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Sent via email/eFile

BC HYDRO CAPITAL EXPENDITURES AND PROJECTS REVIEW EXHIBIT A-30

Mr. Fred James
Chief Regulatory Officer
Regulatory & Rates Group
British Columbia Hydro and Power Authority
16th Floor – 333 Dunsmuir Street
Vancouver, BC V6B 5R3
bhydroregulatorygroup@bhydro.com

Re: British Columbia Hydro and Power Authority – Review of the Regulatory Oversight of Capital Expenditures and Projects – Project No. 1598877 – BCUC IR No. 2 to BC Hydro

Dear Mr. James:

Further to the above-noted proceeding, enclosed please find British Columbia Utilities Commission Information Request No. 2 to British Columbia Hydro and Power Authority. Please file your responses no later than Thursday, July 4, 2019.

Sincerely,

Original signed by Ian Jarvis for:

Patrick Wruck
Commission Secretary

/jo
Enclosure



British Columbia Hydro and Power Authority
Review of the Regulatory Oversight of Capital Expenditures and Projects

INFORMATION REQUEST NO. 2 TO BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

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A. LEGISLATIVE BASIS OF CAPITAL FILING GUIDELINES

**17.0 Reference: 2018 CAPITAL FILING GUIDELINES
Exhibit B-7, Appendix B, p. 1; Appendix F
Purpose of 2018 Capital Filing Guidelines**

Paragraph 2 of Appendix B of British Columbia Hydro and Power Authority’s (BC Hydro) 2018 Capital Filing Guidelines states:

There may be circumstances in which a different approach from what is set out in these Guidelines is appropriate. These Guidelines do not bind the Commission in the exercise of its jurisdiction. BC Hydro may propose changes to these Guidelines. BC Hydro will identify and explain in applicable filings any departures from the Guidelines.

Appendix F to BC Hydro’s Revised Proposal contains the draft order that BC Hydro is seeking for the Review of the Regulatory Oversight of Capital Expenditures and Projects (Review). The directive in the draft order states:

NOW THEREFORE the Commission orders as follows pursuant to sections 45 to 46 and section 59 to 61 of the Utilities Commission Act:

1. The Commission approves BC Hydro’s 2018 Capital Filing Guidelines included as Appendix B to BC Hydro’s Revised Proposal.

- 17.1 Please confirm, with rationale, that BC Hydro is seeking approval for its 2018 Capital Filing Guidelines pursuant to sections 45 to 46 and section 59 to 61 of the *Utilities Commission Act* (UCA).
- 17.2 If approved by the British Columbia Utilities Commission (BCUC), please discuss if BC Hydro considers that any aspects of the BCUC approved 2018 Capital Filing Guidelines would be binding under the UCA, to the BCUC or BC Hydro. Please comment specifically on the provisions within the 2018 Capital Filing Guidelines pertaining to:
- Defining projects that are extensions;
 - Major project thresholds.
- 17.2.1 If not binding, please explain the purpose of the BCUC approving the 2018 Capital Filing Guidelines, pursuant to sections 45 to 46 and sections 59 to 61 of the UCA.
- 17.3 Please discuss whether BC Hydro considers that BCUC has the jurisdiction to modify the proposed 2018 Capital Filing Guidelines.
- 17.3.1 Please discuss what process BC Hydro believes is appropriate in the event that the BCUC determines that a modification to the 2018 Capital Filing Guidelines is warranted.
- 17.4 In the event that the BCUC does not approve the 2018 Capital Filing Guidelines, please discuss the impact upon BC Hydro or the resulting process that BC Hydro would propose.
- 17.5 Please discuss the process by which BC Hydro would propose changes to the 2018 Capital Filing Guidelines in future.
- 17.6 Please provide examples of circumstances whereby BC Hydro considers there could be “departures” from the 2018 Capital Filing Guidelines.
- 17.7 Please confirm that the proposed 2018 Capital Filing Guidelines do not restrict the BCUC’s jurisdiction to require BC Hydro to file a Certificate of Public Convenience and Necessity (CPCN) application for a planned extension.
- 17.7.1 If not confirmed, please explain otherwise.

B. CAPITAL FILING GUIDELINES - THRESHOLDS

- 18.0 Reference: GUIDELINES FOR MAJOR PROJECT APPLICATIONS**
Exhibit B-7, pp. 38–39; Appendix B, p. 3;
Exhibit B-4, Response to Commercial Energy Consumers Association of British Columbia (CEC) Information Request (IR) 16.1;
Response to Movement of United Professionals (MoveUp) IR 3.1;
Exhibit B-6, BC Hydro Undertaking No. 1;
BC Hydro Fiscal 2020 to Fiscal 2021 Revenue Requirements Application (F2020-F2021 RRA), Exhibit B-1, Appendix C, Comprehensive Review, p. 4
Major Projects - Expenditure Thresholds

On pages 38 to 39 of Exhibit B-7 (Revised Proposal), BC Hydro states:

The major difference between this proposal and the 2010 Guidelines is the change in thresholds for Distribution projects. In the 2010 Guidelines, Distribution projects (excluding substation distribution assets), had a separate threshold of \$50 million. Under this proposal, Distribution projects would fall under the general category of Power System projects.

