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March 15, 2019

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. 1598954
British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Application for Electricity Purchase Agreement Extensions for Armstrong
Wood Waste Co-Generation and NWE Williams Lake Wood Waste Facilities
BC Hydro's Response to Panel Information Request (IR) No. 2**

BC Hydro writes in compliance with Commission Order No. G-204-18 to provide a response to Commission Panel Information Request No. 2 with respect to Phase 1 of the Comprehensive Review of BC Hydro. The Panel IRs and BC Hydro's responses are below.

**1.0 Reference: GOVERNMENT REVIEW
Exhibit A2-1, British Columbia Hydro and Power Authority
(BC Hydro) Application for Electricity Purchase Agreement
(EPA) Renewals for Sechelt Creek Hydro, Brown Lake Hydro
and Walden North Hydro, Exhibit B-4, p. 1**

In Exhibit A2-1, BC Hydro states:

BC Hydro writes to seek an extension for providing its answers for round one Information Requests (IRs) in the above referenced proceeding to four weeks following the release of a report with respect to the Government Review of BC Hydro (Government Review), which is expected in late fall 2018. [...]

BC Hydro expects the Government Review to provide guidance that will impact the LRB [load resource balance] by providing guidance on key inputs, such as the biomass EPA renewal strategy, the Standing Offer Program, and potentially other resource procurement processes.

- 2.1.1 Please provide a copy of the report with respect to the Government Review.

RESPONSE:

BC Hydro is providing as Attachment A to this letter the *Comprehensive Review of BC Hydro: Phase 1 Final Report* released by the Government on February 14, 2019. The report can also be accessed at the following link: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/final_report_desktop_bc_hydro_review_v04_feb12_237pm-r2.pdf.

- 1.0 Reference: **GOVERNMENT REVIEW**
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BC Hydro writes to seek an extension for providing its answers for round one Information Requests (IRs) in the above referenced proceeding to four weeks following the release of a report with respect to the Government Review of BC Hydro (Government Review), which is expected in late fall 2018. [...]

BC Hydro expects the Government Review to provide guidance that will impact the LRB [load resource balance] by providing guidance on key inputs, such as the biomass EPA renewal strategy, the Standing Offer Program, and potentially other resource procurement processes.

- 2.1.2 Please discuss any implications the report on the Government Review has on the Tolko Industries Ltd. Armstrong Wood Waste Cogeneration Plant and the Atlantic Power Preferred Equity Ltd. NWE Williams Lake Wood Waste Project EPA extensions.

RESPONSE:

The Government and BC Hydro have worked together to develop a biomass energy strategy. Phase 1 of the Comprehensive Review identified two components of this strategy: (i) the Biomass Energy Program, which will be managed by BC Hydro; and (ii) the Biofuel Development Program, through which the Government will work with the forestry sector to advance the development and implementation of biofuel.

The new Biomass Energy Program will be for those biomass energy facilities with EPAs expiring before March 31, 2022. There are seven biomass energy facilities

with EPAs which are due to expire within this timeframe, including the Armstrong Woodwaste Cogeneration Plant (Tolko Armstrong) and the NWE Williams Lake Wood Waste Project (NWE) whose extension agreements are the subject of this Application.

The details of the Biomass Energy Program are currently being developed by BC Hydro and we anticipate launching the program shortly. New long-term contracts will be offered by BC Hydro to each of the seven biomass energy facilities as their existing EPAs expire. Both Tolko Armstrong and NWE are facilities that are eligible to participate in the new program.

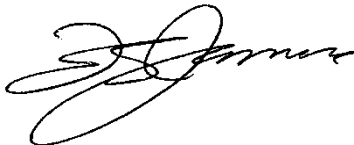
At the time of the Application, the biomass energy strategy was still being developed. The extension agreements for the Tolko Armstrong EPA and the NWE EPA act as a bridging mechanism until the details of the biomass energy strategy are finalized and BC Hydro offers new long-term contracts to these facilities.

The Tolko Armstrong EPA and NWE EPA extension agreements have enabled these facilities to continue to operate through the extension period, and enable BC Hydro to move forward with the Biomass Energy Program, as announced by Government, in relation to these facilities.

For more information regarding the parameters of the Biomass Energy Program, and how this new program aligns with government's separate initiative to work with the forest sector industry to transition to other uses of waste residuals, please refer to pages 24 to 26 of the Comprehensive Review.

For further information, please contact Geoff Higgins at 604-623-4121 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,



Fred James
Chief Regulatory Officer

cu/rh

Enclosure

**Application for Electricity Purchase Agreement
Extensions for Armstrong Wood Waste
Co-Generation and NWE Williams Lake Wood Waste
Facilities**

Attachment A

**Comprehensive Review of BC Hydro:
Phase 1 Final Report**



Ministry of
Energy, Mines and
Petroleum Resources

COMPREHENSIVE REVIEW OF BC HYDRO: Phase 1 Final Report

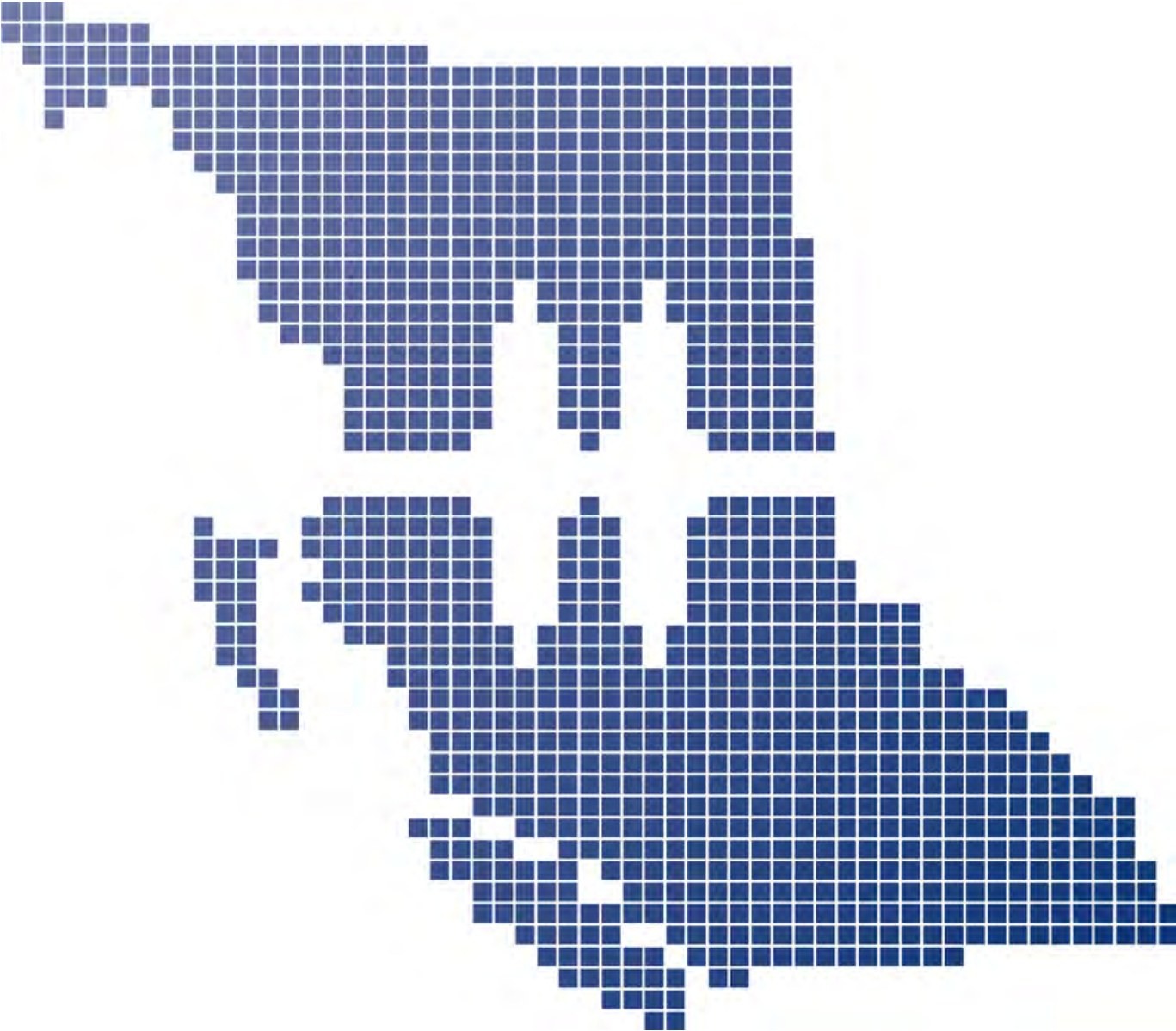


TABLE OF CONTENTS

1.	EXECUTIVE SUMMARY	1
1.1	ENHANCING REGULATORY OVERSIGHT OF BC HYDRO	1
1.2	NEW RATES FORECAST	3
1.3	NEXT STEPS	5
2.	STRATEGIC CONTEXT	6
2.1	PREVIOUS REVIEWS OF BC HYDRO	7
2.2	BCUC OVERSIGHT OF BC HYDRO	8
2.3	CONCERNS FROM THE AUDITOR GENERAL	9
3.	APPROACH, SCOPE & GOVERNANCE OF PHASE 1	11
4.	PHASE 1 OUTCOMES	12
4.1	ENSURING SOUND FINANCIAL AND REGULATORY OVERSIGHT OF BC HYDRO	12
4.1.1	Write-off of the Rate Smoothing Regulatory Account	12
4.1.2	Changes in Accounting Rules	13
4.1.3	Enhanced BCUC Oversight of BC Hydro	13
4.2	KEEPING ELECTRICITY RATES AFFORDABLE	20
4.2.1	Write-off of the Rate Smoothing Regulatory Account	21
4.2.2	Reduce Future Energy Costs from Independent Power Producers	22
4.2.3	Reduce Planned Capital Expenditures and Additions	28
4.2.4	Tightly Manage Controllable Operating Costs	30
4.2.5	Increase Revenues	33
5.	FIVE YEAR RATES FORECAST	34
6.	NEXT STEPS	35
	APPENDIX A: PHASE 1 TERMS OF REFERENCE	36
	APPENDIX B: FOCUS AREAS OF THE REVIEW	38
	APPENDIX C: SUMMARY OF BCUC OVERSIGHT	42
	APPENDIX D: SUMMARY OF NEW REGULATIONS AND LEGISLATION	43
	APPENDIX E: ACRONYMS, ABBREVIATIONS AND DEFINITIONS	44

1. EXECUTIVE SUMMARY

To keep electricity rates affordable and position BC Hydro for future success, the BC government (“the government”) launched a comprehensive, two-phased review (the Review) of BC Hydro, beginning in June 2018.

The Terms of Reference for Phase 1 of the Review are included as Appendix A. The first phase of the Review was conducted by the Ministry of Energy, Mines and Petroleum Resources, the Ministry of Finance and BC Hydro and is now complete, with two key outcomes:

- Enhanced regulatory oversight of BC Hydro; and
- A new five-year rates forecast that reflects cost and revenue strategies to keep rates affordable.

The purpose of this Phase 1 Final Report is to outline the work undertaken in Phase 1 and the details related to the two key outcomes above. This information will be of interest to the citizens of British Columbia and BC Hydro’s customers, Indigenous Nations, communities, Independent Power Producers, as well as key stakeholders such as the Auditor General of British Columbia, the British Columbia Utilities Commission (BCUC) and other parties engaged in BC Hydro’s regulatory processes. Key decisions related to Phase 1 are complete, and this Final Report explains how the outcomes are being implemented.

The Terms of Reference for Phase 2 will be finalized and made public in early 2019. Phase 2 is expected to focus on how the energy industry and markets are transforming, how to ensure BC Hydro’s long-term sustainability with those transformations and BC Hydro’s role in implementing electrification initiatives critical to the CleanBC plan, government’s plan to reach its 2030 climate targets through reduction of greenhouse gas emissions in transportation, buildings and industry.

1.1 ENHANCING REGULATORY OVERSIGHT OF BC HYDRO

BC Hydro is in a unique position compared to other public utilities in B.C. As an electric utility, its mandate is to provide safe and reliable electricity services to its customers, under the oversight of the BCUC. As a provincial Crown corporation, it also has a role in implementing government policies. The two objectives are not always aligned, particularly in cases where implementing government policy may have costs for BC Hydro and its customers.

In recent years, the government exercised its authority under the *Utilities Commission Act* to direct BCUC decision-making and outcomes on a number of matters to achieve policy objectives, including the setting and capping of BC Hydro’s rate increases for specific years covered by the 10 Year Rates Plan (April 1, 2014 to March 31, 2024) and directing certain outcomes related to BC Hydro’s regulatory accounts. These measures have led to concerns from the B.C. Auditor General and others that the government’s actions have unduly impacted the BCUC’s role as the independent regulator of BC Hydro.

Application for Electricity Purchase Agreement Extensions
for Armstrong Wood Waste Co-Generation and
NWE Williams Lake Wood Waste Facilities

Phase 1 of the Review has resulted in a number of actions (please refer to Section 4 and Appendix D for further detail) that enhance the regulatory oversight of BC Hydro, while still enabling the government to advance its social, economic and environmental priorities:

- The government, has accepted a recommendation from the review that BC Hydro write off the entire balance forecast of BC Hydro's Rate Smoothing Regulatory Account in Fiscal 2019. BC Hydro will request the closure of the account in its F2020-F2021 Revenue Requirements Application, to be filed with the BCUC in February 2019. As part of the previous government's 2013 10 Year Rates Plan, the BCUC was directed by government to allow the account without the ability for the BCUC to provide appropriate oversight.
- The government has repealed a number of regulations that restricted the BCUC's decision-making in the past. Moving forward, this will enable the BCUC to review and make decisions on BC Hydro's costs, proposed rate increases and almost all regulatory accounts, programs and capital projects.
- The government intends to introduce legislation to restore the BCUC's authority to review and approve BC Hydro's Integrated Resource Plan (IRP). The IRP will be submitted to the BCUC by February 2021. This timing enables development of the IRP to be informed by Phase 2 of the Review and the CleanBC plan.
- The government intends to enable the BCUC to begin setting BC Hydro's allowed net income for rate-setting purposes, following a two-year transition period for Fiscal 2020¹ and Fiscal 2021, during which BC Hydro's current net income target of \$712 million will remain in place.
- The government has changed the accounting rules that BC Hydro is required to follow. BC Hydro will fully adopt International Financial Reporting Standards (IFRS) for Fiscal 2019. IFRS is aligned with the Canadian Generally Accepted Accounting Principles. This change addresses a recommendation made by the Auditor General.

