 'Update' column in the table has incorrect dollar amounts for gross current service pension costs in fiscal 2020 and fiscal 2021. The correct amounts are $130.0 million in fiscal 2020 and $132.5 million in fiscal 2021, respectively, instead of the amounts of $119.4 million and $122.7 million, stated in the table;
- In Table 5-11: Review of Some BC Hydro Depreciation Account Average Service Lives, the 'Retirement Experience' column for the Dam Embankment asset class indicates "75 years retirement experience with 99.75% surviving to year 75 and minimal actual retirements seen throughout the history band." The 99.75 per cent figure is incorrect. The correct figure is 89.31 per cent which means that over 10 per cent of Dam Embankment assets are being retired before 75 years;
- On page 46, InterGroup indicates that "In previous hearings, it is noted that BC Hydro does not appear to have updated its pension discount rate in its Evidentiary Update even though it had requested an updated overall rate for March 31, 2016 and the Evidentiary Update was filed months later on August 17, 2016."

BC Hydro filed its Fiscal 2017 to Fiscal 2019 Revenue Requirements Application on July 28, 2016. As this application was filed after March 31, 2016, it already included updated discount rates as at March 31, 2016. Therefore, BC Hydro did not need to update pension

discount rates in the Evidentiary Update that was filed on August 17, 2016.

In contrast, the Fiscal 2020 to Fiscal 2021 Revenue Requirements Application was filed in February 2019, when March 31, 2019 discount rates were not available. Therefore, when BC Hydro filed its Evidentiary Update on August 26, 2019, pension discount rates were updated based on the March 31, 2019 discount rates;

- On page 40, InterGroup estimates "By end of fiscal 2021 the hedged portion of the long-term debt forecast to be about 31%". InterGroup's calculation of 31 per cent is incorrect as it is based on the total notional value of hedges that have been unwound by the end of fiscal 2021 divided by BC Hydro's forecast total long-term debt outstanding at the end of fiscal 2021. InterGroup's calculation considers that all issued long-term debt is unhedged debt. As BC Hydro issues its long-term debt at fixed rates, it is not exposed to volatility in market interest rates on long-term debt issuances once issued and while they remain outstanding. BC Hydro has hedged approximately 71 per cent of its total forecast borrowing requirements for fiscal 2020 and fiscal 2021; and
- On page 42, InterGroup indicates that "BC Hydro's average long-term forecast debt rate is 3.46% for F2020 and 3.76% for F2021. This amount includes the hedged long-term debt." The second sentence is incorrect. The rates quoted by InterGroup are 10-year forecast rates from the Government of B.C., which BC Hydro uses to forecast interest on 10-year future unhedged debt issuances. These rates do not reflect hedged long-term debt. Market forward rates are used to forecast interest on the hedged debt.

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BC Hydro Fiscal 2020 to Fiscal 2021
Revenue Requirements Application

Rebuttal Evidence of
British Columbia Hydro and Power Authority

Appendix A

BC Hydro's Electricity Rate Comparison
Annual Report No. 12

BC Hydro
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Ken Peterson
Board Chair
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Via email: MEM.Minister@gov.bc.ca

December 9, 2019

Hon. Michelle Mungall
Minister of Energy and Mines and
Petroleum Resources
PO Box 9060 Stn Prov Govt
Victoria BC V8W 9E3

Dear Minister Mungall:

RE: British Columbia Hydro and Power Authority (BC Hydro)
Electricity Rate Comparison Annual Report No. 12

BC Hydro writes to file its Electricity Rate Comparison Annual Report (**Report**) which provides a comparison of BC Hydro's monthly bills and average prices for residential, commercial and industrial customers with other North American utilities as of April 1, 2019 (**Attachment A**). The comparison reflects BC Hydro's 1.76 per cent net bill increase that was effective on April 1, 2019. The Report is prepared in response to *Clean Energy Act* section 8(4), which states that:

> "The authority must provide to the minister, in accordance with the regulations, an annual report comparing the electricity rates charged by the authority with electricity rates charged by public utilities in other jurisdictions in North America, including an assessment of the extent to which the authority's electricity rates continue to be competitive with those other rates."

This Report adheres to the Province of British Columbia's Rate Comparison Regulation (Ministerial Order No. M167) (**Attachment B**). The Rate Comparison Regulation requires that the Report provide a comparison of BC Hydro's monthly electricity bills with at least one public utility in each of at least 15 other North American jurisdictions, including all of the following: the provinces of Alberta, Quebec, Ontario and Manitoba; and the states of Washington, Oregon and California. The comparison uses the previous year's applicable rates for residential, commercial and industrial customers in Canadian funds. In addition, it provides the previous five years of applicable rates for BC Hydro.

The Report consists of information taken from the Hydro-Quebec rate survey report titled "*Comparison of Electricity Prices in Major North American Cities*". The Hydro-Quebec report is prepared each year. Monthly bills and average prices are calculated and submitted to Hydro-Quebec by the participating utilities, including

BC Hydro, using the rates that are in place as of April 1 of that current year. Accordingly, some of the rates used may be interim rates that are approved and in effect at that time.

The 2019 Report indicates that BC Hydro's monthly bills and average prices for all power categories are in the first (i.e., lowest rate) quartile of the public utilities surveyed. On average, BC Hydro's residential rates, small power rates (defined as less than 100 kilowatts (**kW**)) and medium power rates (defined as 100 kW to 5,000 kW) are third lowest. BC Hydro's large power rates (defined as greater than 5,000 kW) are fourth lowest. Applicable BC Hydro rates for each category are listed in Table 11 of Attachment A.