Larger, more complex projects involving distribution assets often involve significant work on the transmission system. Including all power system projects under one threshold will make it easier to apply thresholds for projects involving work on the transmission and distribution systems. This change also aligns better with how the system is managed and planned as asset management for the transmission and distribution systems are now the responsibility of a single business unit.

In response to the CEC IR 16.1, BC Hydro states:

Prior to the introduction of the 2010 Capital Project Filing Guidelines, the threshold for all projects was \$50 million. Following consultation internally and with interveners at the time, there was agreement that the \$50 million threshold remained appropriate for Distribution projects as these projects tend to be smaller, have lower complexity, and lower costs. The same consultations determined that the \$50 million threshold was too low for Transmission and Generation projects (including Substation Distribution Asset components), and would not provide an efficient regulatory model for those asset classes. As such, BC Hydro separated the two asset classes into different categories and different thresholds, with Transmission and Generation having a \$100 million threshold, and Distribution remaining at the \$50 million threshold.

In response to MoveUp IR 3.1, BC Hydro states:

BC Hydro has not had, and is not forecast to have, any projects involving only the distribution system (“outside the fence” distribution projects) that exceed \$50 million. Projects involving only the distribution system are implemented quickly to be responsive to changes in local load forecast. As a result, these projects tend to be small, lower complexity, and lower cost projects implemented in one to two years.

On page 3 of the proposed 2018 Capital Filing Guidelines (Appendix B of Exhibit B-7), BC Hydro outlines its proposed expenditure thresholds for Major Projects for Power Systems projects, Buildings projects and Information Technology processes.

Page 4 of the BC Government’s Comprehensive Review of BC Hydro: Phase 1 Final Report (Comprehensive Review) provided in Appendix C of BC Hydro’s F2020-F2021 RRA states that “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.”

- 18.1 Please explain specifically what factors and consultation feedback led BC Hydro to conclude that the thresholds established in the 2010 Capital Project Filing Guidelines were appropriate. Please discuss for each Major Project category.
 - 18.1.1 Please explain why BC Hydro established Major Project thresholds for different categories compared to a single threshold.
 - 18.1.2 Please describe any alternative means of classifying Major Projects that were considered, either in the development of the 2010 Capital Project Filing Guidelines or the 2018 Capital Filing Guidelines, and why these were ultimately rejected.
- 18.2 At a high level, please discuss if and how the average size and number of BC Hydro’s capital projects has changed since the development of the 2010 Capital Project Filing Guidelines. Please make reference to each of the Major Project categories.
 - 18.2.1 Please also discuss how the size and number of projects is expected to change in the future.
 - 18.2.1.1 Please discuss why, in BC Hydro’s view, the proposed 2018 Capital Filing

Guidelines are appropriate in the context of any changes described.

- 18.3 Please explain why the major project threshold of \$50 million was originally established for distribution projects.
- 18.3.1 Please provide the cost of the five largest “outside the fence” distribution projects since the establishment of the 2010 Capital Project Filing Guidelines.
- 18.3.2 Please discuss whether distribution projects involving work on the transmission system could be classified under the transmission threshold, with a separate, lower threshold for “outside the fence” distribution projects, and the implications of doing so.
- 18.4 Please provide a schedule that expresses each of the Major Project thresholds as a percentage of BC Hydro’s:
- a) F2019 rate base (total, and for the respective project category);
 - b) Capital expenditures for the past five complete fiscal years (total, and for the respective project category); and
 - c) Expected capital additions for Fiscal 2020 and 2021 (total, and for the respective project category).
- 18.4.1 Please discuss the pros and cons of Major Project thresholds that are relative to measures of overall capital expenditure, such as those outlined in the previous question, rather than using absolute values.
- 18.5 Please explain the frequency and/or circumstances under which BC Hydro suggests to review the Major Project thresholds.
- 18.6 Considering the \$2.7 billion reduction in forecast capital expenditures that have been set out in the Comprehensive Review, please provide an updated list of the CPCN and Section 44.2 applications that BC Hydro expects to file over F2020 through F2024 using the Major Project thresholds set out in the Revised Proposal.
- 18.6.1 Please provide an updated listing of the CPCN and Section 44.2 applications that BC Hydro expects to file over F2020 through F2024 using Major Project thresholds that are one half of those set out in the Revised Proposal.
- 18.7 For each of the Major Project thresholds in the Revised Proposal, using a depreciation rate that is representative of the facilities in the category, please estimate the rate impact of a capital expenditure equal to the threshold amount that is in service for the full F2020-F2021 test period.