The changes to the regulatory framework, and other regulations required to implement the outcomes of Phase 1 of the Review, are summarized in Appendix C.

¹ The fiscal years within this report start on April 1, and end on March 31 of the following year. As an example, "Fiscal 2020" refers to the fiscal year that starts April 1, 2019 and ends on March 31, 2020.

1.2 NEW RATES FORECAST

The cumulative increase in bills for ratepayers is forecast to be 8.1% over the next five years (Fiscal 2020 through Fiscal 2024). This is approximately 40% lower than the 13.7% increase for the same period under the previous 2013 10 Year Rates Plan and more than 20% lower than the forecast rate of B.C. inflation for the period. Actual rate increases will be determined by the BCUC through future Revenue Requirements Applications.

Table 1: BC Hydro Five Year Rates Forecast

	Fiscal 2020 Apr 1, 2019 – Mar 31, 2020	Fiscal 2021 Apr 1, 2020 – Mar 31, 2021	Fiscal 2022 Apr 1, 2021 – Mar 31, 2022	Fiscal 2023 Apr 1, 2022 – Mar 31, 2023	Fiscal 2024 Apr 1, 2023 – Mar 31, 2024	Cumulative Five Years*
Current Rates Forecast – Annual Rate Increase before reducing the DARR	6.8%	0.7%	2.2%	0.0%	3.2%	n/a
Current Rates Forecast – Annual Bill Impact including reduction in DARR**	1.8%	0.7%	2.2%	0.0%	3.2%	8.1%
Previous Govt's 10 Year Rates Plan – Annual Bill Impact	2.6%	2.6%	2.6%	2.6%	2.6%	13.7%
Forecast BC Inflation	2.3%	2.0%	2.0%	2.0%	2.0%	10.7%

* cumulative rates do not equal the sum of individual rate changes shown for each year due to the effect of compounding.

** after reducing the Deferral Account Rate Rider (DARR) from 5% to 0%, beginning in Fiscal 2020. Under the 2013 10 Year Rates Plan, the DARR was set at 5% indefinitely – it was expected to remain at 5% at least through Fiscal 2024. Going forward, the BCUC will now determine how the DARR is set and applied. This change is explained further in Section 4.1.3.

As a result of the Review, and in order to achieve the forecast rate increases shown above, government and BC Hydro are taking a number of actions to keep rates affordable.

Write-off of Rate Smoothing Regulatory Account

The write-off of the Rate Smoothing Regulatory Account, noted in Section 1.1, will reduce BC Hydro's forecast overall regulatory account balance at the end of Fiscal 2019 by 24%, from \$4.7 billion to \$3.6 billion. Lowering the overall regulatory account balance means lowering the amount that would be otherwise recovered from ratepayers, thus reducing rate pressures over the next five years.

Energy Procurement

Recognizing that energy procurement is a major cost driver for BC Hydro, and that BC Hydro is currently forecast to be in energy surplus into the 2030s, Phase 1 of the Review assessed how energy procurement costs could be reduced. The primary areas where future costs can be managed are expiring biomass Electricity Purchase Agreements and the Standing

Offer Program, which is BC Hydro's only active procurement program for new Electricity Purchase Agreements.

The government and BC Hydro have worked together to develop a biomass energy strategy to address the expiry of Electricity Purchase Agreements for biomass projects in the next few years. As a result, BC Hydro intends to acquire up to 80%, in aggregate, of the historical energy deliveries received under biomass Electricity Purchase Agreements that are due to expire before March 31, 2022. The prices offered for the biomass energy will also be lower relative to current contract terms to achieve savings for ratepayers while recognizing the socio-economic importance of these forest sector facilities. Separately, the government will work with the forest sector in transitioning to the use of forest sector waste for higher value renewable fuels, consistent with the CleanBC plan.

BC Hydro stopped taking any applications under the Standing Offer Program in August 2017. The Standing Offer Program will be suspended indefinitely by BC Hydro in accordance with a regulation being issued by the government under the *Clean Energy Act*. This suspension applies to new Electricity Purchase Agreements only, with the exception of five specific projects, each of which are part of Impact Benefit Agreements with BC Hydro and/or are mature projects that have significant Indigenous Nations involvement².

Capital Program, Operating Costs and Revenues

BC Hydro will reduce planned capital additions by \$2.7 billion, from \$18.5 billion to \$15.8 billion over the 10 years from Fiscal 2020 to Fiscal 2029. BC Hydro has carefully considered system impacts. Safety and reliability risks will be managed through targeted investments, with no reductions in investments to meet legal, regulatory or tariff requirements.

Despite significant cost pressures, BC Hydro expects to limit base operating cost increases below the forecast rate of provincial inflation over the Fiscal 2020 to Fiscal 2024 period through savings from initiatives, prudent cost management and other measures such as leveraging Lean principles through BC Hydro's Work Smart process improvement program.

At the same time as it implements cost saving strategies, BC Hydro will also work to increase revenues, including attraction of additional domestic demand.

2 https://www.bchydro.com/news/press_centre/news_releases/2018/bc-hydro-to-proceed-with-five-first-nations-clean-energy-projec.html

1.3 NEXT STEPS

Regulatory changes have been or are being made to implement most Phase 1 outcomes. Where needed, legislation to implement Phase 1 outcomes is expected to be introduced in the Spring 2019 Legislative Session. See Appendix D for further detail.

Through a separate initiative, government will engage with Indigenous Nations to discuss the impacts the indefinite suspension may have on the economic individual nations, and how these impacts may be mitigated. Further information about this engagement process is available at <https://engage.gov.bc.ca/sopengagement/>

BC Hydro will begin negotiations with those parties holding biomass Electricity Purchase Agreements expiring before March 31, 2022 for new load offset and/or energy purchase agreement(s). The government will also begin working with the forest industry on production of clean fuels to support the long-term sustainability of the sector and help meet the CleanBC greenhouse gas emission reduction targets.

The Phase 1 Review will inform BC Hydro's next Revenue Requirements Application, to be filed with the BCUC in February 2019.

2. STRATEGIC CONTEXT

Electricity rates in B.C. have risen by over 70% in the past 10 years. Though the most recent Hydro Quebec Rate Comparison Report³ shows that BC Hydro has the third lowest residential rates in North America, government's overarching policy commitments include making life affordable for British Columbians and building a strong, sustainable, innovative economy. In line with these objectives, the government's mandate letters to BC Hydro and the Minister of Energy, Mines and Petroleum Resources include commitments to conduct the Review.

In addition to the foregoing context on rates, over a number of years, BC Hydro has secured energy through power acquisitions from Independent Power Producers, the addition of Site C, and, to a lesser extent, through upgrades to its existing facilities. While electrification to support the CleanBC Plan will consume some of this surplus energy, growth in demand from existing electricity use is slowing, which means BC Hydro expects to remain in surplus into the 2030s.

BC Hydro operates in an evolving environment. For example, more stringent environmental and safety standards add valuable protections for the environment and enhance safety of workers and the public, while also adding cost and complexity to BC Hydro's work.

The first phase of the Review was designed to identify cost savings, efficiencies, new revenue streams and other changes to keep electricity rates affordable and predictable over the long-term, while ensuring BC Hydro has the resources it needs to continue providing clean, safe and reliable electricity.

Equally important, this phase also focused on helping to ensure sound financial and regulatory oversight of BC Hydro.

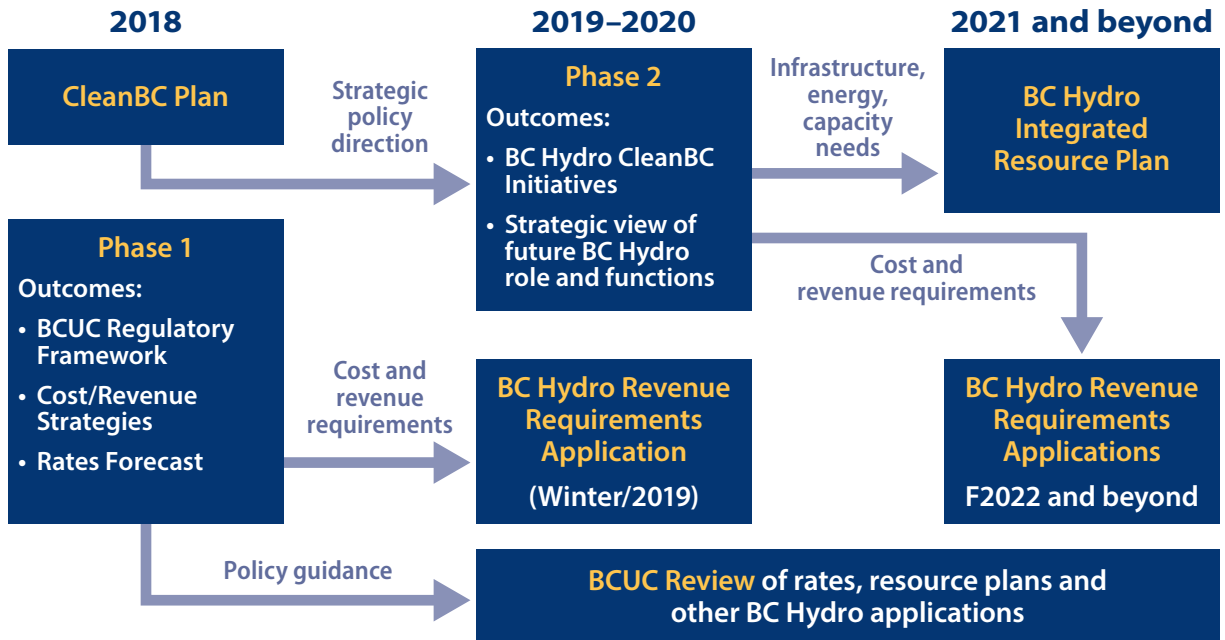
The outcomes from this first phase are assisting BC Hydro in preparing its next Revenue Requirements Application, to be filed with the BCUC in February 2019. During the BCUC's review of that application, stakeholders and the public will have a further opportunity to see and comment on how the outcomes of the first phase of the Review have influenced BC Hydro's financial/operational plan and electricity rates.

Phase 2 of the Review will focus on transformational aspects to changing energy markets. It will be informed by new government strategies, including the CleanBC plan. While Phase 1 focused on the next five years, Phase 2 will take a longer-term view and focus on recommendations to ensure BC Hydro is well positioned to maximize opportunities flowing from shifts taking place in the global and regional energy sectors, technological changes and climate objectives. Terms of Reference for Phase 2 of the Review will be finalized and made public in early 2019.

³ <http://www.hydroquebec.com/data/documents-donnees/pdf/comparison-electricity-prices.pdf>
Application for Electricity Purchase Agreement Extensions
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NWE Williams Lake Wood Waste Facilities

The figure below shows the interrelated nature of these various policy activities:

Figure 1: Policy Activities



2.1 PREVIOUS REVIEWS OF BC HYDRO

In 2011, a provincial government Deputy Ministers' Committee conducted a review of BC Hydro, focusing on cost reductions, efficiency and several policy issues. As a result, BC Hydro reduced its operating costs by \$390 million over a three-year period, reprioritized capital expenditures and reached cost-effective agreements with service providers. In addition, BC Hydro and the government worked together to review the growth of regulatory accounts, with a report completed in March 2014.

In addition to reductions stemming from previous reviews, in 2013 the government and BC Hydro again worked together to reduce pressure on rates and the result was the 2013 10 Year Rates Plan. Government and BC Hydro continued to work together and took further actions after the 10 Year Rates Plan was released to ensure that its targets would be met. The 10 Year Rates Plan covering Fiscal 2015 to Fiscal 2024 had three main components: BC Hydro actions to reduce costs; government actions; and the creation of a Rate Smoothing Regulatory Account. BC Hydro actions related to the 10 Year Rates Plan included finding operating savings to limit cost growth, reducing capital expenditures and selling surplus properties. Government actions included the elimination of the third tier of the provincial water rental rate, reducing and then freezing BC Hydro's allowed net income for rate-setting purposes, and reducing and ultimately eliminating dividend payments to the government. Government issued directions to the BCUC and made other regulations to implement the 10 Year Rates Plan.

The Rate Smoothing Regulatory Account, established in 2014 as a result of government direction, was used to smooth the higher annual rate increases that would have been required to cover BC Hydro's costs in the early years of the 10 Year Rates Plan by enabling BC Hydro to defer collection of revenues from ratepayers to the later years of the Plan.

As of March 31, 2018, the Rate Smoothing Regulatory Account had reached a balance of \$815 million. BC Hydro was scheduled to further defer another \$325 million in revenues into the Rate Smoothing Regulatory Account in Fiscal 2019 (April 1, 2018 to March 31, 2019), which would bring the total balance to approximately \$1.14 billion by March 31, 2019. The balance in the account was to be recovered from ratepayers by the end of the plan in Fiscal 2024 (April 1, 2023 to March 31, 2024).

2.2 BCUC OVERSIGHT OF BC HYDRO

BC Hydro's primary role is to provide safe, reliable and affordable power to its customers. BC Hydro is regulated by the BCUC, which is an independent agency of the government that is responsible for regulating B.C.'s energy utilities. The BCUC works to ensure that British Columbians get value from their utilities with safe, reliable energy services, while also ensuring the owners of the entities it regulates are able to earn a fair return on their invested capital. BC Hydro submits applications to the BCUC every few years to obtain approval of its proposed rate increases. The BCUC then holds a regulatory process to determine if these rate increases are in the best interests of BC Hydro's ratepayers, while also ensuring the long-term sustainability of BC Hydro.