For further information, please contact Fred James at 604-623-4317 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,

Ken Peterson
Board Chair

ls/rh

Enclosure

Copy to:

British Columbia Utilities Commission
Attention: Mr. Patrick Wruck
Commission Secretary
Commission.secretary@bcuc.com

Ministry of Energy and Mines
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BC Hydro Electricity Rate Comparison
Annual Report

Report No. 12

Attachment A

Rates as at April 1, 2019

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List of Tables

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Monthly Bills and Average Prices as at April 1, 2019

This is the twelfth Electricity Rate Comparison Annual Report (**Report**) prepared by BC Hydro in response to the *Clean Energy Act* section 8(4) and adheres to the Province of British Columbia's Rate Comparison Regulation, issued by Ministerial Order No. M167[1]. The Report provides a comparison of BC Hydro's monthly bills and average prices for residential, commercial and industrial customers with other North American utilities, including those in Alberta, Quebec, Ontario, Manitoba, Washington, Oregon and California in Canadian funds.[2]

Each year BC Hydro participates in the Hydro-Quebec rate comparison survey, submitting bill calculations based on electricity prices that are in place as of April 1 of the current year, and which may reflect approved interim rate increases. Hydro-Quebec compiles the information and provides the monthly bills and average prices for 12 Canadian utilities and 10 American utilities in an annual report. The Report provides survey information taken from the Hydro-Quebec report entitled *Comparison of Electricity Prices in Major North American Cities*.[3]

The Hydro-Quebec report provides the monthly bills, excluding taxes and non-utility levies, calculated for specific consumption points for four different customer segments: residential, small power, medium power and large power. The average price is also calculated, for each customer segment and specific consumption point, by dividing the monthly bill by the amount of monthly energy consumption. For example, if an electric bill for 1,000 kWh was calculated to be a monthly amount of $50, the average price would be $50 divided by 1,000 kWh, or 5 cents/kWh.

[1] The first Electricity Rate Comparison Annual Report was issued on June 10, 2009 in response to Ministerial Order No. M114, which was subsequently replaced by Ministerial Order No. M167.

[2] Monthly bills and average prices for American utilities have been converted to Canadian dollars using the exchange rate as at 12 p.m. Eastern on April 1, 2019 of $0.7498 (C$1 = US$0.7498). The Canadian dollar had depreciated by 3.21 per cent relative to the U.S. dollar since April 1, 2018.

[3] Hydro Quebec Comparison of Electricity Prices in Major North American Cities Report.

The monthly bills for customers are presented in Table 1, Table 2, Table 3 and Table 4. The average prices for customers are presented in Table 5, Table 6, Table 7 and Table 8. BC Hydro's monthly bills and average prices over the past five years are summarized in Table 9 and Table 10.

The Hydro-Quebec residential segment includes calculations for BC Hydro's residential customers. The Hydro-Quebec small power segment includes calculations for BC Hydro's general service under 100 kW customers, while the medium power segment includes calculations for BC Hydro's general service 100 kW to 5,000 kW customers. Lastly, the Hydro-Quebec large power segment includes calculations for BC Hydro's general service and transmission service customers who are 5,000 kW and over. Table 11 shows the specific BC Hydro rate schedules that have been included in each Hydro Quebec segment. Table 12 summarizes BC Hydro's relative rankings in each rate class during the last five years of participation in the survey.

Based on the data from the Hydro-Quebec survey, BC Hydro's monthly bills and average prices for the residential, small, medium and large power categories are in the first (i.e., lowest rate) quartile of the public utilities surveyed. These low rates provide a competitive advantage to these customer segments in BC Hydro's service area. The rankings of the top five participating utilities, including BC Hydro, with the lowest monthly bills and average prices are noted in Tables 1 to 8. Of the 22 utilities providing data, BC Hydro's monthly bills and average price rankings against the other utilities are as follows:

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Rate Class & Usage	Ranking at April 1, 2019
Residential	
Residential - 625 kWh	3
Residential - 750 kWh	3
Residential - 1,000 kWh	3
Residential - 2,000 kWh	7
Residential - 3,000 kWh	8
Small Power	
Small Power - 750 kWh/6 kW	6
Small Power - 2,000 kWh/14 kW	5
Small Power - 10,000 kWh/40 kW	5
Small Power - 14,000 kWh/100 kW	3
Small Power - 25,000 kWh/100 kW	4
Medium Power	
Medium Power - 100,000 kWh/500 kW	4
Medium Power - 200,000 kWh/500 kW	4
Medium Power - 200,000 kWh/1,000 kW	4
Medium Power - 400,000 kWh/1,000 kW	4
Medium Power - 1,170,000 kWh/2,500 kW	3
Large Power	
Large Power - 2,340 MWh/5,000 kW/25 kV	3
Large Power - 3,060 MWh/5,000 kW/25 kV	3
Large Power - 5,760 MWh/10,000 kW/120 kV	3
Large Power - 17,520 MWh//30,000 kW/120 kV	4
Large Power - 23,400 MWh/50,000 kW/120 kV	4
Large Power - 30,600 MWh/50,000 kW /120 kV	4

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Table 1 Residential Monthly Bills