In BC Hydro Undertaking No. 1, Exhibit B-6, BC Hydro provides the table below showing the additional number of projects that BC Hydro anticipates would be subject to a major project application, if the Major Project thresholds in the 2018 Capital Filing Guidelines were reduced by half.

Threshold Categories	Power System	Buildings	Information Technology	Total
Threshold (\$ million)	50 ≥ Cost < 100	25 ≥ Cost < 50	10 ≥ Cost < 20	27
#	21	5	1	

- 18.8 Please describe the potential impact of the additional Major Project filings above on BC Hydro resources.
- 18.8.1 Please discuss if BC Hydro considers that these additional Major Project filings would represent an appropriate balance of regulatory oversight and efficiency.

**19.0 Reference: INTRODUCTION
Exhibit B-7, p. 1
Exhibit B-4, Response to British Columbia Old Age Pensioners’ Organization et al.**

(BCOAPO) IR 23.1; MoveUp IR 3.1
Indicators of Public Interest Issues

On page 1 of the Revised Proposal, BC Hydro states:

To ensure economic and social benefits for ratepayers, BC Hydro manages our capital portfolio with an emphasis on cost-consciousness, respect for the environment and communities in which we work, and strengthening our relationships with First Nations communities.

In response to BCOAPO IR 23.1, BC Hydro states:

Since the introduction of the 2010 Guidelines, the Commission had not ordered BC Hydro to file a CPCN for projects below the Major Project thresholds until its Decision on BC Hydro's Fiscal 2017 - Fiscal 2019 Revenue Requirements Application (Commission Order No. G-47-18). The Commission has ordered BC Hydro to file a CPCN application for the following projects that are below the Major Project thresholds set out in the 2010 Guidelines based on the forecast cost and planning allowances in the Application:

- West Kelowna Transmission;
- Westbank Substation Upgrade;
- Northwest Substation Upgrade; and
- Mainwaring Substation Upgrade.

The Commission stated in the Decision that the above projects potentially had significant public interest issues, and as such merited a CPCN proceeding.

In response to MoveUp IR 3.1, BC Hydro states:

Projects at or over a \$100 million with distribution and transmission components can be initiated to meet diverse business needs including the replacement of end of life assets, building new distribution or switching stations, meeting seismic risks, or building new transmission lines to electrify new regions of the province. Given the long-lead times required to identify, plan, and implement these medium to high complexity projects, these projects are appropriately reviewed in CPCN or section 44.2 applications. BC Hydro believes a \$100 million threshold provides regulatory efficiency, allows for a Commission review of projects with significant public interest issues.

- 19.1 Please discuss if BC Hydro's emphasis on cost-consciousness was a factor in the proposed Major Project expenditure thresholds in the 2018 Capital Filing Guidelines.
- 19.2 Please discuss if BC Hydro considers the cost of a project to be a reasonable approximation for the magnitude of associated public interest issues.
- 19.3 Please discuss, in the view of BC Hydro, the feasibility of developing standardized criteria (qualitative or quantitative) that would indicate the magnitude of potential public interest issues associated with a project, other than cost. Specifically, please address criteria that would capture potential issues, risks or impacts with respect to:
 - a) Environment;
 - b) First Nations; and
 - c) Communities/other stakeholders.
- 19.3.1 Please discuss whether BC Hydro considers such criteria could be included in Appendix J of an RRA where the projects are at a sufficiently mature stage of development.
 - 19.3.1.1 In addition, does BC Hydro consider that such criteria could be a factor along with Forecast Capital Cost to decide if the project should be included in Appendix J?

19.3.2 Please discuss whether BC Hydro considers such criteria could (individually or collectively) be an indicator for whether a project should be classified as a Major Project in the Capital Filing Guidelines.

19.4 Under BC Hydro’s proposal, please discuss, in the view of BC Hydro, whether the BCUC will consistently have sufficient information in an RRA filing, at an early enough opportunity, to determine if ordering the filing of a CPCN application is warranted.

C. REVIEW OF CAPITAL IN REVENUE REQUIREMENTS APPLICATIONS

20.0 Reference: OVERSIGHT & PERFORMANCE OF BC HYDRO’S CAPITAL INVESTMENTS Exhibit B-7, pp. 18, 25, 27–28, 30–31; Appendix D; Appendix J Exhibit B-4, Response to BCUC IR 5.1, 13.4 Information reviewed in revenue requirements applications

On page 18 of the Revised Proposal, BC Hydro states:

In its Fiscal 2017 - Fiscal 2019 RRA, BC Hydro filed a large amount of evidence on its actual and forecast capital expenditures and additions. The evidence included... Responses to approximately 575 information requests on capital investments.