At the same time, as a Crown corporation and agent of government, BC Hydro is also an important instrument of public policy. As such, government may require BC Hydro to undertake projects that benefit the public good, such as projects that support the achievement of the government's legislated greenhouse gas emissions reduction targets or those that promote reconciliation with First Nations and Indigenous peoples of B.C. This dual role can, and has, created conflict between BCUC decisions and government's desire to advance policy priorities through its Crown corporation.

Under the *Utilities Commission Act*, the government has the authority to provide legal direction to the BCUC to guide or define the outcomes of the BCUC's decision-making. The previous government used this authority when implementing the 2007 Energy Plan and the 2013 10 Year Rates Plan. Of note, government directed the BCUC to set or cap BC Hydro's rate

increases at specific levels in the first five years of the 10 Year Rates Plan. Government also directed the BCUC to:

- establish BC Hydro's Rate Smoothing Regulatory Account;
- set BC Hydro's allowed net income for rate-setting purposes, which forms part of the government's overall revenue projections within its annual Fiscal Plan;
- approve the scope and amortization periods of some of BC Hydro regulatory accounts; and,
- allow BC Hydro to implement a number of policy decisions, such as the Smart Metering Infrastructure Program and the decommissioning of the Burrard Thermal Generating Station.

The following table outlines the rate increases in the first five years of the 2013 10 Year Rates Plan:

Table 2: Rate Increases in the 2013 10 Year Rates Plan for Fiscal 2015 to Fiscal 2019

2013 10 Year Rates Plan	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Fiscal 2019
Rate Increases	9%	6%	4.0%	3.5%	3.0%
	Rate increase set by Direction	Rate increase set by Direction	Rate cap set by Direction	Rate cap set by Direction	Rate cap set by Direction

In the final five years of the 10 Year Rates Plan, the rate increases were to be set by the BCUC, with a target of 2.6% annual rate increases in each of those years.

2.3 CONCERNS FROM THE AUDITOR GENERAL

The Auditor General is an independent Officer of the Legislature, and, under a fixed term of office in legislation, has a mandate to conduct audits and performance reviews of government entities, including ministries, Crown corporations and other organizations controlled by, or accountable to, the provincial government. These audits and reviews are intended to report on how well government is managing its responsibilities and resources. The Office of the Auditor General will be taking over as BC Hydro's external auditor starting April 1, 2019.

Past and current Auditors General have expressed an opinion that the government has inappropriately fettered the BCUC's oversight of BC Hydro (including with respect to setting rates and directing other outcomes) and that BC Hydro may not be fully operating as a cost of service utility, where rates are set to ensure a utility is able to recover its costs and provide a reasonable return to its shareholder. Because of these concerns, the current Auditor General qualified the government's Fiscal 2017 and Fiscal 2018 Public Accounts.

In providing a qualified opinion on government's Fiscal 2018 Public Accounts, the Auditor General noted that the government, when consolidating BC Hydro, did not meet accepted

accounting standards for rate-regulated accounting because government direction has largely pre-determined BC Hydro's allowable costs, net income, rate increases and regulatory accounts, leading to rate increases that have not been designed to fully recover the cost of service.

In response to the Auditor General's qualification of the government's Fiscal 2017 Public Accounts, government made a \$950 million summary-level adjustment in its financial statements in August 2018. The Auditor General's opinion recognized government's negative adjustment of \$950 million and noted that government's Crown corporation earnings and year-end surplus would have been \$4.505 billion lower if government had made a full negative adjustment of \$5.455 billion, representing the total balance of BC Hydro's regulatory accounts as of March 31, 2018. Though the Auditor General acknowledged the adjustment and its purpose, she noted that there was more work to be done to restore the BCUC's independent oversight of BC Hydro and to avoid future qualifications.

3. APPROACH, SCOPE & GOVERNANCE OF PHASE 1

In the first phase of the Review, an Advisory Group consisting of staff from the Ministry of Energy, Mines and Petroleum Resources, the Ministry of Finance, and BC Hydro reviewed issues and opportunities that were raised by staff working groups. The Advisory Group was co-chaired by the Assistant Deputy Minister, Electricity and Alternative Energy Division of the Ministry of Energy, Mines and Petroleum Resources and the Chief Accounting Officer of BC Hydro.

The Review was conducted internally to leverage the knowledge of staff in both Ministries and at BC Hydro, especially regarding the regulatory system in B.C. and BC Hydro's business.

The Advisory Group reported monthly to the Steering Committee, which provided feedback and advice on recommendations to responsible Ministers. The Steering Committee was comprised of:

- Deputy Minister, Ministry of Energy, Mines and Petroleum Resources
- Deputy Minister, Ministry of Finance
- President and Chief Operating Officer, BC Hydro
- Executive Chair, BC Hydro
- Executive Vice-President, Finance, Technology, Supply Chain & Chief Financial Officer, BC Hydro⁴

The Terms of Reference for Phase 1 of the Review are included as Appendix A.

⁴ This member joined the Steering Committee in August 2018.

4. PHASE 1 OUTCOMES

Decisions resulting from Phase 1 of the Review focus on ensuring sound financial and regulatory oversight of BC Hydro and measures to keep rates affordable.

4.1 ENSURING SOUND FINANCIAL AND REGULATORY OVERSIGHT OF BC HYDRO

To help ensure sound financial and regulatory oversight of BC Hydro, the government has made changes to the accounting standards BC Hydro must follow and is taking steps to enhance the BCUC's oversight of BC Hydro. This is being done in a way that recognizes impacts to the government's overall Fiscal Plan, while advancing government's social, economic and environmental priorities. These changes also aim to address previous concerns that have been raised by the Auditor General and transition toward increased independent regulatory oversight.

4.1.1 Write-off of the Rate Smoothing Regulatory Account

The balance of the Rate Smoothing Regulatory Account on BC Hydro's financial statements as of March 31, 2018 was \$815 million. Based on the previous government's 10 Year Rates Plan, BC Hydro was scheduled to further defer about \$325 million in revenues into the Rate Smoothing Regulatory Account in Fiscal 2019, which would have brought the total Rate Smoothing Regulatory Account balance to approximately \$1.14 billion. The balance in the account was to be recovered from ratepayers by the end of the plan in Fiscal 2024.

Rate smoothing can be an appropriate goal and an appropriate reason to have a regulatory account, but in this case, the BCUC was directed by government to allow the account without the ability to provide appropriate review and oversight.

As an outcome of the review, government has accepted the recommendation that BC Hydro cease using the Rate Smoothing Regulatory account and write off the entire balance in Fiscal 2019, which will significantly reduce BC Hydro's regulatory account balances. This means that the balance in the account will not be recovered from ratepayers. BC Hydro will request closure of the account in its Fiscal 2020 to Fiscal 2021 Revenue Requirements Application, to be filed with the BCUC in February 2019.

As the cost of the write-off will be borne by BC Hydro and the government, there will be an approximate \$190 million negative net impact to the Province's Fiscal Plan in Fiscal 2019. This figure represents the amount over and above the \$950 million summary-level adjustment the government made to its Fiscal 2018 financial statements. The impact on BC Hydro's financial statements is an expected net loss of approximately \$425 million for Fiscal 2019. Ongoing debt servicing costs (estimated at \$45 million annually) related to the Rate Smoothing Regulatory Account will continue to be recovered from ratepayers.

The table below summarizes these changes and other expected reductions in Fiscal 2019 that are further described in section 4.1.3 as a result of other forecast changes (e.g., positive trading results and the continued collection of most regulatory accounts in rates).

Table 3: Total BC Hydro Regulatory Account Balance

Total BC Hydro Regulatory Account Balance (\$ billions)	Province of BC Public Accounts	BC Hydro Financial Statements
Ending Balance Fiscal 2018	\$4.505 ^A	\$5.455 ^A
Rate Smoothing Write-off	-0.186 ^A	-1.136 ^{A, B}
Other Forecast Changes in Fiscal 2019	-0.696	-0.696
Forecast Ending Balance Fiscal 2019	\$3.623	\$3.623

A There are differences between the Public Accounts and BC Hydro's financial statements because the government already made a \$950M summary-level adjustment to its financial statements at the end of Fiscal 2018 to reduce BC Hydro's net regulatory asset balance.

B BC Hydro has written off the balance of the Rate Smoothing Regulatory Account in its third quarter financial statements, for the period ending December 31, 2018. The balance at the time was \$1.04 billion. The remaining amounts that would have been deferred to the account for the remainder of the fiscal year would have brought the total to \$1.136 billion. These remaining amounts will impact BC Hydro's net income instead of being deferred and hence the total write-off impact is \$1.136 billion in Fiscal 2019.

4.1.2 Changes in Accounting Rules

The accounting rules that BC Hydro was required to follow under the *Budget Transparency and Accountability Act* included an exemption from the requirement that rates be set by an independent, third party regulator. The Auditor General has been critical of this exemption, which is unique to BC Hydro, and believes it means the rules BC Hydro was required to follow were not aligned with Generally Accepted Accounting Principles.

As an outcome of the Review, government has removed this exemption and the effect is that BC Hydro will adopt International Financial Reporting Standards (IFRS), without exception, as recommended by the Auditor General. This change is effective for BC Hydro's year-end financial statements for Fiscal 2019. IFRS rules permit the use of rate-regulated accounting, which is the practice of using regulatory accounts.

4.1.3 Enhanced BCUC Oversight of BC Hydro

The government is restoring the BCUC's authority to oversee key aspects of BC Hydro's business, including rate-setting and regulatory accounts, on a go-forward basis as discussed in the sections below.

The government has repealed Direction No. 7 under the *Utilities Commission Act*, which:

- implemented the previous government's 2013 10 Year Rates Plan by establishing set rate increases, rate caps or targets;
- required the BCUC to set the Deferral Account Rate Rider at 5% indefinitely;
- set BC Hydro's allowed annual net income for rate-setting purposes; and
- required the BCUC to approve creation of the Rate Smoothing Regulatory Account and the deferral of specified revenues into it.

Regulatory changes have been or are being made to implement most decision outcomes of Phase 1 of the Review. Legislation required to further implement Phase 1 decision outcomes is expected to be introduced in the Spring 2019 Legislative Session.

Regulatory Accounts

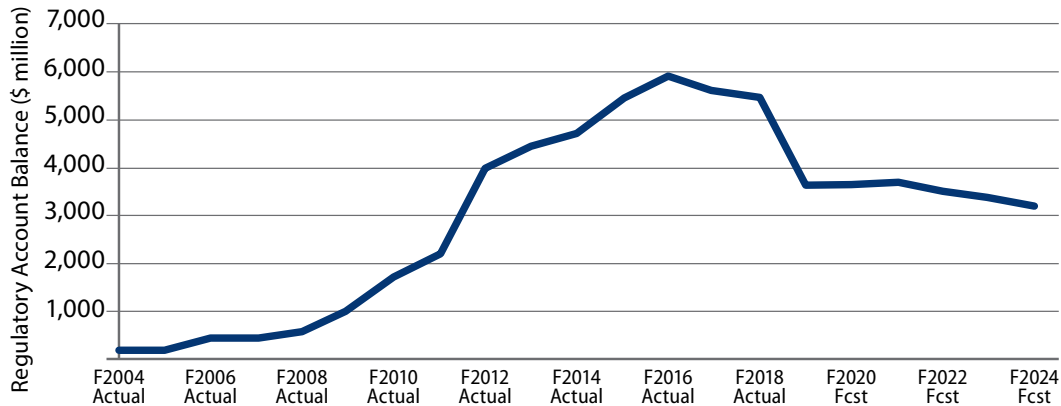
Regulatory accounts are commonly used by electric utilities in North America, are allowed under IFRS accounting rules and can be a useful tool with appropriate regulatory oversight. BC Hydro currently has 29 regulatory accounts, including the Rate Smoothing Regulatory Account. Over the last two years, BC Hydro's regulatory account balances have decreased, and BC Hydro is forecasting another decrease in Fiscal 2019 as a result of positive trading results and the continued collection of most accounts in rates.

Considering the write-off of the Rate Smoothing Regulatory Account, BC Hydro expects that the total regulatory account balance at the end of Fiscal 2019 will be \$3.6 billion (as shown in Table 3), which is approximately 40% lower than the peak of nearly \$6 billion at the end of Fiscal 2016. In addition to the write-off of the Rate Smoothing Regulatory Account, BC Hydro forecasts a decrease in other accounts of approximately \$700 million in Fiscal 2019 alone, due to positive operating results, positive results for Powerex (its marketing subsidiary) and a change related to accounting standards.

After the write-off of the Rate Smoothing Regulatory Account, BC Hydro has regulatory mechanisms in place to recover the balances of 25 of its 28 regulatory accounts over various periods of time, which represents approximately 86% of the net regulatory account balance forecast ending Fiscal 2019 net regulatory account balance.

Figure 2 shows BC Hydro's actual and forecast total year-end regulatory account balances from Fiscal 2004 through Fiscal 2024. This includes the impact of writing off the balance in the Rate Smoothing Regulatory Account in Fiscal 2019.

Figure 2: BC Hydro's Total Regulatory Account Balances (Actual and Forecast) for Fiscal 2004 to Fiscal 2024



Note: Fiscal 2019 – Fiscal 2024 forecast per Fiscal 2019 Quarter 3 Forecast

Figure 2 shows that BC Hydro's forecast total regulatory account balance of \$3.2 billion at the end of Fiscal 2024 is over 45% lower than the peak in Fiscal 2016. Approximately 98% of the forecast balance at the end of Fiscal 2024 is related to balances in accounts that are long-term in nature (for example, accounts that provide longer-term benefits to customers such as the Demand-Side Management and Site C Regulatory Accounts) and that are thus collected from ratepayers over longer periods.

Previous government directions directed the establishment of some of the accounts, directed the deferral of certain costs into those accounts and directed the amortization period (recovery from ratepayers) of some of the accounts.

As a result of Phase 1 of the Review, the BCUC will be able to review the scope and amortization periods for all of BC Hydro's regulatory accounts on a go-forward basis. Select accounts will continue to be subject to government direction, as they directly relate to specific past and currently-confirmed government policy decisions. These accounts include the Mining Customer Payment Plan Regulatory Account and certain costs related to the Demand-Side Management Regulatory Account.