Hydro-Quebec Electricity Prices Comparison Report – Residential **Monthly Bills as of April 1, 2019** **CDN $/Month**										
Utility	**City**	**625 kWh**		**750 kWh**		**1,000 kWh**		**2,000 kWh**		**3,000 kWh**
Hydro-Quebec	Montreal, QC	(1st)	50	(1st)	58	(1st)	73	(1st)	160	(1st) 254
Manitoba Hydro	Winnipeg, MB	(2nd)	62	(2nd)	72	(2nd)	94	(2nd)	179	(2nd) 264
BC Hydro	Vancouver, BC	(3rd)	65	(3rd)	81	(3rd)	116	(7th)	258	(8th) 400
Hydro Ottawa	Ottawa, ON	(4th)	84	(4th)	96	(4th)	120	(3rd)	218	(3rd) 315
Newfoundland Power	St. John's, NL	(5th)	86	(5th)	100	(5th)	128	(5th)	240	352
NB Power	Moncton, NB		90		104		131	(4th)	240	(5th) 349
Florida Power and Light	Miami, FL		86		101		132		280	427
Toronto Hydro	Toronto, ON		101		113		139		241	(4th) 343
Pacific Power and Light	Portland, OR		91		107		138		303	469
EPCOR Energy	Edmonton, AB		101		116		147		269	391
Enmax	Calgary, AB		107		124		157		291	424
Nashville Electric Service	Nashville, TN		110		127		159		290	425
Seattle City Light	Seattle, WA		96		118		162		339	516
SaskPower	Regina, SK		112		130		165		307	450
Maritime Electric	Charlottetown, PE		114		132		168		312	426
Nova Scotia Power	Halifax, NS		108		128		167		323	479
CenterPoint Energy	Houston, TX		123		143		171		335	498
Commonwealth Edison	Chicago, IL		125		145		185		346	507
DTE Electric	Detroit, MI		124		149		199		396	594
Consolidated Edison	New York, NY		199		234		306		590	875
NSTAR Electric & Gas	Boston, MA		212		253		334		658	983
Pacific Gas and Electric	San Francisco, CA		174		220		311		851	1,491

Note: Bill calculations exclude taxes and levies. The top five participating utilities with the lowest monthly bills are in the first quartile and ranked in the table above, from lowest to highest. The sort order indicates the utility's overall ranking in the power category.

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Table 2 Small Power Monthly Bills

Hydro-Quebec Electricity Prices Comparison Report – Small Power Monthly Bills as of April 1, 2019 CDN $/Month											
Utility	City	6 kW 750 kWh 17% load factor		14 kW 2,000 kWh 20% load factor		40 kW 10,000 kWh 35% load factor		100 kW 14,000 kWh 19% load factor		100 kW 25,000 kWh 35% load factor	
Manitoba Hydro	Winnipeg, MB	(2nd)	88	(1st)	199	(1st)	911	(1st)	1,831	(1st)	2,404
Hydro-Quebec	Montreal, QC	(1st)	87	(2nd)	210	(2nd)	1,002	(2nd)	1,834	(2nd)	2,716
BC Hydro	Vancouver, BC	(6th)	105	(5th)	262	(5th)	1,193	(3rd)	1,905	(4th)	2,970
Newfoundland Power	St. John's, NL		105		275	(4th)	1,179	(5th)	2,054	(3rd)	2,941
Seattle City Light	Seattle, WA	(4th)	100		268		1,338	(4th)	1,943		3,066
CenterPoint Energy	Houston, TX	(3rd)	96		332		1,234		2,175	(5th)	3,042
Florida Power and Light	Miami, FL		106	(4th)	260		1,301		2,467		3,199
Hydro Ottawa	Ottawa, ON	(5th)	104	(3rd)	247	(3rd)	1,161		2,526		4,033
NB Power	Moncton, NB		121		285		1,354		2,356		3,380
Pacific Power and Light	Portland, OR		128		301		1,365		2,304		3,352
DTE Electric	Detroit, MI		127		316		1,500		2,092		3,720
EPCOR Energy	Edmonton, AB		121		296		1,415		2,618		3,602
SaskPower	Regina, SK		134		305		1,398		2,688		3,650
Enmax	Calgary, AB		141		298		1,593		2,409		3,633
Nova Scotia Power	Halifax, NS		125		306		1,556		2,731		3,889
Toronto Hydro	Toronto, ON		132		292		1,314		2,817		4,351
Maritime Electric	Charlottetown, PE		157		378		1,754		3,021		4,290
Commonwealth Edison	Chicago, IL		195		428		1,651		2,765		4,065
Nashville Electric Service	Nashville, TN		188		405		1,621		3,769		4,577
Pacific Gas and Electric	San Francisco, CA		245		633		3,007		5,001		7,241
Consolidated Edison	New York, NY		242		814		2,728		5,377		6,721
NSTAR Electric & Gas	Boston, MA		246		632		3,304		6,218		8,684

Note: Bill calculations exclude taxes and levies. The top five participating utilities with the lowest monthly bills are in the first quartile and ranked in the table above, from lowest to highest. The sort order indicates the utility's overall ranking in the power category.

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Table 3 Medium Power Monthly Bills