In response to BCUC IR 13.4, BC Hydro states:

BC Hydro’s proposal would be that, as in previous proceedings, if the Commission and interveners wish to explore a project in greater detail, this should be done through the information request process.

20.1 Please discuss if there were any major themes or issues that constituted a large proportion of the information requests related to capital investments in the Fiscal 2017-Fiscal 2019 RRA.

20.1.1 Please discuss whether any such information could be easily summarized and filed in RRAs, without excessively expanding the volume of evidence, to improve the efficiency of the review process.

On page 25 of the Revised Proposal, BC Hydro states:

Overall, BC Hydro proposes that the Commission continue to use the revenue requirements process to review significant components of BC Hydro’s capital investments. We believe the approach taken in the Fiscal 2017 – Fiscal 2019 RRA remains appropriate.

In response to BCUC IR 5.1, BC Hydro provides a table that breaks down forecasted expenditures by CPCN filings, section 44.2 filings, RRA projects and exempted projects. In part, the table provides the below figures:

	F2019	F2020	F2021	F2022	F2023	F2024	F2025	F2026	F2027	F2028
Major Project Applications / Non-Exempt Capital Expenditures	53%	19%	22%	28%	31%	31%	21%	16%	23%	22%

20.2 Please confirm that the percentage of forecasted non-exempt capital expenditures that BC Hydro proposes to be reviewed in RRAs is 100 percent minus the values in the table above.

20.2.1 Please comment on whether the volume of capital expenditures and projects expected to be reviewed in future RRAs represents the appropriate balance between regulatory oversight and efficiency.

20.3 Please discuss whether BC Hydro has a view on the approximate percentage range of capital

expenditures that should most appropriately be reviewed in an RRA proceeding.

On page 27 of the Revised Proposal, BC Hydro provides its summary for the proposed guideline for projects underway without prior BCUC approval or legislative exemption.

On pages 30 to 31 of the Revised Proposal, BC Hydro provides its summary for the proposed guideline for future projects that do not trigger a CPCN or an expenditure schedule.

On page 28 of the Revised Proposal, with respect to future projects meeting criteria for CPCN or section 44.2 proceeding, BC Hydro states:

BC Hydro normally includes in revenue requirement applications information on all such projects exceeding the materiality limit with forecast expenditures or additions in the test period. The information that BC Hydro provides should generally be at the level of detail included in the Fiscal 2017 - Fiscal 2019 RRA. BC Hydro will also provide additional information on risk and risk treatment and impact and benefits for projects exceeding the materiality limit in its revenue requirements application as shown in the updated template in Appendix D to this proposal.

Appendix D of the Revised Proposal shows a template similar to that included as Appendix J in the Fiscal 2017-Fiscal 2019 RRA, expanded to include additional information on Implementation Phase risk and risk treatment and impacts and benefits.

20.4 Please discuss whether BC Hydro has a standardized internal metric for expressing the magnitude and likelihood of the risks identified in Appendix J of RRA filings.

20.4.1 Please discuss BC Hydro's view on the feasibility of including such metrics in Appendix J of RRA filings.

20.4.1.1 Please explain whether BC Hydro considers this information could allow a more efficient review of capital projects within Appendix J.

20.5 Please explain whether information regarding risk and risk treatment may be sufficiently developed in the definition phase of projects to include in Appendix J of RRA filings.

20.6 Please confirm if BC Hydro provides information on risk and risk treatment, impact and benefits for future projects (with forecast expenditures or additions in the test period) that do not trigger a CPCN or an expenditure schedule filing.

**21.0 Reference: APPROPRIATE SCOPE OF REVIEW IN REVENUE REQUIREMENTS APPLICATIONS
Exhibit B-4, Response to BCUC IR 9.2
Review of project execution**

In response to BCUC IR 9.2, BC Hydro states:

BC Hydro proposes that review of project execution would normally occur in revenue requirements proceeding after project completion, unless a separate proceeding were initiated by the Commission for the review of a particular project. A detailed review would normally not be needed if a project was executed on budget and on time, as the project would have been executed consistent with the initial approval granted by the Commission. [Emphasis added]

21.1 In the view of BC Hydro, please discuss the pros and cons of separate proceedings to review project execution, compared to a review within a revenue requirements proceeding.