As a result of the Review, government is also directing the BCUC to allow BC Hydro to recover the March 31, 2019 balances of all of its regulatory accounts in rates over time, with the exception of the Rate Smoothing Regulatory Account. The write-off of this account will further reduce BC Hydro's total overall forecast regulatory account balance as shown in Figure 2. This helps ensure that BC Hydro is able to recover the costs it has incurred as a result of past policy decisions. The government has made the regulatory changes necessary to implement these Review outcomes.

Deferral Account Rate Rider (DARR)

The Deferral Account Rate Rider (DARR) is a surcharge (currently 5%) that applies to all charges on customer bills, excluding taxes and levies. Funds collected under the DARR were intended to be used to pay down BC Hydro's three energy deferral account balances (the Application for Electricity Purchase Agreement Extensions for Armstrong Wood Waste Co-Generation and

Heritage Deferral Account; the Non-Heritage Deferral Account; and the Trade Income Deferral Account). These energy deferral accounts capture variances between forecast conditions when rates are set (such as reservoir inflows, market prices and customer demand) and what actually occurs in a given year.

As part of the 2013 10 Year Rates Plan, government required the BCUC to set the DARR at 5% indefinitely, regardless of the balances in the applicable regulatory accounts. BC Hydro has used some of the over \$200 million per year in revenue from the DARR to offset other costs. It was expected that the DARR would remain at 5% at least through the end of the 2013 10 Year Rates Plan in Fiscal 2024.

Following the Review, the government has repealed Direction No. 7 to the BCUC. Going forward, the BCUC will have the ability to determine how the DARR is set and applied. In its upcoming Revenue Requirements Application, BC Hydro will be proposing to lower the DARR from 5% to 0%, based on forecast March 31, 2019 balances in BC Hydro's three energy deferral account balances. This reduction in the DARR is reflected in the table of bill impacts shown on page 34.

Integrated Resource Plan (IRP)

The Integrated Resource Plan (IRP) contains BC Hydro's 20-year projection of electricity demand in B.C. and its comprehensive plan to meet this demand, including through existing facilities, demand-side management (conservation and efficiency efforts), construction or extension of new facilities and new or renewed Electricity Purchase Agreements with independent power producers.

The *Clean Energy Act* required BC Hydro to submit its IRP to government for approval by November 2018. The legislation has significantly limited the BCUC's oversight of BC Hydro's long-term plan, which hampers the BCUC's decision making on various BC Hydro activities, including its applications on capital projects.

The government has amended the deadline for the submission of the next Integrated Resource Plan to February 2021 to allow time for the IRP to be informed by the second phase of the Review and the actions required to support the CleanBC plan.

The government intends to introduce legislation in Spring 2019 to restore the BCUC's oversight authority to review and approve BC Hydro's IRP. Government's policy objectives will continue to inform BC Hydro's development of the IRP under this process moving forward.

Dividends and Net Income

BC Hydro's dividend payments provide cash flow to the government and allow the government to reduce its borrowing requirements. Dividend payments do not directly impact the surplus/deficit in government's Fiscal Plan. In accordance with government regulations, BC Hydro's dividends payable to government are reduced by \$100 million per year as compared to the

dividend paid in the preceding year. This will continue until the dividend payable reaches zero in Fiscal 2020, at which point dividends would not be payable again until BC Hydro reaches a debt to equity ratio of 60:40 under current policy.

A debt to equity ratio of 60:40 is comparable to other utilities in Canada. The regulation regarding dividends was put in place to support BC Hydro in paying down its debt, to improve its debt to equity ratio and to help BC Hydro finance its upcoming capital investment needs. As a result, BC Hydro's Fiscal 2019 dividend will be \$59 million and \$0 for the foreseeable future thereafter.

Net income is the return that BC Hydro is allowed to earn in a given fiscal year. BC Hydro's net income forms part of the government's revenue for government budget purposes. Net income is also a key source of cash resources for BC Hydro that helps finance capital and reduce borrowing.

Direction No. 7 to the BCUC set BC Hydro's allowed net income for rate setting purposes at a fixed amount of \$712 million for Fiscal 2019 and all subsequent fiscal years. Setting allowed net income in regulation provides certainty for BC Hydro and government in developing the overall Provincial Budget and Fiscal Plan. However, this means that allowed net income is established by government rather than by the BCUC and may not reflect an appropriate return for BC Hydro's shareholder. This practice has been criticized by the Auditor General.

As an outcome of Phase 1 of the Review, the government will re-empower the BCUC to set BC Hydro's allowed net income, following a two-year transition period for Fiscal 2020 and Fiscal 2021 where BC Hydro's allowed net income of \$712 million will remain in place. This transition period will allow time for the BCUC to review BC Hydro's next Revenue Requirements Application and to undertake a separate process to determine an appropriate rate of return prior to resuming the regulation of BC Hydro's allowed net income in Fiscal 2022. Government may provide policy guidance to the BCUC and/or participate in regulatory proceedings to inform this process.

Address Government Priorities

The BCUC undertakes its role so that it applies sound utility regulatory principles to its decisions, with a focus on the impact on BC Hydro's ratepayers. That means that the BCUC is not required to implement policy that does not stand on its own from a regulatory perspective. Finding #1 of the 2015 independent review of the BCUC, conducted by an expert Task Force in consultation with the BCUC and stakeholders, indicated that:

It is the provincial government's prerogative to set provincial energy policy, to define the Commission's mandate, and to direct the Commission on specific matters. . .

In the future, government should delineate policies to the Commission clearly, and in advance of Commission processes, then leave the Commission to act independently within its mandate. Where the government does wish to retain the final decision in a matter to itself, and there are complex issues within the expertise of the Commission that should be reviewed, the government should consider referring the matter to the Commission for a recommendation only.

As result of Phase 1 of the Review, if there is a priority policy item for the government to advance, government will introduce legislation or provide direction that supports it. With this approach, the BCUC will be empowered to make decisions with respect to BC Hydro in a mostly unencumbered way, in alignment with the laws and regulatory principles that are applicable to it. Where required, government may also provide policy guidance by participating in proceedings (through a letter of comment or as an intervener) or by issuing directions to the BCUC to help ensure that government's priorities are appropriately considered as part of the BCUC's decision-making processes.

There are also certain directions to the BCUC that will continue to ensure that rates remain affordable and to support the continued implementation of government policy objectives. Government will continue to direct the BCUC:

- not to calculate “expenditures for export”, nor include these costs from recovery in BC Hydro's rates;
- to retain a prohibition on “retail access,” unless requested by a utility;
- not to rebalance BC Hydro's rates, unless requested by a utility; and
- not to regulate Powerex.

Expenditures for Export

Among other things, the *Clean Energy Act* was intended to position B.C. to pursue opportunities for electricity export, given the anticipated high market electricity prices for clean electricity at the time. The *Clean Energy Act* set out the concept of “expenditures for export,” which is unique to BC and not applicable in other Canadian jurisdictions.

To ensure the costs of pursuing such opportunities were not passed along to ratepayers, the BCUC was obliged to ensure that BC Hydro's rates would not allow BC Hydro to recover “expenditures for export” from ratepayers. Under Direction No. 7, government directed the BCUC to refrain from considering these expenditures.

In recent years, shale gas development and subsidization of renewable energy development in the United States have led to low market prices for electricity. As a result, the pursuit of large scale electricity export opportunities has lost its economic rationale and, therefore, the expenditure for export provisions are no longer required.

Government has repealed Direction No. 7 and intends to introduce legislation in Spring 2019 to amend the *Clean Energy Act* to repeal the concept of expenditures for export. In the interim, the government will continue to direct the BCUC to refrain from considering expenditures for export when determining BC Hydro's rates.

Retail Access

Retail access is the ability for customers to secure electricity from the market via a third-party provider rather than the local utility such as BC Hydro. Interest in retail access fluctuates with electricity market prices, with customers interested when open market prices are lower than local supply and not interested when market prices are higher than local supply. In a surplus situation,

Application for Electricity Purchase Agreement Extensions
for Armstrong Wood Waste Co-Generation and

allowing retail access increases the amount of surplus energy that BC Hydro must export, possibly at a loss, increasing costs borne by ratepayers who do not or cannot opt for retail access.

To minimize potential costs to ratepayers, retail access for BC Hydro customers is currently prohibited, and, as a result of the Review, this prohibition will continue. The government has extended the prohibition of retail access through regulation. The prohibition will continue until or unless a public utility, in this case BC Hydro, requests otherwise.

Prohibiting retail access is not unique to BC Hydro. The prohibition of retail access can protect electricity consumers by providing price stability and reducing the duplication of costs that must be passed on consumers (for example, duplicative systems of billing, customer service etc.). In Canada, it is generally true that regions with low and stable electricity prices like Quebec, Manitoba and British Columbia do not have full retail access. In Canada, only Ontario and Alberta have full retail access for electricity rates. In these two provinces, customers can choose to have access to wholesale market prices for energy. The remaining provinces have vertically integrated utilities where customers pay regulated electricity prices.

There is evidence from the U.S. that the average retail price of electricity tends to be more volatile in regions with full retail markets.⁵

Rate Rebalancing

In addition to setting overall rates for public utilities, the BCUC may also determine how these overall costs are to be allocated between the utility's various customer classes (i.e. residential, commercial, industrial). In doing so, the BCUC strives to align, as closely as possible, the revenues received from each class with the cost the utility incurs to serve each class. If the current revenue-to-cost ratios for one or more customer classes fall above or below this range (generally +/- 5% from 100% cost recovery), the BCUC may decide to rebalance rates by increasing or decreasing rates for each customer class by a different amount until an appropriate balance is achieved.

Currently, BC Hydro's residential customers are covering 90.8% of the cost of serving them. Commercial customers are paying as much as 123.5% of their cost of service and industrial customers are just over or under 100%.⁶ If the BCUC were to rebalance rates to address this imbalance, annual rate increases for residential customers for Fiscal 2020 could be up to 2.2% higher⁷ than currently forecast rate increases. At the same time, rates for commercial customers would decrease and industrial rates would remain approximately the same.

The BCUC has been prohibited from rate rebalancing for the purpose of changing the revenue-to-cost ratios between BC Hydro's customer classes for each of Fiscal 2017, Fiscal 2018 and Fiscal 2019. As a result of the Review, to minimize rate increases for BC Hydro's approximately 1.8 million residential accounts, the government will continue to prohibit the BCUC from rebalancing BC Hydro's rates for Fiscal 2020 and Fiscal 2021 through regulation, since a near-

⁵ <https://www.nrel.gov/docs/fy18osti/68993.pdf>

⁶ As reported in BC Hydro's fully allocated cost of service (FACOS) report, filed with the BCUC in March 2018.

⁷ Equivalent to a 2% increase in the cost of service ratio for BC Hydro's residential customers for Fiscal 2020.

term rebalancing of BC Hydro's rates could conflict with government's commitment to keep life affordable for British Columbians. The decision to prohibit rate rebalancing is a matter of public policy.

The government intends to introduce legislation in Spring 2019 to amend the *Utilities Commission Act* to permanently prevent the BCUC from rebalancing rates unless otherwise requested to do so by a public utility.

Rate rebalancing is also prohibited through legislation in Quebec.⁸

Powerex Corp.

Powerex Corp. is a BC Hydro subsidiary and a key participant in energy markets across North America, buying and selling wholesale power, renewable and low-carbon energy and products, natural gas, ancillary services and financial energy products. Powerex's trade activities earn income which is beneficial to its shareholder (BC Hydro) and therefore to BC Hydro's ratepayers.

Powerex operates in competitive wholesale energy markets outside of B.C., where it is subject to regulation by the Federal Energy Regulatory Commission and other regulatory bodies for its wholesale activities. Falling under BCUC oversight would hamper Powerex's ability to compete and earn income in fast-moving and rapidly evolving competitive markets. For this reason, government will continue to restrict the BCUC from regulating the activities of Powerex as an outcome of the Review. It is worth noting that ICBC's optional insurance products, which also operate in a competitive environment, are not regulated by the BCUC.

4.2 KEEPING ELECTRICITY RATES AFFORDABLE

For each fiscal year, BC Hydro forecasts the revenue that it needs to collect from its customers in order to cover its costs. This is known as its "revenue requirements."

BC Hydro has aging assets and an increasingly complex operating environment. It has limited ability to reduce its revenue requirements, because many of its costs are the result of past decisions, projects or contracts and are fixed. Approximately one-third of BC Hydro's Fiscal 2019 revenue requirements⁹ are finance charges related to debt already incurred by BC Hydro, or capital amortization amounts resulting from previously incurred capital expenditures, while water rentals and cost of energy, including energy procurement from Independent Power Producers, make up just over one-third.

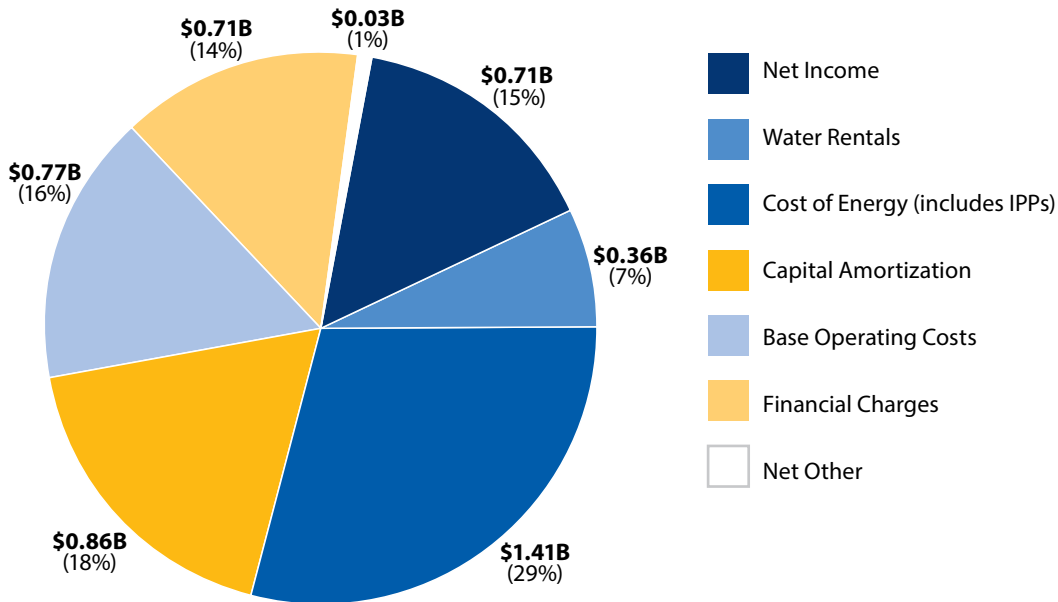
Even though BC Hydro's finance charges relate to debt that has already been incurred, BC Hydro has taken steps to minimize these costs. Through its debt management strategy, BC Hydro has used hedging to lock in low interest rates to the benefit of ratepayers and will continue to do so. This strategy, coupled with BC Hydro's strong credit rating (backed by the Province), will continue to benefit ratepayers.