Hydro-Quebec Electricity Prices Comparison Report – Medium Power Monthly Bills as of April 1, 2019 CDN $/Month											
Utility	City	500 kW 100,000 kWh 28% load factor		500 kW 200,000 kWh 56% load factor		1000 kW 200,000 kWh 28% load factor		1000 kW 400,000 kWh 56% load factor		2500 kW[1] 1,170,000 kWh 65% load factor	
Manitoba Hydro	Winnipeg, MB	(1st)	10,177	(1st)	14,285	(1st)	20,124	(1st)	28,340	(1st)	69,930
Hydro-Quebec	Montreal, QC	(3rd)	12,195	(3rd)	17,350	(3rd)	24,390	(2nd)	32,230	(2nd)	79,925
BC Hydro	Vancouver, BC	(4th)	12,238	(4th)	18,298	(4th)	24,468	(4th)	36,588	(3rd)	99,609
Newfoundland Power	St. John's, NL	(2nd)	11,995	(5th)	19,608	(2nd)	22,832	(5th)	37,910	(4th)	104,588
Commonwealth Edison	Chicago, IL		13,361	(2nd)	16,579		26,525	(3rd)	32,960		115,017
Pacific Power and Light	Portland, OR		14,307		21,876		27,379		41,914	(5th)	105,515
Seattle City Light	Seattle, WA	(5th)	12,777		22,980	(5th)	25,173		45,398		128,871
DTE Electric	Detroit, MI		14,818		22,514		29,615		44,587		105,626
Florida Power and Light	Miami, FL		15,223		21,251		30,340		42,397		113,486
CenterPoint Energy	Houston, TX		13,980		21,857		30,840		46,596		119,901
NB Power	Moncton, NB		14,558		23,868		29,113		47,733		135,155
SaskPower	Regina, SK		16,348		24,022		32,680		48,028		117,239
Enmax	Calgary, AB		16,374		27,149		32,041		53,592		144,590
Nova Scotia Power	Halifax, NS		17,261		25,994		34,521		51,987		147,640
Hydro Ottawa	Ottawa, ON		16,440		28,146		32,679		56,091		161,918
Nashville Electric Service	Nashville, TN		20,133		26,911		40,001		53,557		148,509
Maritime Electric	Charlottetown, PE		18,317		29,857		36,572		59,652		168,655
Toronto Hydro	Toronto, ON		18,603		30,326		36,770		59,982		165,088
EPCOR Energy	Edmonton, AB		20,747		32,561		39,052		62,680		173,123
Consolidated Edison	New York, NY		30,287		42,503		60,508		84,941		177,642
Pacific Gas and Electric	San Francisco, CA		36,086		50,611		69,747		97,101		199,322
NSTAR Electric & Gas	Boston, MA		35,044		55,155		69,874		110,096		306,737

Note: Bill calculations exclude taxes and levies. The top five participating utilities with the lowest monthly bills are in the first quartile and ranked in the table above, from lowest to highest. The sort order indicates the utility's overall ranking in the power category.

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Table 4 Large Power Monthly Bills

Hydro-Quebec Electricity Prices Comparison Report – Large Power Monthly Bills as of April 1, 2019 CDN $000/Month													
Utility[1]	City	5,000 kW 2,340,000 kWh 25 kV 65% load factor		5,000 kW 3,060,000 kWh 25 kV 85% load factor		10,000 kW 5,760,000 kWh 120 kV 80% load factor		30,000 kW 17,520,000 kWh 120 kV		50,000 kW 23,400,000 kWh 120 kV		50,000 kW 30,600,000 kWh 120 kV	
Manitoba Hydro	Winnipeg, MB	(2nd)	137.2	(2nd)	165.0	(1st)	269.2	(1st)	815.7	(1st)	1,159.9	(1st)	1,407.8
Hydro-Quebec	Montreal, QC	(1st)	135.5	(1st)	159.1	(2nd)	289.4	(2nd)	876.0	(2nd)	1,269.7	(2nd)	1,505.9
Newfoundland Power	St. John's, NL	(5th)	206.3		260.6		488.0	(3rd)	998.5	(3rd)	1,441.9	(3rd)	1,717.9
BC Hydro	Vancouver, BC	(3rd)	199.2	(3rd)	242.2	(3rd)	385.2	(4th)	1,167.8	(4th)	1,650.7	(4th)	2,017.7
Commonwealth Edison	Chicago, IL		229.1		268.6	(4th)	411.9	(5th)	1,232.7	(5th)	1,734.7	(5th)	2,130.3
NB Power	Moncton, NB	(4th)	204.4	(5th)	242.8		444.4		1,345.8		1,938.5		2,316.5
DTE Electric	Detroit, MI		210.7	(4th)	242.4		448.2		1,353.8		2,006.3		2,316.3
Florida Power and Light	Miami, FL		226.7		267.7	(5th)	439.2		1,323.9		1,915.6		2,274.4
SaskPower	Regina, SK		225.1		274.8		446.7		1,339.5		1,873.1		2,313.0
Pacific Power and Light	Portland, OR		209.6		255.3		475.5		1,434.8		2,048.5		2,471.7
Nashville Electric Service	Nashville, TN		293.5		343.2		440.2		1,294.0		1,950.9		2,393.5
CenterPoint Energy	Houston, TX		237.1		293.9		529.0		1,601.4		2,214.5		2,776.9
Maritime Electric	Charlottetown, PE		239.6		291.0		556.3		1,685.9		2,395.8		2,909.8
Seattle City Light	Seattle, WA		257.9		330.3		583.3		1,771.7		2,409.1		3,081.8
Nova Scotia Power	Halifax, NS		257.9		317.9		605.8		1,837.3		2,579.4		3,178.8
EPCOR Energy	Edmonton, AB		315.3		391.6		631.0		1,902.8		2,667.5		3,283.2
Enmax	Calgary, AB		286.8		366.3		691.9		2,100.6		2,860.5		3,655.0
Hydro Ottawa	Ottawa, ON		331.6		353.9		681.5		2,021.5		3,179.3		3,402.4
Toronto Hydro	Toronto, ON		341.3		364.5		709.0		2,125.6		3,357.2		3,583.7
Consolidated Edison	New York, NY		355.1		419.2		806.1		2,439.3		3,549.2		4,190.1
Pacific Gas and Electric	San Francisco, CA		395.2		478.6		912.9		2,761.2		3,928.7		4,762.4
NSTAR Electric & Gas	Boston, MA		589.4		729.7		1,388.9		4,212.8		5,891.1		7,293.8

1) Customer-owned transformer.

Note: Bill calculations exclude taxes and levies. The top five participating utilities with the lowest monthly bills are in the first quartile and ranked in the table above, from lowest to highest. The sort order indicates the utility's overall ranking in the power category.