**22.0 Reference: REBUTTAL EVIDENCE
Exhibit B-15, p. 52; F2020-2021 RRA, Exhibit B-1, Appendix C, pp. 28, 29, 39;
Appendix H, pp. 13-14**

BC Hydro Annual Capital Plan

BC Hydro's Rebuttal Evidence on page 52 states:

We value the Commission being able to review our Capital Plan, which reflects the long-term projection of the investment needs of the BC Hydro system, and to understand the connection between the performance of our assets and the level of investments reflected in the Capital Plan. In revenue requirements applications, we provide detailed information on the capital planning process in Chapter 6 and provide the same information on the Capital Plan that is presented to BC Hydro's Board of Directors (**Briefing Note**). The Briefing Note also includes a description on what is driving the level of investment reflected in the capital plan. In the Fiscal 2017 to Fiscal 2019 RRA, the Briefing Note for the Fiscal 2017 to Fiscal 2026 Capital Plan was filed as Appendix G, and in the Fiscal 2020 to Fiscal 2021 RRA the Briefing Note on the Fiscal 2020 to Fiscal 2024 Capital Plan will be filed as Appendix H.

Page 28 of the Comprehensive Review states:

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.

Page 29 states:

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.

Page 39 further states:

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.

F20-F24 Capital Plan

Consolidated by Asset Owner

ESTIMATED CAPITAL EXPENDITURES *	F20	F21	F22	F23	F24	F20-F24 5 Yr Total	F20-F24 5 Yr Avg.
Sustaining							
Generation	337.1	430.3	488.4	534.9	607.0	2,397.6	479.5
Generation - Waneta	4.7	5.2	23.3	8.9	1.7	43.8	8.8
Transmission	222.6	286.5	326.1	329.7	234.6	1,399.5	279.9
Distribution	187.5	176.8	191.2	205.5	207.7	968.7	193.7
Support Services - Technology	95.6	56.0	51.7	53.2	54.8	311.3	62.3
Support Services - Properties	58.9	55.3	37.9	49.0	67.3	268.4	53.7
Support Services - Other & Subsidiaries	71.6	83.1	56.0	53.7	58.4	322.8	64.6
Subtotal - Sustaining	978.0	1,093.2	1,174.8	1,234.9	1,231.4	5,712.3	1,142.5
Growth							
Generation	3.2			3.9	13.6	20.7	6.9
Generation - Site C Project	1,530.0	1,535.5	1,317.7	1,003.3	580.5	5,967.0	1,193.4
Generation - Waneta						-	
Transmission	185.0	198.9	372.7	509.0	595.9	1,861.5	372.3
Distribution	300.0	284.6	284.7	260.6	269.7	1,399.6	279.9
Support Services (Powertech)	3.0	3.0	3.0	3.0	3.0	15.0	3.0
Subtotal - Growth	2,021.2	2,022.0	1,978.2	1,779.8	1,462.7	9,263.9	1,852.8
Total before Contribution In Aid (CIA)	2,999.2	3,115.2	3,153.0	3,014.7	2,694.1	14,976.2	2,995.2
Generation - Sustaining	-	-	-	-	-	-	-
Generation - Growth	-	-	-	-	-	-	-
Transmission - Sustaining	(5.2)	(5.3)	(5.4)	(5.5)	(5.7)	(27.2)	(5.4)
Transmission - Growth	(18.5)	(9.4)	(9.6)	(9.8)	(10.0)	(57.4)	(11.5)
Distribution - Sustaining	(0.8)	(0.8)	(0.8)	(0.9)	(0.9)	(4.1)	(0.8)
Distribution - Growth	(133.3)	(132.9)	(134.3)	(135.7)	(137.1)	(673.3)	(134.7)
CIA Total	(157.8)	(148.5)	(150.2)	(151.9)	(153.7)	(762.1)	(152.4)
Total - including Waneta (\$M)	2,841.4	2,966.7	3,002.8	2,862.7	2,540.5	14,214.2	2,842.8
Less: Waneta	(4.7)	(5.2)	(23.3)	(8.9)	(1.7)	(43.8)	(8.8)
Total - excluding Waneta (\$M)	2,836.7	2,961.5	2,979.5	2,853.8	2,538.8	14,170.3	2,834.1
ESTIMATED CAPITAL ADDITIONS *							
Generation	310.0	291.7	352.7	401.9	531.4	1,887.7	377.5
Generation - Site C Clean Energy	27.9	189.4			8,625.2	8,842.5	2,947.5
Generation - Waneta	4.7	5.2	23.3	8.9	1.7	43.8	8.8
Transmission	293.8	229.6	479.3	643.0	511.8	2,157.5	431.5
Distribution	502.2	540.7	478.5	470.9	466.7	2,458.9	491.8
Support Services - Technology	147.6	75.5	51.9	53.5	55.1	383.6	76.7
Support Services - Properties	39.9	55.6	57.2	16.4	57.1	226.2	45.2
Support Services - Other & Subsidiaries	75.9	82.2	65.0	56.8	61.5	341.5	68.3
Total before CIA	1,402.0	1,469.9	1,507.9	1,651.5	10,310.5	16,341.7	3,268.3
CIA	(146.1)	(165.8)	(150.6)	(151.8)	(153.5)	(767.9)	(153.6)
Total - including Waneta (\$M)	1,255.8	1,304.1	1,357.3	1,499.7	10,157.0	15,573.8	3,114.8
Less: Waneta	(4.7)	(5.2)	(23.3)	(8.9)	(1.7)	(43.8)	(8.8)
Total - excluding Waneta (\$M)	1,251.1	1,298.9	1,334.0	1,490.8	10,155.3	15,530.0	3,106.0