⁸ <http://legisquebec.gouv.qc.ca/en/ShowDoc/cs/R-6.01>

⁹ Before transfers to the Rate Smoothing Regulatory Account
Application for Electricity Purchase Agreement Extensions
for Armstrong Wood Waste Co-Generation and
NWE Williams Lake Wood Waste Facilities

Figure 3 below shows BC Hydro's forecast revenue requirements for Fiscal 2019.

Figure 3: BC Hydro's Total Revenue Requirement for Fiscal 2019



Despite the example of debt outlined above, because many costs are already incurred or committed, the first phase of the Review focused on BC Hydro's controllable costs drivers, revenue opportunities, and activities to keep rates affordable and support BC Hydro's continued financial sustainability. The Review identified the following strategies to enhance BC Hydro's long-term financial position:

- Write-off of the Rate Smoothing Regulatory Account
- Reduce future energy costs of purchases from Independent Power Producers
- Reduce planned capital expenditures and additions
- Tightly manage controllable operating costs
- Increase revenues

4.2.1 Write-off of the Rate Smoothing Regulatory Account

As discussed above, government has accepted the recommendation under the review that BC Hydro cease using the Rate Smoothing Regulatory Account and write off the entire balance in the account in Fiscal 2019. This means that the balance in the account will not be recovered from ratepayers. This write-off will reduce BC Hydro's total overall forecast regulatory account balance as at March 31, 2019 by roughly 24%, from \$4.7 billion to \$3.6 billion.

Lowering BC Hydro's overall regulatory account balance also means lowering the amount that would be otherwise recovered from ratepayers, thus reducing rate pressures over the next five

years. BC Hydro continues to collect almost all of its remaining regulatory account balances in rates already and will continue to do so over recovery periods determined by the BCUC.

Through government direction, the ongoing debt servicing costs related to the Rate Smoothing Regulatory Account (estimated at \$45 million annually) will continue to be recovered from ratepayers.

BC Hydro's debt has been rising as a result of its significant Capital Plan expenditures (further discussed in Section 4.2.3). In addition to affecting ongoing debt servicing costs, the write-off of the Rate Smoothing Regulatory Account reduces BC Hydro's accumulated equity balance. The impact on BC Hydro's debt:equity ratio, a key ratio in assessing BC Hydro's financial position, will exceed 80:20 at the end of Fiscal 2019. A debt:equity ratio at or below 80:20 is desirable and, with no dividends expected to be payable for the foreseeable future, BC Hydro forecasts that its debt:equity ratio will return to 80:20 by the end of Fiscal 2020), and that the ratio will continue to decline in the years that follow. BC Hydro forecasts a ratio of 76:24 at the end of Fiscal 2024.

4.2.2 Reduce Future Energy Costs from Independent Power Producers

BC Hydro has been purchasing electricity from Independent Power Producers since the 1980s. The 2002 Energy Plan relied on the private sector for new power generation and prohibited BC Hydro from developing new generation resources other than Site C and additions to certain heritage hydroelectric facilities. As a result, BC Hydro began procuring significant amounts of energy from Independent Power Producers under long-term Electricity Purchase Agreements, typically with contract terms of 20-40 years. BC Hydro currently holds over 130 contracts with Independent Power Producers, which represent over \$51 billion in future financial commitments as of April 2018. Additional context can be found in the separate review by independent consultant Ken Davidson.

The cost of energy procured from Independent Power Producers is now one of BC Hydro's biggest cost drivers and these costs will be recovered from ratepayers. Though BC Hydro has not conducted competitive calls for power since 2011, it is projected to have an energy surplus into the 2030s.

The CleanBC plan was released by government in December 2018. It outlines government's plan to reach 75% of its 2030 climate targets through the reduction of greenhouse gas emissions in transportation, buildings and industry. By 2030, CleanBC could require incremental energy of approximately 4,000 gigawatt-hours over and above currently projected demand growth to electrify key segments of the economy. This is equivalent to increasing BC Hydro's system-wide capacity by about 8%. While it is expected that this increase in electricity demand can be mostly met with existing and planned resources, BC Hydro may require additional volumes of new clean electricity to B.C. after 2030 to achieve the remaining 25% of emissions reductions needed to meet government's climate targets for 2030 and beyond. As a result, achieving the government's climate targets could ultimately require additional capital projects.

In 2019, the second phase of the Review is expected to look at changing energy markets, new utility models, emerging technologies and strategies to deliver on CleanBC's longer-term electrification goals.

Although BC Hydro has implemented strategies to contain cost increases where possible, total annual energy acquisition costs are forecast to increase from \$1.4 billion in Fiscal 2018 to \$1.7 billion by Fiscal 2024. Over the remaining life of the portfolio of existing Electricity Purchase Agreements, \$51 billion has been committed, which will be recovered from BC Hydro's ratepayers as energy is received over time.

The cost of energy purchased by BC Hydro from Independent Power Producers has increased dramatically over time. Projected increases in costs between Fiscal 2018 and Fiscal 2024 relate to a number of factors, such as:

- A growing number of projects with existing Electricity Purchase Agreements that have recently come into service (as of October 2018, there were 124 projects in operations) and the nine additional projects with agreements that are currently in development and not yet in service.
- Price escalation, as provided for under existing Electricity Purchase Agreements.
- New Electricity Purchase Agreements entered into under the Standing Offer Program or through negotiations related to contractual commitments to First Nations.

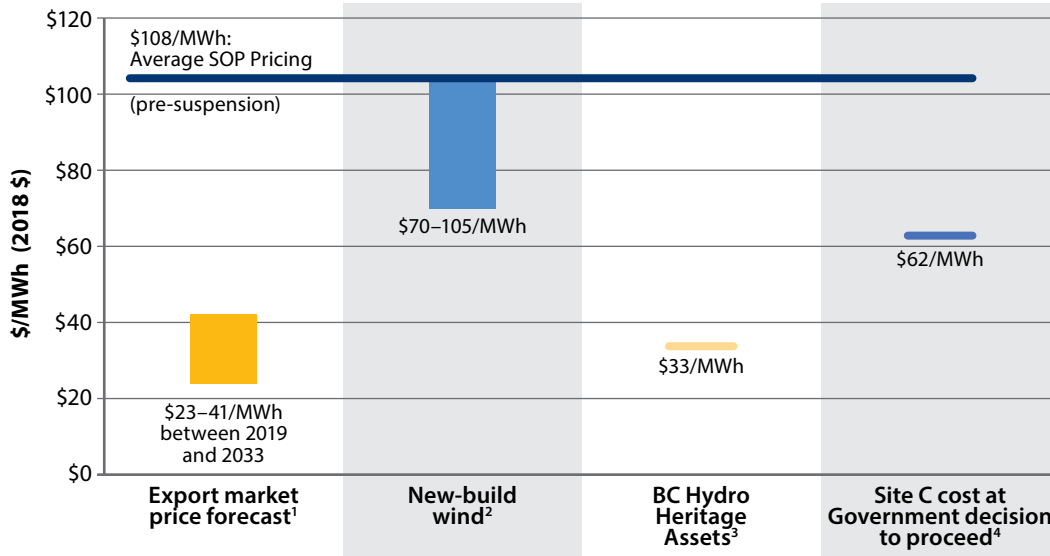
BC Hydro is continuing to manage its portfolio of Electricity Purchase Agreements to ensure that purchases of energy are administered within the terms of the agreements. BC Hydro will continue to exercise its contractual rights to control the costs of energy. However, there is limited flexibility to make significant reductions in energy procurement costs due to the structure of the existing Electricity Purchase Agreements. Existing Electricity Purchase Agreements with Independent Power Producers will not be cancelled as a direct result of Phase 1 of the Review. The primary opportunities for managing costs moving forward relate to expiring biomass agreements and the Standing Offer Program.

The first phase of the Review assessed the current cost to ratepayers of energy procurement and how those costs could be reduced in the future, particularly in view of electricity demand being lower than previously projected. Since the ability to manage cost of energy is largely limited to potential biomass Electricity Purchase Agreement renewals and the Standing Offer Program, actions flowing from the Review focused on these programs.

Figure 4 below shows that current prices for energy from the Standing Offer Program are significantly higher than the cost of generation from Site C and BC Hydro's heritage assets, as well as projected domestic and export market price forecasts.

- Standing Offer Program prices currently average \$108 per MWh, which is over three times the cost of energy from BC Hydro heritage assets and nearly 75% higher than that of Site C; and
- Standing Offer Program prices are up to nearly five times higher than export market price forecasts.

Figure 4: Comparison of the Standing Offer Program pricing of an average of \$108/MWh to Benchmark Energy Values



1 Source: as of Fall 2017

2 Source: Waneta Expansion regulatory filings (mid 2018)

3 Source: Fiscal Year 2018 Reporting

4 Source: as of December 2017

Please note that the characteristics of the energy products compared vary by product, and as such, Figure 4 is provided for illustrative purposes only in order to show the difference in prices. The illustrative prices also change over time due to market conditions and other factors. For example, prices for new-build wind have been changing and depend upon location, terrain and the prices of turbines and other technologies. Phase 2 of the Review will look at recent developments, trends and possible future scenarios in North American energy markets.

Background on Biomass Electricity Purchase Agreements

BC Hydro has contracted with biomass energy generators, mostly in the pulp and paper sector, since the 1980s. By the late-2000s, the number of biomass Electricity Purchase Agreements grew substantially through a number of procurement processes flowing from the 2007 Energy Plan and 2008 Bioenergy Strategy. Seven of these biomass Electricity Purchase Agreements are due to expire by the end of Fiscal 2022.

To generate electricity for delivery to BC Hydro, these Independent Power Producers burn wood waste generated by the forest sector, primarily from sawmills. This provides benefits to both the biomass generating facilities and the sawmills, as there are limited economically viable alternative uses for this wood waste at this time. In the absence of Electricity Purchase Agreements, some of these biomass generating facilities might no longer operate, which means that the wood waste may then need to be placed in landfills or burned in slash piles, leading to higher emissions of methane and/or particulates.

Application for Electricity Purchase Agreement Extensions
for Armstrong Wood Waste Co-Generation and
NWE Williams Lake Wood Waste Facilities

The pulp and paper sector in British Columbia operates in competitive, evolving global markets, with reduced domestic fibre supply and aging capital infrastructure. Biomass Electricity Purchase Agreements have been an important source of ancillary revenue for some of these companies. Eliminating or significantly scaling back biomass energy volumes and prices could have implications for jobs and the economy in forest-dependent communities, in addition to the environmental implications outlined above.

Five of the seven holders of expiring biomass Electricity Purchase Agreements are also BC Hydro customers. These Electricity Purchase Agreements are not only tied to the viability of the companies, but also to revenues to BC Hydro. The production of biomass energy associated with these Electricity Purchase Agreements advances certain environmental and socio-economic priorities of the government in relation to the forest sector, including maintaining regional fibre balance among various forest sector users and avoiding burning or landfilling of waste biomass.

Approach to Biomass Energy

BC Hydro, in consultation with government, has been working on an approach to biomass energy to determine the best course of action to deal with those biomass generating facilities with Electricity Purchase Agreements due to expire within the next three years. This approach considers fuel supply availability, cost effectiveness, impacts on BC Hydro ratepayers and other government priorities. The end result will be the imminent launch of the Biomass Energy Program.

In addition, the government will work with industry to develop a strategy to accelerate the development and implementation of renewable natural gas and bio-crude production within the forest sector to enhance its longer-term competitiveness and to support the CleanBC plan.

Biomass Energy Program

BC Hydro's Biomass Energy Program is a cost and volume limited, transitional measure intended to allow time for the forest sector to develop and implement new product lines consistent with the sector's industry diversification and competitiveness goals. It also allows for the continued operation of those biomass generating facilities with expiring Electricity Purchase Agreements over the next three years, providing potential optionality for BC Hydro should it require additional supply resources in the future.

Under the Biomass Energy Program, BC Hydro will continue to acquire biomass energy from facilities that have existing Electricity Purchase Agreements due to expire prior to March 31, 2022. BC Hydro will acquire up to 80% of the aggregate volume that these biomass generators have historically delivered to BC Hydro. BC Hydro will procure this energy through a combination of load offset and/or energy purchases. Load offset will be given priority over energy purchases.

Load offset is energy generated by a BC Hydro customer at its customer site to offset the energy the customer currently purchases from BC Hydro to serve its own needs. Eligible facilities will

be offered an opportunity to offset load and/or negotiate energy purchase contracts depending on the volume of generation at their site.

BC Hydro could also purchase energy from companies that both BC Hydro customers and non-BC Hydro customers. These energy purchases offer additional revenue opportunities to those biomass energy generators who produce electricity that is surplus to their own needs at their customer site, and to those biomass energy generators that are not eligible for load offset because they are not BC Hydro customers.

To manage impacts on BC Hydro ratepayers, the prices and volumes of the biomass energy to be acquired by BC Hydro as part of this program will be lower relative to current contracts. The costs for this program must be managed within BC Hydro's rates forecast, and caps have been established for pricing, volume and overall costs of the program.

The government intends to provide a direction to the BCUC with respect to the approval of the program documentation and require the costs associated with the Biomass Energy Program to be recovered from ratepayers.