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Table 5 Residential Average Prices

Hydro-Quebec Electricity Prices Comparison Report – Residential **Average Prices as of April 1, 2019** **CDN ¢/kWh**										
Utility	**City**	**625 kWh**		**750 kWh**		**1,000 kWh**		**2,000 kWh**		**3,000 kWh**	
Hydro-Quebec	Montreal, QC	(1st)	8.03	(1st)	7.71	(1st)	7.30	(1st)	8.01	(1st)	8.47
Manitoba Hydro	Winnipeg, MB	(2nd)	9.87	(2nd)	9.65	(2nd)	9.37	(2nd)	8.95	(2nd)	8.81
BC Hydro	Vancouver, BC	(3rd)	10.47	(3rd)	10.77	(3rd)	11.62	(7th)	12.90	(8th)	13.32
Hydro Ottawa	Ottawa, ON	(4th)	13.43	(4th)	12.81	(4th)	12.04	(3rd)	10.88	(3rd)	10.50
Newfoundland Power	St. John's, NL	(5th)	13.75	(5th)	13.33	(5th)	12.80	(5th)	12.01		11.75
NB Power	Moncton, NB		14.41		13.82		13.10	(4th)	12.00	(5th)	11.64
Florida Power and Light	Miami, FL		13.82		13.53		13.16		13.98		14.25
Toronto Hydro	Toronto, ON		16.12		15.13		13.89		12.04	(4th)	11.42
Pacific Power and Light	Portland, OR		14.59		14.22		13.76		15.16		15.63
EPCOR Energy	Edmonton, AB		16.18		15.51		14.68		13.44		13.02
Enmax	Calgary, AB		17.20		16.55		15.74		14.53		14.13
Nashville Electric Service	Nashville, TN		17.65		16.88		15.92		14.48		14.18
Seattle City Light	Seattle, WA		15.29		15.69		16.19		16.94		17.19
SaskPower	Regina, SK		17.87		17.27		16.51		15.37		14.99
Maritime Electric	Charlottetown, PE		18.30		17.65		16.83		15.60		14.21
Nova Scotia Power	Halifax, NS		17.34		17.05		16.69		16.14		15.96
CenterPoint Energy	Houston, TX		19.66		19.12		17.10		16.74		16.62
Commonwealth Edison	Chicago, IL		20.01		19.36		18.54		17.30		16.89
DTE Electric	Detroit, MI		19.91		19.89		19.86		19.82		19.80
Consolidated Edison	New York, NY		31.81		31.26		30.56		29.52		29.17
NSTAR Electric & Gas	Boston, MA		33.93		33.69		33.37		32.91		32.75
Pacific Gas and Electric	San Francisco, CA		27.86		29.31		31.11		42.53		49.69

Note: Bill calculations exclude taxes and levies. The top five participating utilities with the lowest monthly bills are in the first quartile and ranked in the table above, from lowest to highest. The sort order indicates the utility's overall ranking in the power category.

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Table 6 Small Power Average Prices

Hydro-Quebec Electricity Prices Comparison Report – Small Power **Average Prices as of April 1, 2019** **CDN ¢/kWh**										
Utility	**City**	**6 kW 750 kWh 17% load factor**		**14 kW 2,000 kWh 20% load factor**		**40 kW 10,000 kWh 35% load factor**		**100 kW 14,000 kWh 19% load factor**		**100 kW 25,000 kWh 35% load factor**	
Manitoba Hydro	Winnipeg, MB	(2nd)	11.71	(1st)	9.95	(1st)	9.11	(1st)	13.08	(1st)	9.62
Hydro-Quebec	Montreal, QC	(1st)	11.54	(2nd)	10.52	(2nd)	10.02	(2nd)	13.10	(2nd)	10.86
BC Hydro	Vancouver, BC	(6th)	14.01	(5th)	13.08	(5th)	11.93	(3rd)	13.61	(4th)	11.88
Newfoundland Power	St. John's, NL		14.04		13.73	(4th)	11.79	(5th)	14.67	(3rd)	11.76
Seattle City Light	Seattle, WA	(4th)	13.38		13.38		13.38	(4th)	13.88		12.26
CenterPoint Energy	Houston, TX	(3rd)	12.79		16.58		12.34		15.54	(5th)	12.17
Florida Power and Light	Miami, FL		14.15	(4th)	12.98		13.01		17.62		12.80
Hydro Ottawa	Ottawa, ON	(5th)	13.87	(3rd)	12.34	(3rd)	11.61		18.04		16.13
NB Power	Moncton, NB		16.16		14.26		13.54		16.83		13.52
Pacific Power and Light	Portland, OR		17.05		15.07		13.65		16.46		13.41
DTE Electric	Detroit, MI		16.98		15.82		15.00		14.94		14.88
EPCOR Energy	Edmonton, AB		16.11		14.79		14.15		18.70		14.41
SaskPower	Regina, SK		17.82		15.23		13.98		19.20		14.60
Enmax	Calgary, AB		18.85		14.91		15.93		17.21		14.53
Nova Scotia Power	Halifax, NS		16.64		15.28		15.56		19.51		15.56
Toronto Hydro	Toronto, ON		17.58		14.58		13.14		20.12		17.41
Maritime Electric	Charlottetown, PE		20.95		18.90		17.54		21.58		17.16
Commonwealth Edison	Chicago, IL		25.97		21.40		16.51		19.75		16.26
Nashville Electric Service	Nashville, TN		25.08		20.23		16.21		26.92		18.31
Pacific Gas and Electric	San Francisco, CA		32.73		31.63		30.07		35.72		28.96
Consolidated Edison	New York, NY		32.31		40.70		27.28		38.41		26.88
NSTAR Electric & Gas	Boston, MA		32.85		31.58		33.04		44.42		33.18

Note: Bill calculations exclude taxes and levies. The top five participating utilities with the lowest monthly bills are in the first quartile and ranked in the table above, from lowest to highest. The sort order indicates the utility's overall ranking in the power category.