Further on page 14, BC Hydro provides Attachment #2 – Capital Expenditures for Projects Greater than \$50M – F2020 to F2024:

Attachment #2 - Capital Expenditures for Projects Greater than \$50M - F2020 to F2024					
Projects > \$50M with Capital Expenditures Forecasted during F2020 - F2024 (\$millions)					
Asset Owner	Project	Type	Phase	Forecast ISD	Authorized Amount / Engineering Estimate / Latest Forecast
Generation	Bridge River 1 - Replace Units 1-4 Generators/Governors	Sustaining	Identification	TBD	TBD
Generation	Bridge River 2 - Upgrade Units 5 and 6	Sustaining	Implementation	F2019	\$86
Generation	Bridge River 2 - Upgrade Units 7 and 8	Sustaining	Identification	TBD	TBD
Generation	Cheakamus - Dam Improvements	Sustaining	Future	TBD	TBD
Generation	Cheakamus - Units 1 and 2 Generator Replacement	Sustaining	Implementation	F2020	\$74
Generation	Clowhom - Unit Upgrade	Sustaining	Future	TBD	TBD
Generation	G.M. Shrum - G1 to 10 Control System Upgrade	Sustaining	Implementation	F2023	\$75
Generation	W.A.C. Bennett Dam - Spillway Seismic Upgrade	Sustaining	Future	TBD	TBD
Generation	G.M. Shrum - U1 - U10 Water Passage Refurbishment	Sustaining	Future	TBD	TBD
Generation	W.A.C. Bennett Dam - Rip-Rap Upgrade	Sustaining	In-Service	F2019	\$119
Generation	John Hart - Dam Seismic Upgrade	Sustaining	Identification	TBD	TBD
Generation	John Hart - Generating Station Replacement	Sustaining	Implementation	F2019	\$985
Generation	Kootenay Canal - U1 - U4 Generators Refurbishment	Sustaining	Future	TBD	TBD
Generation	Lajoie - Dam Improvements	Sustaining	Identification	TBD	TBD
Generation	Ladore - Spillway Seismic Upgrade	Sustaining	Identification	TBD	TBD
Generation	Mica - Discharge Facilities Seismic and Reliability Upgrades	Sustaining	Future	TBD	TBD
Generation	Mica - U1 - U4 Turbine Overhaul	Sustaining	Future	TBD	TBD
Generation	Mica - Reactor 5R03 and 5R04 Replacement	Sustaining	Future	TBD	TBD
Generation	Mica - U1 - U4 Circuit Breaker and Iso-phase Bus Replacement	Sustaining	Future	TBD	TBD
Generation	Mica - Replace Units 1 to 4 Generator Transformers	Sustaining	Implementation	F2023	\$82
Generation	Revelstoke - Discharge Gate Systems Reliability Improvements	Sustaining	Future	TBD	TBD
Generation	Revelstoke - Install Unit 6	Growth	Definition	F2030	\$569 - \$317
Generation	Revelstoke - U1 - U4 Stator Replacement	Sustaining	Future	TBD	TBD
Generation	Strathcona - Upgrade Discharge	Sustaining	Identification	TBD	TBD
Generation	Seven Mile - Overhaul Units 1 to 3 Turbines	Sustaining	Identification	TBD	TBD
Generation	Terzaghi - Low-Level Discharge Reliability Improvements	Sustaining	Future	TBD	TBD
Transmission	Peace Region to Kelly Lake 500kV Transmission Reinforcement	Growth	Identification	TBD	TBD
Transmission	Peace Region Electric Supply (PRES)	Growth	Definition	F2022	\$348-\$197
Transmission	Fort St. John and Taylor Electric Supply	Growth	Implementation	F2021	\$53
Transmission	Mount Lehman Substation Upgrade	Growth	Identification	TBD	TBD
Transmission	Kamloops Substation	Growth	In-Service	F2019	\$56
Transmission	Home Payne Substation Upgrade	Growth	Implementation	F2019	\$93
Transmission	Northwest Substation Upgrades Project (NSUP)	Growth	Deferred	F2026	TBD
Transmission	Squamish Area Reinforcement	Growth	Identification	TBD	TBD
Transmission	Customer A	Growth	Implementation	F2022	\$55
Transmission	Customer C	Growth	Definition	F2022	\$102-\$72
Transmission	Capilano Substation 25Kv Conversion	Growth	Definition	F2025	\$88 - \$50
Transmission	Metro North Transmission (MNT)	Growth	Definition	F2025	\$530 - \$300
Transmission	Langley -Abbotsford - Area Reinforcement	Growth	Future	TBD	TBD
Transmission	West Kelowna Transmission and Westbank Upgrade Projects	Growth	Identification	TBD	TBD
Transmission	5L63 Telkwa Relocation	Sustaining	Identification	TBD	TBD
Transmission	Gulf Islands - Transmission Reinforcement	Sustaining	Future	TBD	TBD
Transmission	Natal Sub - NTL 60-138 kV Rebuild	Sustaining	Identification	TBD	TBD
Transmission	Project A	Growth	Implementation	F2021	\$81
Transmission	East Vancouver Substation Construction	Growth	Future	TBD	TBD
Transmission	Metrotown - Property Purchase	Growth	Future	TBD	TBD
Transmission	60L2/3/18 Dewdney Trunk Transmission Copper Conductor Replacement	Sustaining	Future	TBD	TBD
Transmission	West End - Substation Construction and System Reinforcement	Growth	Future	TBD	TBD
Transmission	North Shore Area Transmission Reinforcement	Growth	Identification	TBD	TBD
Transmission	Lower Mainland - Capacitive and Reactive Power Reinforcement	Growth	Future	TBD	TBD
Transmission	2L146 Cable Replacement	Sustaining	Identification	TBD	TBD
Technology	Supply Chain Application	Sustaining	Definition	F2020	\$72-\$59
Note:	Amounts in the above table are only for capital expenditures on the project.				