Renewable Fuels Acceleration Strategy

As a separate initiative, the government will work with industry to transition over time to other uses of waste residuals, including the production of higher value renewable energy products like Renewable Natural Gas (RNG) and bio-crude, which are considered to be carbon neutral as they capture methane that would otherwise escape into the atmosphere through the breakdown of organic matter.

The government has set targets to promote higher production levels of these low carbon fuel products under the CleanBC plan, one of a number of initiatives that will substantially reduce greenhouse gas emissions in the transportation, buildings and industrial sectors. Under the CleanBC plan, government has set targets for 15% of British Columbia's domestic natural gas supply to come from RNG and hydrogen, and 650 million litres of bio-crude to be produced from B.C. feedstocks by 2030. The Ministries of Energy, Mines and Petroleum Resources and Forests, Lands, Natural Resource Operations and Rural Development will work with industry to develop a renewable fuels acceleration strategy to assist in this transition.

While a shift to focusing waste fibre to produce biofuels instead of electricity has potential, focused work is required to move from a concept to commercial implementation, and this shift could take a number of years. The government considers the Biomass Energy Program to be a temporary measure, to provide time for the industry to transition to alternate forms of energy that align with longer-term provincial climate objectives.

Background on the Standing Offer Program

The Standing Offer Program is a continuous-intake program for small, permit-ready projects with a capacity of no more than 15 MW. The Standing Offer Program was developed in response to the 2002 Energy Plan. Initially launched in April 2008, it has become a vehicle for small Independent Power Producers, communities, First Nations and others who may lack

the capacity to participate in larger, competitive procurement processes. As BC Hydro has not conducted competitive calls for power since 2011, the Standing Offer Program has become the primary energy procurement offering available to any organization seeking to secure a long-term Electricity Purchase Agreement with BC Hydro.

The Standing Offer Program is structured to focus on small projects. BC Hydro offered a set energy price derived from the results of prior market-based BC Hydro calls for power and this set price escalates each year with inflation. Although the Standing Offer Program price has been escalating with inflation since 2011, the cost of renewable generation technologies, especially wind, has been decreasing.

Starting in 2016, BC Hydro, the Ministry of Energy, Mines and Petroleum Resources and Clean Energy BC (Independent Power Producers' industry association) collaboratively examined options for the future of the Standing Offer Program. This review was ultimately halted, in light of concerns about BC Hydro's energy surplus and the government's commitment to carry out the Review.

Under the Standing Offer Program, BC Hydro had been acquiring up to 150 GWh of new supply each year. In August 2017, BC Hydro stopped accepting new project applications as the volume for 2017, 2018 and 2019 was fully subscribed. In March 2018, BC Hydro announced that it would not issue any new Electricity Purchase Agreements pending the completion of the Review, with the exception of five specific projects that are part of Impact Benefit Agreements for First Nations with BC Hydro and/or mature projects that have significant First Nations involvement.

Indefinite Suspension of the Standing Offer Program

Currently, the *Clean Energy Act* requires BC Hydro to maintain the Standing Offer Program and provides the government with the authority to prescribe circumstances that would allow BC Hydro to no longer be required to maintain the program. As a result of the Review, the Standing Offer Program will be suspended indefinitely, based on the current Standing Offer Program contract commitments. No new Electricity Purchase Agreements, other than the five specific projects noted above, will be issued by BC Hydro. This will significantly reduce BC Hydro's future costs for energy, which benefits ratepayers.

The government has issued a regulation under the *Clean Energy Act* that specifies that when the cumulative capacity of facilities with Standing Offer Program contracts exceeds 100 MW, BC Hydro is no longer obligated to maintain the Standing Offer Program. To date, BC Hydro has contracted with facilities with over 170 MW of capacity under the Standing Offer Program and so has exceeded that threshold. This means that existing Electricity Purchase Agreements remain valid, but BC Hydro will no longer be obligated to continue to maintain a Standing Offer Program, including offering any new Electricity Purchase Agreements.

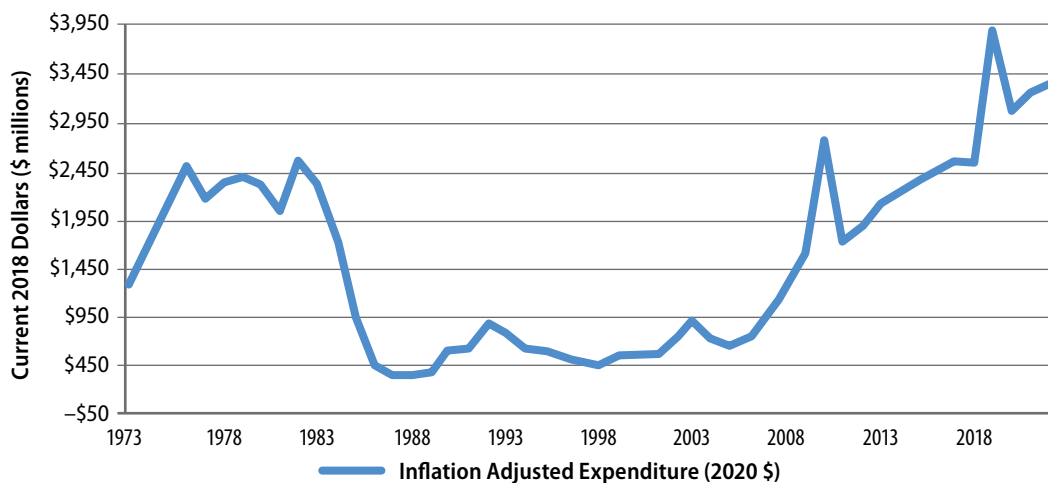
Many Indigenous Nations have expressed interest in clean energy projects, which can bring economic benefits to their communities, stable sources of independent, long-term revenues to their governments and, for non-integrated areas, opportunities to displace diesel generation with clean electricity. The Ministry of Energy, Mines and Petroleum Resources

will be engaging with Indigenous Nations to discuss the extent to which the indefinite suspension of the Standing Offer Program may affect the economic interests of individual Indigenous Nations. Further information about this engagement process is available at <https://engage.gov.bc.ca/sopengagement/>

4.2.3 Reduce Planned Capital Expenditures and Additions

There are hundreds of BC Hydro capital projects currently underway that, together, make up one of the largest investments in electrical infrastructure in B.C.'s history. These investments maintain BC Hydro's system, much of which was built in the 1960s, 1970s and 1980s and is in need of upgrade and replacement to ensure ongoing safety and reliability for customers. BC Hydro's capital expenditures, starting in 1973 are shown in Figure 5 below.

Figure 5: BC Hydro Capital Expenditures through the years

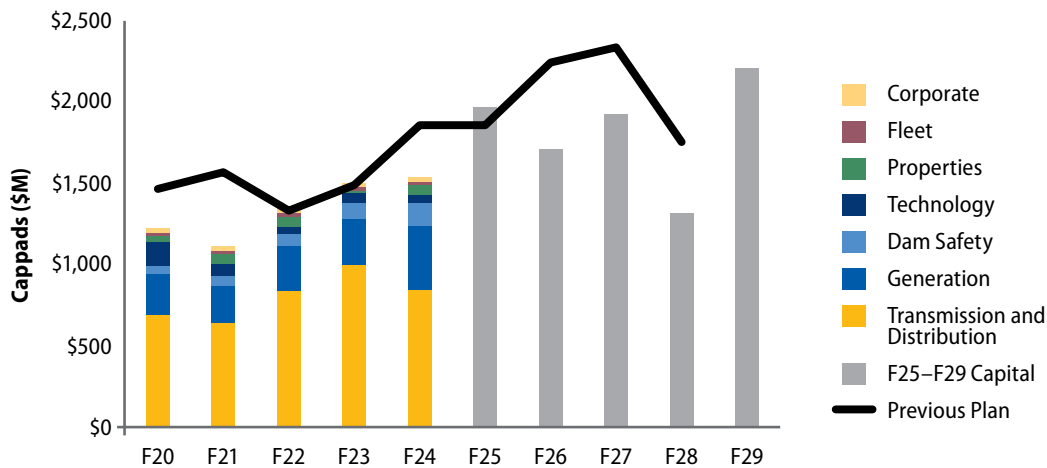


Investments also include projects for growth in the system as the provincial economy expands and the population grows. BC Hydro's 10-Year Capital Plan has been developed and is updated annually.

BC Hydro recovers the cost of its capital assets in rates over the useful life of the assets. Amortization of capital assets begins when the asset is put into service.

BC Hydro was planning capital additions totalling \$18.5 billion between Fiscal 2020 and Fiscal 2029 under its 10-Year Capital Plan. BC Hydro undertook a review of the plan as part of the Review and will reduce these capital additions by \$2.7 billion, from \$18.5 billion to \$15.8 billion over the 10-year period.

BC Hydro's Capital Plan includes five years of investment-level detail covering Fiscal 2020 through Fiscal 2024, and a high level projection for Fiscal 2025 to Fiscal 2029. The figure below compares the capital additions from the prior plan with the revised plan described above.

Figure 6: Comparison of Capital Additions in Current and Prior Capital Plans

Note: "Fleet" refers to BC Hydro's vehicle fleet

Of the \$2.7 billion reduction in capital additions over the 10-year period, approximately:

- \$1.6 billion results from a reduction of sustainment expenditures over the ten-year period, relative to previously planned amounts;
- \$0.5 billion relates to the postponement of transmission and distribution projects that are no longer required on the same schedule due to changing load forecast projections; and
- \$0.6 billion relates to a change in the need for a sixth generating unit at the Revelstoke generating facility, shifting the forecast in-service date of the project to 2030.

BC Hydro has carefully considered system impacts to ensure that risks to safety and reliability will be managed by targeting remaining investments in its most critical and/or highest risk assets. Investments needed to meet minimum legal, regulatory or tariff compliance requirements will not be reduced.

BC Hydro continues to refine the appropriate balance between asset life, system performance and affordability and believes that by appropriately timing expenditures we will provide more value to both current and future customers.

The 10-Year Capital Plan is informed by BC Hydro's load forecast which will be released in 2019 as part of the Revenue Requirements Application to be filed with the BCUC in February 2019.

The electrification required to meet the targets in the CleanBC plan will increase electricity demand. It is expected that this increase in electricity demand can be mostly met with existing and planned resources and will be further examined as part of Phase 2 of the Review. BC Hydro will consider the outcomes of the second phase of the Review in future annual capital plan updates.

The BCUC will review BC Hydro's capital projects going forward that require a Certificate of Public Convenience and Necessity or are filed under Section 44.2 of the *Utilities Commission*

Application for Electricity Purchase Agreement Extensions
for Armstrong Wood Waste Co-Generation and

NWE Williams Lake Wood Waste Facilities

Act. This excludes those projects that have already been provided with exemptions, or may be exempted in the future because they support certain policy objectives. The BCUC also has the opportunity to review all forecast capital expenditures and additions through BC Hydro's Revenue Requirements Applications.

The BCUC is currently reviewing its regulatory framework with respect how it provides oversight on BC Hydro's capital projects. BC Hydro is participating in this proceeding and a BCUC decision is expected in 2019.

As requested by the BCUC, BC Hydro will file a report regarding the potential applicability of performance-based regulation (PBR) for BC Hydro when it files its upcoming Revenue Requirements Application. Under the current cost of service regulatory framework, the BCUC seeks information to review costs for prudence. Under PBR, for certain costs (possibly including some capital and operating costs), base year costs are set and then adjusted via a formula in future years, including incentives for efficiencies. PBR is used to regulate various utilities in Canada, though there are limited instances in which it is used for Crown corporations. The BCUC will decide whether PBR is an appropriate approach for regulation of BC Hydro.

4.2.4 Tightly Manage Controllable Operating Costs

Over the five-year rates forecast period from Fiscal 2020 to Fiscal 2024, BC Hydro faces increases in projected incremental operating costs due to the Employer Health Tax, pension cost adjustments mandated by the BCUC, labour costs stemming from the upcoming collective bargaining mandate, storm restoration costs and anticipated increases in school property taxes. These incremental costs are partially offset by the elimination of Medical Service Plan premiums.

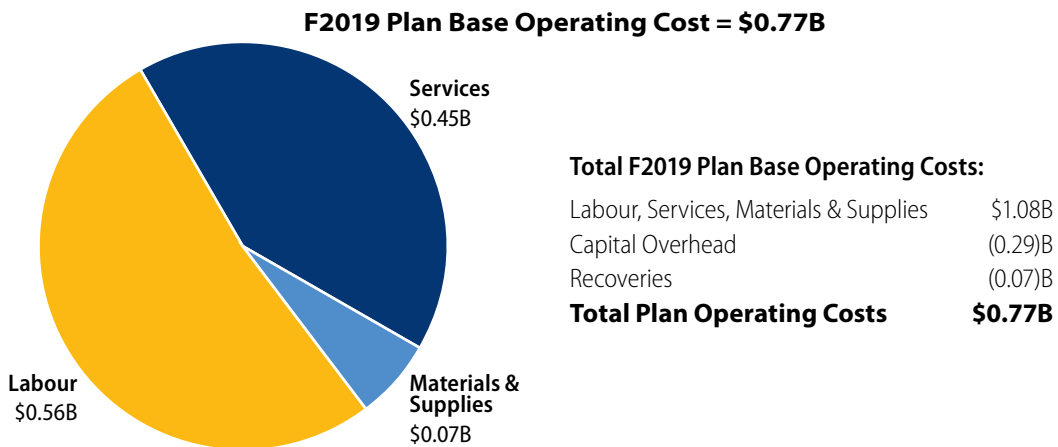
In addition to the sustained reductions to operating costs made from prior reviews (see section 2.1), BC Hydro will make reductions to other operating costs over the same period to help partially offset operating cost pressures that it is facing. Some of these reductions are a result of process improvements and lower spending on specific projects and initiatives, while others will come from labour utilization savings and further reductions are due to the impact of accounting treatment changes.