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Table 7 Medium Power Average Prices

Hydro-Quebec Electricity Prices Comparison Report – Medium Power Average Prices as of April 1, 2019 CDN ¢/kWh										
Utility	City	500 kW 100,000 kWh 28% load factor		500 kW 200,000 kWh 56% load factor		1000 kW 200,000 kWh 28% load factor		1000 kW 400,000 kWh 56% load factor		2500 kW[1] 1,170,000 kWh 65% load factor	
Manitoba Hydro	Winnipeg, MB	(1st)	10.18	(1st)	7.14	(1st)	10.06	(1st)	7.08	(1st)	5.98
Hydro-Quebec	Montreal, QC	(3rd)	12.20	(3rd)	8.68	(3rd)	12.20	(2nd)	8.06	(2nd)	6.83
BC Hydro	Vancouver, BC	(4th)	12.24	(4th)	9.15	(4th)	12.23	(4th)	9.15	(3rd)	8.51
Newfoundland Power	St. John's, NL	(2nd)	11.99	(5th)	9.80	(2nd)	11.42	(5th)	9.48	(4th)	8.94
Commonwealth Edison	Chicago, IL		13.36	(2nd)	8.29		13.26	(3rd)	8.24		9.83
Pacific Power and Light	Portland, OR		14.31		10.94		13.69		10.48	(5th)	9.02
Seattle City Light	Seattle, WA	(5th)	12.78		11.49	(5th)	12.59		11.35		11.01
DTE Electric	Detroit, MI		14.82		11.26		14.81		11.15		9.03
Florida Power and Light	Miami, FL		15.22		10.63		15.17		10.60		9.70
CenterPoint Energy	Houston, TX		13.98		10.93		15.42		11.65		10.25
NB Power	Moncton, NB		14.56		11.93		14.56		11.93		11.55
SaskPower	Regina, SK		16.35		12.01		16.34		12.01		10.02
Enmax	Calgary, AB		16.37		13.57		16.02		13.40		12.36
Nova Scotia Power	Halifax, NS		17.26		13.00		17.26		13.00		12.62
Hydro Ottawa	Ottawa, ON		16.44		14.07		16.34		14.02		13.84
Nashville Electric Service	Nashville, TN		20.13		13.46		20.00		13.39		12.69
Maritime Electric	Charlottetown, PE		18.32		14.93		18.29		14.91		14.41
Toronto Hydro	Toronto, ON		18.60		15.16		18.39		15.00		14.11
EPCOR Energy	Edmonton, AB		20.72		16.28		19.53		15.67		14.80
Consolidated Edison	New York, NY		30.29		21.25		30.25		21.24		15.18
Pacific Gas and Electric	San Francisco, CA		36.09		25.31		34.87		24.28		17.04
NSTAR Electric & Gas	Boston, MA		35.04		27.58		34.94		27.52		26.22

Note: Bill calculations exclude taxes and levies. The top five participating utilities with the lowest monthly bills are in the first quartile and ranked in the table above, from lowest to highest. The sort order indicates the utility's overall ranking in the power category.

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Table 8 Large Power Average Prices

Hydro-Quebec Electricity Prices Comparison Report – Large Power Average Prices as of April 1, 2019 CDN ¢/kWh													
Utility[1]	City	5,000 kW 2,340,000 kWh 25 kV 65% load factor		5,000 kW 3,060,000 kWh 25 kV 85% load factor		10,000 kW 5,760,000 kWh 120 kV 80% load factor		30,000 kW 17,520,000 kWh 120 kV		50,000 kW 23,400,000 kWh 120 kV		50,000 kW 30,600,000 kWh 120 kV	
Manitoba Hydro	Winnipeg, MB	(2nd)	5.87	(2nd)	5.39	(1st)	4.67	(1st)	4.66	(1st)	4.96	(1st)	4.60
Hydro-Quebec	Montreal, QC	(1st)	5.79	(1st)	5.20	(2nd)	5.02	(2nd)	5.00	(2nd)	5.43	(2nd)	4.92
Newfoundland Power	St. John's, NL	(5th)	8.82		8.52		8.47	(3rd)	5.70	(3rd)	6.16	(3rd)	5.61
BC Hydro	Vancouver, BC	(3rd)	8.51	(3rd)	7.91	(3rd)	6.69	(4th)	6.67	(4th)	7.05	(4th)	6.59
Commonwealth Edison	Chicago, IL		9.79		8.78	(4th)	7.15	(5th)	7.04	(5th)	7.41	(5th)	6.96
NB Power	Moncton, NB	(4th)	8.74	(5th)	7.93		7.72		7.68		8.28		7.57
DTE Electric	Detroit, MI		9.00	(4th)	7.92		7.78		7.73		8.57		7.57
Florida Power and Light	Miami, FL		9.69		8.75	(5th)	7.62		7.56		8.19		7.43
SaskPower	Regina, SK		9.62		8.98		7.76		7.65		8.00		7.56
Pacific Power and Light	Portland, OR		8.96		8.34		8.25		8.19		8.78		8.08
Nashville Electric Service	Nashville, TN		12.54		11.22		7.64		7.39		8.34		7.87
CenterPoint Energy	Houston, TX		10.13		9.60		9.18		9.14		9.46		9.07
Maritime Electric	Charlottetown, PE		10.24		9.51		9.66		9.62		10.24		9.51
Seattle City Light	Seattle, WA		11.02		10.79		10.13		10.11		10.30		10.07
Nova Scotia Power	Halifax, NS		11.02		10.39		10.52		10.49		11.02		10.39
EPCOR Energy	Edmonton, AB		13.47		12.80		10.95		10.86		11.40		10.73
Enmax	Calgary, AB		12.26		11.97		12.01		11.99		12.22		11.94
Hydro Ottawa	Ottawa, ON		14.17		11.57		11.83		11.54		13.59		11.12
Toronto Hydro	Toronto, ON		14.59		11.91		12.31		12.13		14.35		11.71
Consolidated Edison	New York, NY		15.17		13.70		14.00		13.92		15.17		13.69
Pacific Power and Light	San Francisco, CA		16.89		15.64		15.85		15.76		16.79		15.56
NSTAR Electric & Gas	Boston, MA		25.19		23.85		24.11		24.05		25.18		23.84

1) Customer-owned transformer.