22.1 Please clarify if the Briefing Note in Appendix H in RRA Exhibit B-1 is BC Hydro's 2019 10-year Capital Plan or a summary of the Plan.

22.1.1 If the Briefing Note is not the complete Capital Plan, please identify and describe any aspects of the Plan that are not comprehensively described in the Briefing Note.

- 22.2 For projects with capital expenditures of greater than \$50 million in F2020 to F2024, identified in Attachment #2 of the Capital with ISD and Authorized Amount/Engineering Estimate/Latest Forecast stated to be “TBD”, please explain how these projects are incorporated into the Estimated Capital Expenditures provided on page 13 of the Capital Plan.
- 22.3 Please clarify how the information filed in Appendices I and J in the F2020-F2021 RRA relate to the F2020 Capital Plan and discuss whether there are any significant inconsistencies due to when the information was compiled, or otherwise.
- 22.4 Please outline the process and timeline that BC Hydro uses to develop each annual Capital Plan.
- 22.5 Please discuss whether BC Hydro could file the Briefing Notes for future fiscal years, when it will not be filing an RRA, and explain any concerns it would have about doing so.
 - 22.5.1 Please identify and explain the earliest reasonable time in future fiscal years when the Briefing Notes could be filed.

**23.0 Reference: REBUTTAL EVIDENCE
Exhibit B-15, pp. 28–29; F2020-F2021 RRA, Exhibit B-1, Appendix F, Independent Audit, pp. 17, 21
Independent Audit of Capital Investment Planning**

BC Hydro's Rebuttal Evidence on pages 28 and 29 of Exhibit B-15 states: “Our asset management practices are mature as evidenced by the recent Office of the Auditor General of B.C audit of our practices.”

Page 17 of the Independent Audit of Capital Asset Management in BC Hydro (Independent Audit) included in Appendix F of the F2020-F2021 RRA, states that BC Hydro's Capital Investment Planning has a maturity score of 80 out of 100 points.

On page 21 of the Independent Audit, the defining requirements for an Intermediate Maturity score of 65 to 80 for Capital Investment Planning are set out as:

As for Core, plus formal options analysis and business case development has been completed. Priority capital projects proposed in the 3-5 year period are consistent with capital programs, reflecting the requirements of the next 10-20 years. Priority projects and programs have full cost estimates available.

The Independent Audit states that the defining requirements for an Advanced Maturity score of 85 to 100 for Capital Investment Planning are:

Long term capital investment programs are developed using decision techniques such as predictive modeling. The organization has a reliable and approved 10-year view of its future capital requirements to meet forecast level of service requirements and the strategic choices available to meet changing fiscal or level of service requirements.