For example, process improvements such as the Enterprise Billing project achieve cost savings by reducing costs through paperless billing and lowering the volume of bill inquiries. BC Hydro will realize savings in future years from the Supply Chain Applications project that is underway and also from its decision to insource certain services that were previously provided by Accenture. BC Hydro has also achieved forecast savings through more efficient use of labour budgets, the elimination of a property lease and lower communications budgets.

BC Hydro's operating cost plan going forward balances affordability for ratepayers, while also making investments in its system.

BC Hydro expects to be able to limit its base operating cost increases below the projected rate of inflation over the five-year rates forecast period. These operating costs will be reviewed by the BCUC as part of the upcoming Revenue Requirements Application proceeding. A further breakdown of BC Hydro's operating costs and how these costs are trending is provided below.

Figure 7: Breakdown of Base Operating Costs in Fiscal 2019 Plan



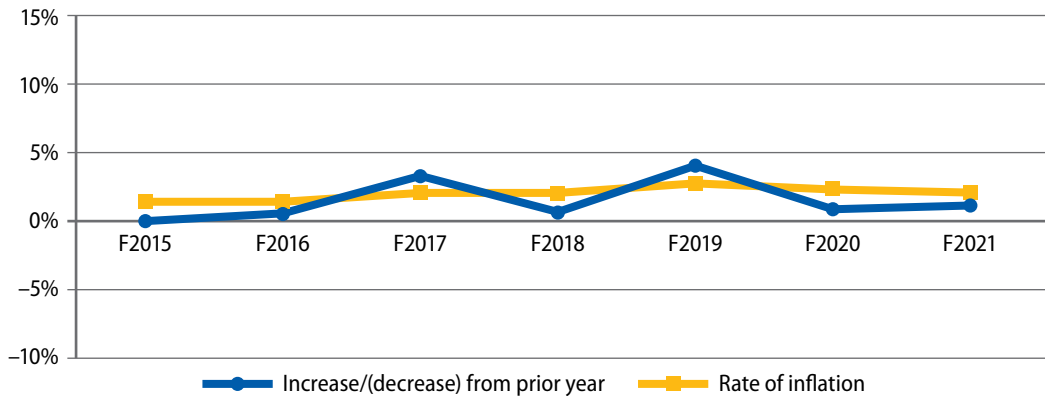
- **Labour** includes personnel costs including salary, wages and benefits for BC Hydro internal labour workforce.
- **Services** includes costs such as contractor and consulting services, power purchase arrangements treated as leases, insurance, dues and fees, communication and utilities, building and property rent.
- **Materials and Supplies** include costs such as materials (e.g., connectors, brackets, splitters, batteries, tubing), computer software, office supplies and miscellaneous supplies.

Within Public Sector Employers Council (PSEC) rules, BC Hydro seeks to provide inflationary wage/salary increases to its staff. When purchasing services and materials from third parties, these costs are also subject to inflation.

Base Operating Costs Trend

Despite inflationary pressures noted above, Figure 8 shows that BC Hydro has been able to limit increases in its base operating costs below inflation in recent years as a result of prudent management and continuous improvement.

Figure 8: BC Hydro Base Operating Cost Trend



1. Rate of Inflation - Fiscal 2015 to Fiscal 2018 source www.bcstats.gov.bc.ca produced by BC Stats January 2018 (by fiscal year end).
2. Rate of Inflation - Fiscal 2019 – F2021 source Consumer Price Index assumptions from Treasury Board, October 5, 2018.
3. F2019 includes a \$10 million (approx. 1.3%) increase stemming from how BCUC directed BC Hydro to forecast pension costs for rate setting purposes. The actual change in costs may be different and will be known at the end of the fiscal year.

BC Hydro's average base operating cost increase over the Fiscal 2015 to Fiscal 2021 period is 1.50%, which is 0.44% below the average rate of inflation of 1.94% for the same time period.

4.2.5 Increase Revenues

Increase revenues through sale of Low Carbon Fuel Standard (LCFS) credits

Under the *Greenhouse Gas Reduction (Renewable & Low Carbon Fuel Requirements) Act* and the Renewable and Low Carbon Fuel Requirements Regulation (the Regulation), transportation fuel suppliers in British Columbia must, among other obligations, progressively decrease the average carbon intensity of their fuels to achieve a 10% reduction in 2020 relative to 2010. Further increases in stringency to achieve a 20% reduction in carbon intensity by 2030 were announced in December 2018 as part of the CleanBC plan. Under the current Regulation, fuel suppliers select their own approach for compliance with this requirement. Fuel suppliers can:

- supply more low carbon fuels;
- acquire credits through a Part 3 Agreement; and/or
- trade credits with other suppliers.

The Ministry of Energy, Mines and Petroleum Resources is currently undertaking a review of the LCFS program. As part of this review, regulatory and legislative changes could increase the number of LCFS credits available for sale. If adopted, these changes would generate incremental revenues for Powerex and its parent, BC Hydro, between Fiscal 2020 and Fiscal 2024. This incremental revenue would be incorporated in future rate forecasts.

Work to attract additional customers and increase electricity demand

Phase 1 of the Review explored opportunities to increase electricity demand. BC Hydro continues to forecast that it will have an energy surplus, even with the changes in the future of energy procurement resulting from the Review. Today, BC Hydro sells that surplus into export markets.

BC Hydro is pursuing strategies to grow domestic electricity demand. As part of this, BC Hydro is exploring the option to offer current industrial customers year-round access to real time, market-based pricing for incremental energy purchases. For example, during the freshet period, there are high inflows into BC Hydro's reservoirs, resulting in surplus electricity generation that could potentially be sold at a discounted rate to industrial customers.

BC Hydro is engaging with stakeholders and customers on these options and expects to file an application with the BCUC in 2019 regarding real time market-based pricing. If any of these strategies are approved by the BCUC, the impacts would be incorporated in future rates forecasts.

5. FIVE YEAR RATES FORECAST

Based on the outcomes of Phase 1 of the Review, BC Hydro's rates forecast covering the five-year period from Fiscal 2020 to Fiscal 2024 would result in an estimated cumulative increase in customer bills of 8.1%. This increase is almost 40% lower than the cumulative target increases of 13.7% in the previous government's 10 Year Rates Plan. It is also approximately 20% lower than the forecast increase in inflation of 10.7% over the same time period and helps to keep electricity bills affordable for customers.

The forecast bill impact of 1.8% in Fiscal 2020 is a result of a forecast rate increase of 6.8% for that year, offset by an expected reduction in the DARR from 5% to 0%.

Table 4: BC Hydro Five Year Rates Forecast

	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Cumulative Five Years*
Current Rates Forecast – Annual Rate Increase before reducing the DARR	6.8%	0.7%	2.2%	0.0%	3.2%	n/a
Current Rates Forecast – Annual Bill Impact – including reduction in DARR**	1.8%	0.7%	2.2%	0.0%	3.2%	8.1%
Previous Gov't's 10 Year Rates Plan – Annual Bill Impact	2.6%	2.6%	2.6%	2.6%	2.6%	13.7%
Forecast BC Inflation	2.3%	2.0%	2.0%	2.0%	2.0%	10.7%

* Cumulative rates do not equal the sum of individual rate changes shown for each year due to the effect of compounding.

** after reducing the Deferral Account Rate Rider (DARR) from 5% to 0%, beginning in Fiscal 2020. Under the 2013 10 Year Rates Plan, the DARR was set at 5% indefinitely – it was expected to remain at 5% at least through Fiscal 2024. Going forward, the BCUC will now determine how the DARR is set and applied. This change is explained further in section 4.1.3.

Under the new regulatory model for BC Hydro, rate increases will be determined by the BCUC in future revenue requirements proceedings. That means that future rate increases may be lower or higher than the rates forecast shown above. BC Hydro intends to make all reasonable efforts to maintain rate increases within the projected rates forecast.

6. NEXT STEPS

Government is implementing the changes to ensure sound financial and regulatory oversight of BC Hydro and to keep rates affordable for customers. The outcome of Phase 1 will also inform Phase 2 of the Comprehensive Review, which will focus on transformational aspects to changing energy markets. This second phase will be informed by new government strategies, including the CleanBC plan, and will provide a strategic and long-term view of the future role of BC Hydro.

Phase 1 of the Review also supports BC Hydro in filing its next Revenue Requirements Application with the BCUC. Through this open and transparent regulatory process, stakeholders and the public will be able to comment on BC Hydro's costs, spending and electricity rates.

Government remains committed to keeping electricity rates affordable for British Columbians and positioning BC Hydro for success in the years ahead.

APPENDIX A: PHASE 1 TERMS OF REFERENCE

Terms of Reference

2018 Comprehensive Review of BC Hydro – Phase 1

Context

Under the Minister of Energy, Mines and Petroleum Resources' Mandate Letter, the ministry is required to undertake a comprehensive review of BC Hydro, and work with BC Hydro to develop a refreshed plan to keep rates low and predictable over the long-term.

The ministry has received direction to undertake a two-part review. The first part is to focus primarily on BC Hydro's costs and rates, including creating the refreshed plan for rates, and will assist BC Hydro in preparing a Revenue Requirements Application to be filed with the BC Utilities Commission in February 2019.

The second part will focus on transformational aspects to changing energy markets, and respond to the expected Energy Road Map for BC and assist BC Hydro in developing its Integrated Resource Plan in 2019. Terms of reference for this second part will be finalized after the first part of the review has been completed. The remainder of this document focuses on the first part of the review.

Objective

BC Hydro and ministry staff will develop options for consideration to support a new 10 Year Rates Plan, with the ultimate goal of reducing the growth in BC Hydro's electricity rates and ensuring sound financial and regulatory oversight of BC Hydro. The Advisory Group will provide advice and analysis by assessing options and the actions required to achieve them.

Membership

An Advisory Group consisting of staff from BC Hydro, the Ministry of Finance and the Ministry of Energy, Mines and Petroleum Resources (EMPR) will perform the first phase of the review. The Advisory Group may consult with BC Utilities Commission staff.

Advisory Group Co-chairs

- Assistant Deputy Minister, Electricity and Alternative Energy Division, Ministry of Energy, Mines and Petroleum Resources
- A/Chief Financial Officer, BC Hydro

Governance/Accountability

The Advisory Group will report monthly to the Steering Committee. The Steering Committee will provide feedback and advice on options and recommendations to Ministers.

Steering Committee Membership

- Deputy Minister, Ministry of Energy, Mines and Petroleum Resources
- Deputy Minister, Ministry of Finance
- President and COO, BC Hydro
- Executive Chair, BC Hydro

Timeline

The Advisory Group, based on advice from the Steering Committee, will prepare options and recommendations for consideration by Ministers by summer 2018.

A report on the first phase of the review, and Government's response, will be released in the fall of 2018. The report will describe the areas of BC Hydro's finances, programs and operations, that were examined during the review, and decisions by government in response to the Advisory's Group's recommendations.

The report will also inform BC Hydro's next rate application, which will be filed with the B.C. Utilities Commission (BCUC) in early 2019. During the BCUC's review of that application, stakeholders and the public will have a further opportunity to see and comment on how the outcomes of the first phase of the BC Hydro review have influenced BC Hydro's finances, and electricity rates.

Areas of Focus

The Advisory Group has identified the following areas of focus, which include the key components of BC Hydro's revenue requirements, known items that need to be resolved, BCUC feedback from their decision of the Fiscal 2017 – Fiscal 2019 Revenue Requirements Application, and other issues that have been identified:

1. Revenues / Load Forecasting
2. Cost of Energy
3. Operating Costs and other issues
4. 10 Year Capital Plan (excluding Site C)
5. Regulatory Accounts
6. Demand-Side Management
7. Water Rentals
8. Net Income and Dividends
9. Legal Considerations
10. Customer Affordability / Rates
11. Powerex
12. Financial Forecasting (i.e., impact of all of the above on future rates)
13. Debt/Cash Management
14. Enterprise Risk Management

APPENDIX B: FOCUS AREAS OF THE REVIEW

Regulatory Accounts

Work in this area examined the historical context of regulatory accounts, forecast balances and current accounts. Regulatory accounts are commonly used by utilities. They represent costs not yet recovered from, or revenues not yet refunded to, BC Hydro ratepayers. BC Hydro uses regulatory accounts to match costs with benefits for customers, to capture differences between forecast and actual costs and revenues typically related to uncontrollable factors (e.g., interest rates, water inflows, storm restoration costs), to smooth rate increases over time and to manage the impact to ratepayers of changes in accounting rules. As of September 30, 2018, BC Hydro had 29 regulatory accounts with a balance of approximately \$4.8 billion.

Work in this area also focused on empowering the BCUC to exercise oversight and make decisions on all future costs and regulatory accounts on a go-forward basis, while ensuring that BC Hydro could continue recovering costs related to previous policy decisions. This area also explored the write-off of the balance of the Rate Smoothing Regulatory Account.

Cost of Energy Acquisition

Work in this area included an assessment of the current cost to ratepayers of energy acquisition programs and how those costs could be reduced in future. Since the ability to manage cost of energy is largely limited to potential biomass Electricity Purchase Agreement renewals and the Standing Offer Program, actions focused on these programs.

Operating Costs

Work in this area examined current base operating costs and forecast future operating cost pressures and savings.

In recent years, BC Hydro has limited the growth in its base operating costs. For example, in its last Revenue Requirements Application, BC Hydro limited its proposed base operating cost increases to below forecast B.C. inflation. These operating costs were approved by the BCUC.

Over the five-year rate forecast period from Fiscal 2020 to Fiscal 2024, BC Hydro faces increases in projected incremental operating costs. These incremental costs are partially offset by the elimination of Medical Service Plan premiums. BC Hydro will make further reductions to contain operating costs over the five-year rate forecast period and, as a result, focuses its efforts to be able to limit its base operating cost increases below the forecast rate of inflation over the Fiscal 2020 to Fiscal 2024 period. Further review of operating costs by the BCUC and interveners will occur in 2019 as part of BC Hydro's next Revenue Requirements Application process.

Capital Plan

Work in this area focused on an updated capital plan as well as asset retirements, dismantling costs and write-offs.

BC Hydro is spending over \$2 billion annually on capital projects. BC Hydro recovers the cost of its capital assets in rates through amortization that is included in its revenue requirements. Amortization of capital assets starts when the asset is put into service.