Note: Bill calculations exclude taxes and levies. The top five participating utilities with the lowest monthly bills are in the first quartile and ranked in the table above, from lowest to highest. The sort order indicates the utility's overall ranking in the power category.

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Table 9 BC Hydro Monthly Bills Summary

BC Hydro Monthly Bills Summary for the Past Five Years CDN$/Month					
Vancouver, BC	**April 1, 2015 [1]**	**April 1, 2016 [2]**	**April 1, 2017 [3]**	**April 1, 2018 [4]**	**April 1, 2019 [5]**
Residential					
625 kWh	58	60	62	64	65
750 kWh	72	74	77	79	81
1,000 kWh	103	107	111	114	116
2,000 kWh	228	238	246	253	258
3,000 kWh	354	368	381	393	400
Small Power					
750 kWh/6 kW	92	95	100	103	105
2,000 kWh/14 kW	233	242	250	257	262
10,000 kWh/40 kW	1,075	1,120	1,138	1,172	1,193
14,000 kWh/100 kW	1,836	1,912	1,818	1,872	1,905
25,000 kWh/100 kW	2,658	2,769	2,834	2,919	2,970
Medium Power					
100,000 kWh/500 kW	10,794	11,256	11,660	12,025	12,238
200,000 kWh/500 kW	16,181	16,884	17,443	17,979	18,298
200,000 kWh/1,000 kW	21,720	22,643	23,328	24,042	24,468
400,000 kWh/1,000 kW	32,493	33,889	34,878	35,949	36,588
1,170,000 kWh/2,500 kW	88,570	92,439	94,890	97,827	99,609
Large Power					
2,340 MWh/5,000 kW/25 kV	177,269	185,006	231,493	195,646	199,209
3,060 MWh/5,000 kW/25 kV	215,470	224,920	276,242	237,877	242,187
5,760 MWh/10,000 kW/120 kV	341,362	355,023	463,887	378,505	385,189
17,520 MWh//30,000 kW/120 kV	1,034,937	1,076,363	1,399,442	1,147,546	1,167,812
23,400 MWh/50,000 kW/120 kV	1,462,863	1,521,420	2,013,159	1,622,025	1,650,673
30,600 MWh/50,000 kW /120 kV	1,788,148	1,859,722	2,407,246	1,982,713	2,017,729

1) Rates used reflect a 6.00 per cent approved increase effective April 1, 2015.
2) Rates used reflect a 4.00 per cent approved increase effective April 1, 2016.
3) Rates used reflect a 3.50 per cent approved increase effective April 1, 2017.
4) Rates used reflect a 3.00 per cent approved increase effective April 1, 2018.
5) Rates used reflect a 1.76 per cent proposed net bill increase effective April 1, 2019.

Note: Bill calculations exclude taxes and levies and include the deferral account rate rider. For rates starting April 1, 2019 (Fiscal 2020) the deferral account rate rider is 0 per cent.

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Table 10 BC Hydro Average Prices Summary

BC Hydro Average Prices Summary for the Past Five Years CDN¢/kWh					
Vancouver, BC	**April 1, 2015 [1]**	**April 1, 2016 [2]**	**April 1, 2017 [3]**	**April 1, 2018 [4]**	**April 1, 2019 [5]**
Residential					
625 kWh	9.27	9.64	12.10	10.28	10.47
750 kWh	9.54	9.92	11.68	10.58	10.77
1,000 kWh	10.29	10.70	11.15	11.42	11.62
2,000 kWh	11.42	11.88	10.36	12.67	12.90
3,000 kWh	11.80	12.27	10.10	13.09	13.32
Small Power					
750 kWh/6 kW	12.23	12.72	13.37	13.77	14.01
2,000 kWh/14 kW	11.63	12.09	12.49	12.86	13.08
10,000 kWh/40 kW	10.75	11.19	11.38	11.72	11.93
14,000 kWh/100 kW	13.12	13.66	12.99	13.37	13.61
25,000 kWh/100 kW	10.63	11.07	11.34	11.67	11.88
Medium Power					
100,000 kWh/500 kW	10.79	11.26	11.66	12.03	12.24
200,000 kWh/500 kW	8.09	8.44	8.72	8.99	9.15
200,000 kWh/1,000 kW	10.86	11.32	11.66	12.02	12.23
400,000 kWh/1,000 kW	8.12	8.47	8.72	8.99	9.15
1,170,000 kWh/2,500 kW	7.57	7.90	8.11	8.36	8.51
Large Power					
2,340 MWh/5,000 kW/25 kV	7.58	7.91	8.11	8.36	8.51
3,060 MWh/5,000 kW/25 kV	7.04	7.35	7.54	7.77	7.91
5,760 MWh/10,000 kW/120 kV	5.93	6.16	6.38	6.57	6.69
17,520 MWh//30,000 kW/120 kV	5.91	6.14	6.36	6.55	6.67
23,400 MWh/50,000 kW/120 kV	6.25	6.50	6.73	6.93	7.05
30,600 MWh/50,000 kW /120 kV	5.84	6.08	6.29	6.48	6.59

1) Rates used reflect a 6.00 per cent approved increase effective April 1, 2015.
2) Rates used reflect a 4.00 per cent approved increase effective April 1, 2016.
3) Rates used reflect a 3.50 per cent approved increase effective April 1, 2017.
4) Rates used reflect a 3.00 per cent approved increase effective April 1, 2018.
5) Rates used reflect a 1.76 per cent proposed net bill increase effective April 1, 2019.

Note: Bill calculations exclude taxes and levies and include the deferral account rate rider. For rates starting April 1, 2019 (Fiscal 2020) the deferral account rate rider is 0 per cent.

Table 11 Corresponding BC Hydro Rate Schedules included in each Segment of the Hydro-Quebec Rate Survey

Hydro Quebec Segment	Corresponding BC Hydro Rate Schedule
Residential	
625 kWh	RS 1101
750 kWh	RS 1101
1,000 kWh	RS 1101
2,000 kWh	RS 1101
3,000 kWh	RS 1101
Small Power	
750 kWh/6 kW	RS 1300
2,000 kWh/14 kW	RS 1300
10,000 kWh/40 kW	RS 1500
14,000 kWh/100 kW	RS 1500
25,000 kWh/100 kW	RS 1500
Medium Power	
100,000 kWh/500 kW	RS 1600
200,000 kWh/500 kW	RS 1600
200,000 kWh/1,000 kW	RS 1600
400,000 kWh/1,000 kW	RS 1600
1,170,000 kWh/2,500 kW	RS 1611
Large Power	
2,340,000 kWh/5,000 kW/25 kV	RS 1611
3,060,000 kWh/5,000 kW/25 kV	RS 1611
5,760,000 kWh/10,000 kW/120 kV	RS 1823
17,520,000 kWh/30,000 kW/120 kV	RS 1823
23,400,000 kWh/50,000 kW/120 kV	RS 1823
30,600,000 kWh/50,000 kW/120 kV	RS 1823

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Table 12 BC Hydro Rankings Summary in Hydro-Quebec Rate Surveys, Out of 22 Utilities Surveyed

BC Hydro Rates Comparisons Ranking Summary for Past Five Years

Vancouver, BC	April 1, 2015	April 1, 2016	April 1, 2017	April 1, 2018	April 1, 2019
Residential					
625 kWh	3	3	3	3	3
750 kWh	3	3	3	3	3
1,000 kWh	3	5	5	3	3
2,000 kWh	7	8	9	7	7
3,000 kWh	8	9	9	8	8
Small Power					
750 kWh/6 kW	5	6	7	8	6
2,000 kWh/14 kW	6	6	7	6	5
10,000 kWh/40 kW	6	8	7	5	5
14,000 kWh/100 kW	5	5	5	5	3
25,000 kWh/100 kW	6	7	8	6	4
Medium Power					
100,000 kWh/500 kW	4	4	4	4	4
200,000 kWh/500 kW	3	4	5	3	4
200,000 kWh/1,000 kW	4	5	5	4	4
400,000 kWh/1,000 kW	4	5	5	4	4
1,170,000 kWh/2,500 kW	4	5	6	4	3
Large Power					
2,340 MWh/5,000 kW/25 kV	4	6	6	4	3
3,060 MWh/5,000 kW/25 kV	5	7	6	3	3
5,760 MWh/10,000 kW/120 kV	6	6	5	4	3
17,520 MWh//30,000 kW/120 kV	7	9	7	5	4
23,400 MWh/50,000 kW/120 kV	7	9	8	5	4
30,600 MWh/50,000 kW /120 kV	7	9	8	5	4

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BC Hydro Electricity Rate Comparison Annual Report

Report No. 12

Attachment B

Ministerial Order No. M 167

PROVINCE OF BRITISH COLUMBIA

REGULATION OF THE MINISTER OF ENERGY AND MINES AND MINISTER RESPONSIBLE FOR HOUSING

Clean Energy Act

Ministerial Order No. M 167

I, Rich Coleman, Minister of Energy and Mines and Minister Responsible for Housing, order that the Rate Comparison Regulation, B.C. Reg. 140/2009, is repealed, and the following Rate Comparison Regulation is made.

RATE COMPARISON REGULATION

Definition

1 In this regulation:

"**Act**" means the *Clean Energy Act*;

"**applicable rates**" means, with respect to a public utility's electricity rates, the average monthly bill for electricity, but not any other terms and conditions of those rates.

Report requirements

2 In a report to be provided to the minister under section 8 (4) of the Act, the authority must do all of the following:

(a) include a comparison with at least one public utility in each of at least fifteen other jurisdictions in North America, including all of the following:

(i) the provinces of Alberta, Quebec, Ontario and Manitoba;

(ii) the states of Washington, Oregon and California;

(b) compare the previous year's applicable rates for residential, commerical and industrial customers with similar rates of the public utilities referred to in paragraph (a);

(c) express the monetary comparisons in Canadian currency;

(d) provide the authority's previous 5 years of applicable rates.

DEPOSITED
JUN 28 2011
B.C. REG. 119/2011

JUN 28 2011
Date

Minister of Energy and Mines and Minister Responsible for Housing

(This part is for administrative purposes only and is not part of the Order.)

Authority under which Order is made:

Act and section: *Clean Energy Act*, S.B.C. 2010, c. 22, s. 37 (f)

Other: *Utilities Commission Act*, R.S.B.C. 1996, c. 473, s. 125.1 (4) (c); M114/2009

June 9, 2011 Resub R/77/2011/27

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BC Hydro Fiscal 2020 to Fiscal 2021
Revenue Requirements Application

Rebuttal Evidence of
British Columbia Hydro and Power Authority

Appendix B

S&P Global Market Intelligence Report
Adjustment Clauses

PUBLIC

CONFIDENTIAL ATTACHMENT

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