BC Hydro's 10-year Capital Plan is updated annually to ensure that the existing electricity system continues to perform safely and reliably and that upgrades and new facilities are added in time to meet projected growth in electricity demand.

Revenues/Load Forecasting

Work in this area examined sector assumptions, electrification scenarios, new revenue streams, as well as restoring the regulatory oversight and a new timeline for the Integrated Resource Plan.

BC Hydro forecasts its revenues from electricity sales based on the forecasting of load, or demand, for electricity. Forecasting load over the long term is inherently uncertain as it is difficult to predict future trends related to economic and population growth, energy efficiency and technology. In recognition of this uncertainty, BC Hydro plans over a longer term within uncertainty ranges.

As a cost of service utility, BC Hydro's requested revenue requirement is designed to equal its expected costs. Revenues have two components: the rate and the amount of electricity sold. Estimating the amount of electricity that will be sold – the load forecast – is a critical component to determining the rate.

The load forecast for the Fiscal 2017 – Fiscal 2019 Revenue Requirements Application was developed in May 2016. Actual results since May 2016 have closely tracked the May 2016 Load Forecast, falling within 0.5% to 0.7% of actuals for Fiscal 2017 and Fiscal 2018. Nevertheless, BC Hydro's load forecast has since been the subject of a number of reviews, including the 2017 Load Forecast Internal Audit, the Fiscal 2017 – Fiscal 2019 Revenue Requirements Application Decision and the Site C Inquiry Final Report. In response to these reviews and as part of BC Hydro's continuous improvement efforts, BC Hydro has made changes to its load forecast methodology. Key concerns expressed by the BCUC and the BC Hydro's internal audit review have now been addressed. For example, the Five-Year Load Forecast that will be part of BC Hydro's next Revenue Requirements Application reflects the results of a new price elasticity study and modified approach to forecasting demand from Liquefied Natural Gas.

Dividends & Net Income

Work in this area included the setting of BC Hydro's allowed net income, including how to transition this responsibility to the BCUC.

BC Hydro's net income forms part of the government's revenue for Provincial budget purposes. Under the previous 2013 10 Year Rates Plan, BC Hydro's allowed net income was set by government and BCUC was required to approve the set amounts. Typically, a utility's allowed net income is set by its regulator to balance ratepayer and shareholder interests. As a result of the Review, the BCUC will set BC Hydro's allowed net income for rate-setting purposes after a two-year transition period.

BC Hydro's dividend payments provide cash flow to the government and allow the government to reduce its debt requirements. Dividend payments do not directly impact the government's fiscal surplus/deficit, but do impact taxpayer-supported borrowing requirements. Under current government regulation and policies, BC Hydro's dividend for the current fiscal year will be \$59 million and \$0 thereafter until such time as BC Hydro achieves a 60:40 debt:equity ratio, which is more typical for utilities than BC Hydro's current ratio of approximately 80:20. The approach to dividends will not change at this time as a result of the Review.

Powerex

Work in this area focused on BC Hydro's subsidiary, Powerex, and how it contributes to ratepayer value through its net income. The area also examined the potential to increase Powerex net income through the sale of renewable energy credits.

Powerex is a key participant in energy markets across North America, buying and selling wholesale power, renewable and low-carbon energy and products, natural gas, ancillary services and financial energy products. Powerex's trade activities earn income to lower BC Hydro's customer rates and to help balance its system by being able to import energy to meet domestic demand when there is a supply shortage and exporting energy when there is a supply surplus. Exports are made only after ensuring domestic demand requirements are met.

Demand Side Management

Work in this area examined BC Hydro's demand-side management activities, including its Power Smart programs.

Demand Side Management is an important part of BC Hydro's resource plan, providing the flexibility to meet future supply needs or build efficient load, depending on system needs. Demand Side Management is a low-cost energy resource with little to no environmental impact. This area was examined, and, consistent with the government's focus on affordability, in its upcoming Revenue Requirements Application, BC Hydro will be proposing to increase the amount of spending for the residential sector and low-income ratepayers, while keeping Demand Side Management expenditures at the same level overall.

Water Rentals

Work in this area examined water rentals paid by BC Hydro to the government and whether these charges are appropriate going forward, as well as elements of the *Water Sustainability Act*.

Water Rentals are the fees charged by the government for using its water for hydroelectric production. Water Rental rates for commercial and general power licenses are set by the Water Sustainability Fees, Rentals and Charges Tariff Regulation under the *Water Sustainability Act*. There were no decisions for this area coming out of Phase 1 of the Review.

Other Areas Examined

Debt/Cash Management, Financial Forecasting, Customer Rates and Proactive Enterprise Risk Management were all examined with no additional decisions in these areas coming out of Phase 1 of the Review.

Regulatory Considerations

Work in this area included considering the regulatory implications of the outcomes of the Review and determining how best to implement them. Further information is provided in Appendix D.

APPENDIX C: SUMMARY OF BCUC OVERSIGHT

Area of Focus	Previous Regulatory Oversight	Regulatory Oversight after the Review	Change in Reg. Oversight
Regulatory Accounts	Direction for some	Recover existing balances in rates and BCUC go-forward oversight for almost all accounts	↑
Integrated Resource Plan	No BCUC review	BCUC reviews	↑
Rate Smoothing	BCUC determines after Fiscal 2019	RSRA written off in Fiscal 2019	↑
Rate Setting	Under prescribed cap	BCUC decides	↑
Deferral Account Rate Rider (DARR)	Set at 5% by Direction	BCUC decides	↑
Net Income for rate-setting	Set at \$712M by Direction	Set by government at \$712M in Fiscal 2020 and Fiscal 2021, then BCUC decides	↑
Biomass Renewals	BCUC determines if new EPAs are in the public interest	Government to provide Direction	↓
Standing Offer Program	Required under <i>Clean Energy Act</i> ; no prescribed circumstances	Regulation specifies prescribed circumstances that enable indefinite suspension	↔
Rate Rebalancing	Direction to BCUC prohibits	Regulation prohibits unless BC Hydro requests	↔
Expenditures for Export	Direction to BCUC	BCUC to refrain from considering when determining BC Hydro's rates	↔
Powerex	Direction to BCUC	Continues to restrict the BCUC from regulating the activities of Powerex	↔
Retail Access	Direction to BCUC prohibits	Regulation prohibits unless BC Hydro requests	↔

APPENDIX D: SUMMARY OF NEW REGULATIONS AND LEGISLATION

Regulations:

Integrated Resource Plan
<i>Clean Energy Act</i> : Change of deadline for the IRP
Direction No. 8 to the BCUC
Repeals Directions No. 1,3,6,7 and replaces Direction 7
Prohibits BCUC from disallowing recovery of current regulatory account balances
Allows BC Hydro to recover interest costs on funds borrowed in relation to Rate Smoothing Regulatory Account
Net income: set at \$712M for Fiscal 2020 and Fiscal 2021 . In Fiscal 2022 and beyond, BCUC to set allowed net income
Continues existing provisions that limit retail access, rate rebalancing and expenditures for export
Continues to restrict the BCUC from regulating Powerex
Energy Procurement
Indefinite suspension of the Standing Offer Program
Biomass Energy Program: Program direction and required cost recovery (regulation under development)
Financial Directives
Repeal Treasury Board Regulation 257/2010 that exempted BC Hydro from the requirement that rates be set by an independent, third party regulator for rate regulated accounting. Occurred October 2018.
Write off of the Rate Smoothing Regulatory Account (Timing TBC)

Legislative Changes (under development):

IRP timing and oversight
Prohibition of rate rebalancing
<i>Utilities Commission Act</i> does not apply to Powerex
Remove concept of expenditures to export from <i>Clean Energy Act</i>
Streamlining of the <i>Clean Energy Act</i> (i.e. removing clauses that no longer apply)

APPENDIX E: ACRONYMS, ABBREVIATIONS AND DEFINITIONS

10 Year Rates Plan	The 2013 10 Year Rates Plan covered Fiscal 2015 – Fiscal 2024 and had three main components: BC Hydro actions to reduce costs; government actions; and the creation of a Rate Smoothing Regulatory Account.
Auditor General	An independent Officer of the Legislature, who, under a fixed term of office in legislation, has a mandate to conduct audits and performance reviews of government entities, with the intention to report on how well government is managing its responsibilities and resources.
BC Hydro	British Columbia Hydro and Power Authority. A provincial Crown corporation that operates an integrated system of generation, transmission and distribution infrastructure to deliver reliable, affordable and clean electricity to its customers, safely.
BCUC	British Columbia Utilities Commission. The BCUC works to ensure British Columbians get value from their utilities with safe, reliable energy services, while also ensuring the owners of the entities it regulates are able to earn a fair return on their invested capital.
capacity	The maximum sustainable amount of electricity that can be produced or delivered at any instant. Typically measured in kW, MW or GW.
CleanBC plan	The CleanBC plan is the Province's strategy to reach its 2030 climate targets, through the use of clean and renewable energy in transportation, buildings and industry in order to reduce greenhouse gas emissions and build British Columbia's economy.
Clean Energy Act	Passed in 2010, this legislation set the foundation for a new future of electricity self-sufficiency, job creation and reduced greenhouse gas emissions, powered by unprecedented investments in clean, renewable energy across British Columbia.
Crown corporation	Crown corporations are public sector organizations established and funded by the B.C. government to provide specialized goods and services to citizens. They operate at varying levels of government control and report on their planning, governance and accountabilities. BC Hydro is a Crown corporation.
DARR	Deferral Account Rate Rider. Surcharge (currently 5%) that applies to all charges on customer bills, excluding taxes and levies. Funds collected under the DARR were intended to be used to pay down BC Hydro's three energy deferral account balances (the Heritage Deferral Account, the Non-Heritage Deferral Account and the Trade Income Deferral Account).
Demand Side Management	BC Hydro's programs that support energy conservation and encourage the adoption of more energy efficient products and equipment.
dividend	BC Hydro's dividend payments provide cash flow to the government and allow the government to reduce its borrowing requirements. BC Hydro's dividend for the current fiscal year will be \$59 million and will be \$0 thereafter until such time as BC Hydro achieves a 60:40 debt:equity ratio.
Electricity Purchase Agreement	A commercial agreement that sets out the terms and conditions under which a buyer purchases electricity from a supplier

energy	How much is consumed or produced over a period of time
expenditures for export	To ensure the costs of pursuing such opportunities for electricity export were not passed along to the ratepayer, the <i>Clean Energy Act</i> required the BCUC to ensure that BC Hydro's rates would not allow BC Hydro to recover "expenditures for export."
government	Government of British Columbia
Greenhouse Gas Reduction (Renewable & Low Carbon Fuel Requirements) Act and Renewable and Low Carbon Fuel Requirements Regulation	Requires transportation fuel suppliers in B.C. to progressively decrease the average carbon intensity of their fuels to achieve a 10% reduction in 2020 relative to 2010.
Heritage assets	Defined in the <i>Clean Energy Act</i> to include all of the transmission and distribution infrastructure in place when the Act was passed as well as those generating facilities identified in Schedule 1 to the Act.
GWh	A unit of energy, where 1 MWh is the amount of energy produced from a generator operating at 1 MW capacity for a period of 1 hour 1 gigawatt hour = 1,000 MWh
IFRS	International Financial Reporting Standards
Impact Benefit Agreement	An agreement between BC Hydro and a First Nation to address adverse impacts arising from the construction of BC Hydro's projects that cannot be avoided, mitigated or otherwise accommodated.
IPP	Independent Power Producer
IRP	Integrated Resource Plan
load	Demand for electricity, measured in terms of energy (MWh or GWh) and capacity (MW or GW)
load forecast	Estimates the amount of electricity that will be sold. The load forecast is a critical component to determining BC Hydro's rates.
load offset	Energy generated by a BC Hydro customer at its customer site to offset the energy the customer currently purchases from BC Hydro to serve its own needs.
LCFS credits	Low Carbon Fuel Standard credits
MW	A unit of energy generating capacity 1 megawatt = 1,000 kilowatts = 1 million watts
net income	The return that BC Hydro is allowed to earn in a given year. BC Hydro's net income forms part of the government's revenue for government budget purposes.
PBR	Performance based regulation. Under PBR, for certain costs base year costs are set and then adjusted via a formula in future years, including incentives for efficiencies.
Powerex	Powerex Corp. BC Hydro subsidiary and a key participant in energy markets across North America, buying and selling wholesale power, renewable and low-carbon energy and products, natural gas, ancillary services and financial energy products.

rate rebalancing	Increasing or decreasing rates for each customer class by a different amount in order to align the revenues received from each class with the cost the utility incurs to serve each class
Rate Smoothing Regulatory Account	Established in 2014 as a result of government direction. Used to smooth the higher annual rate increases that would have been required to cover BC Hydro's costs in the early years of the 2013 10 Year Rates Plan by enabling BC Hydro to defer collection of revenues from ratepayers to the later years of the Plan.
retail access	Ability for customers to secure electricity from the market via a third-party provider rather than the local utility
regulatory accounts	BC Hydro uses regulatory accounts to match costs with benefits for customers, to capture differences between forecast and actual costs and revenues typically related to uncontrollable factors (e.g., interest rates, water inflows, storm restoration costs), to smooth rate increases over time and to manage the impact of changes in accounting rules.
Review	Comprehensive, two-phased review of BC Hydro, first phase commenced in June 2018 and completed with the release of this report. Second phase to commence in 2019.
revenue requirements	BC Hydro's forecasts of the revenue that it needs to collect from its customers in order to cover its costs.
Revenue Requirements Application	Application to the BCUC in which BC Hydro proposes the revenue it needs to collect in order to cover its costs. BC Hydro's most recent Revenue Requirements Application was for Fiscal 2017 – Fiscal 2019.
RNG	Renewable Natural Gas
Utilities Commission Act	The BCUC operates under and administers this Act. BC Hydro is a public utility under this Act.
water rental rates	Fees charged by the government for using its water for hydroelectric production
Water Sustainability Fees, Rentals and Charges Tariff	Water Rental rates for commercial and general power licenses are set by this Regulation under the <i>Water Sustainability Act</i>