- 23.1 Please describe what is meant by “decision techniques such as predictive modelling” and if possible provide an example of such techniques that BC Hydro is using or could use for capital investment planning.
 - 23.1.1 Please explain whether BC Hydro is currently using such decision techniques.
 - 23.1.1.1 If not, please provide an overview of any plans to initiate the use of them.
 - 23.1.1.2 If yes, please provide an overview of any plans to increase the use of them.
- 23.2 Please explain whether BC Hydro considers the current 10 year Capital Plan to meet the requirement for “a reliable and approved 10-year view of its future capital requirements.”

23.2.1 If not, please discuss what changes BC Hydro believes would be necessary to meet the criteria.

**24.0 Reference: BC HYDRO REVISED PROPOSAL
Exhibit B-7, Cover Letter, p. 3; Exhibit B-15, pp. 16, 18, 38
Necessary and sufficient information to establish need for an expenditure**

The BC Hydro Revised Proposal on page 3 of the cover letter states:

BC Hydro considers a prudence review to be a retrospective review of project execution. As BC Hydro has indicated in its Filing, BC Hydro believes that a prudence review is best undertaken after project completion, when final costs and outcomes are known. After project completion, a prudence review could occur in a revenue requirements proceeding or in a specific process designed for that purpose.

Page 16 of the Rebuttal Evidence states:

If the Commission believes it is warranted, in a revenue requirements application it can inquire into the public interest of projects that are in their early stages, before significant dollars are spent. Further, the Commission can order BC Hydro to file a Certificate of Public Convenience and Necessity (**CPCN**) for extension projects, and can set the thresholds for major projects applications, which provides the opportunity to review projects in detail.

Second, by its nature, the prudence standard is always applied to dollars that have already been spent.

Page 18 of the Rebuttal Evidence further states:

Because information on projects and programs takes time and cost to develop, BC Hydro does not give internal approval for the full funding of a project in the early stage, but instead approves its projects and programs in phases as they develop. We would not expect the Commission to approve projects and programs at early stages based on the limited information available at that time. For example, we would not be able to satisfy the Commission's CPCN Guidelines based on the information available in the Identification Phase of a project.

Page 38 of the Rebuttal Evidence shows Figure 6, Typical Project Lifecycle, which indicates a point in the Definition Phase at the beginning of the regulatory approval stage with a Preliminary Cost Estimate that is +15%/-10%.

24.1 Please confirm if the information filed in an RRA is likely to include early and limited information about the expected cost and justification of some capital projects, and that to establish rates for the test period the BCUC may need to make determinations about the amount of capital additions expected from such projects in the test period.

24.1.1 If not confirmed, please explain otherwise.

24.2 Please confirm that, where a project is at an early stage and only limited information is available, BC Hydro does not expect the BCUC to approve the need or justification for the project.

24.2.1 If not confirmed, please explain otherwise.

24.3 Please discuss whether there are circumstances where the BCUC would be required to consider need as well as execution in the prudency review for a project that previously was

assessed on the basis of early and limited information.

24.3.1 If not confirmed, please explain otherwise.

24.4 Please discuss whether the information in RRA Appendices I and J about projects that are in the Definition Phase and have a preliminary cost estimate with a precision of +15%/-10%, supplemented as necessary by information obtained through information requests in the RRA proceeding, should be considered adequate for the BCUC to determine the need for the project.

24.5 Please discuss whether the F2020-F2021 RRA contains information that identifies other projects that are sufficiently well described for the BCUC to determine the need for the projects and explain how these projects are identified in the RRA.

25.0 Reference: REBUTTAL EVIDENCE
Exhibit B-15, pp. 6–7; Exhibit C3-10, p. 6;
F2020-F2021 RRA, Exhibit B-1, Appendix M, p. 3; Appendix N, p. 3
F2020-F2021 RRA Application

On page 6 of Exhibit C3-10, the CEC states:

Oversight review by the Commission of the key drivers for capital expenditures and investments is critically important to obtaining value from the Commission’s oversight. Each driver (sic) has its own information requirements for assessing whether or not it is appropriately driving capital expenditures.

In Table 1 on page 7 of Exhibit B-15, BC Hydro provides in part the following table:

	Mr Craig’s Requested Additional Guidelines	F2020 – F2021 RRA
a	Review of BC Hydro’s driver documentation as it relates to driving capital spending and specifically how cost effectively they drive capital.	<ul style="list-style-type: none">• Chapter 3 – Load and Revenue Forecast• Chapter 6 – Capital Expenditures and Additions• Appendix H – Fiscal 2020 to Fiscal 2024 Capital Plan• Appendix L – BC Hydro Technology Strategy and 5-Year Plan• Appendix M – Asset Health – Generation• Appendix N – Asset Health – Transmission and Distribution• Appendix W – BC Hydro’s Reliability Indices

In Appendices M and N of the F2020 – F2021 RRA Application, BC Hydro provides Asset Health information in a graphic representation, with colour illustrations.

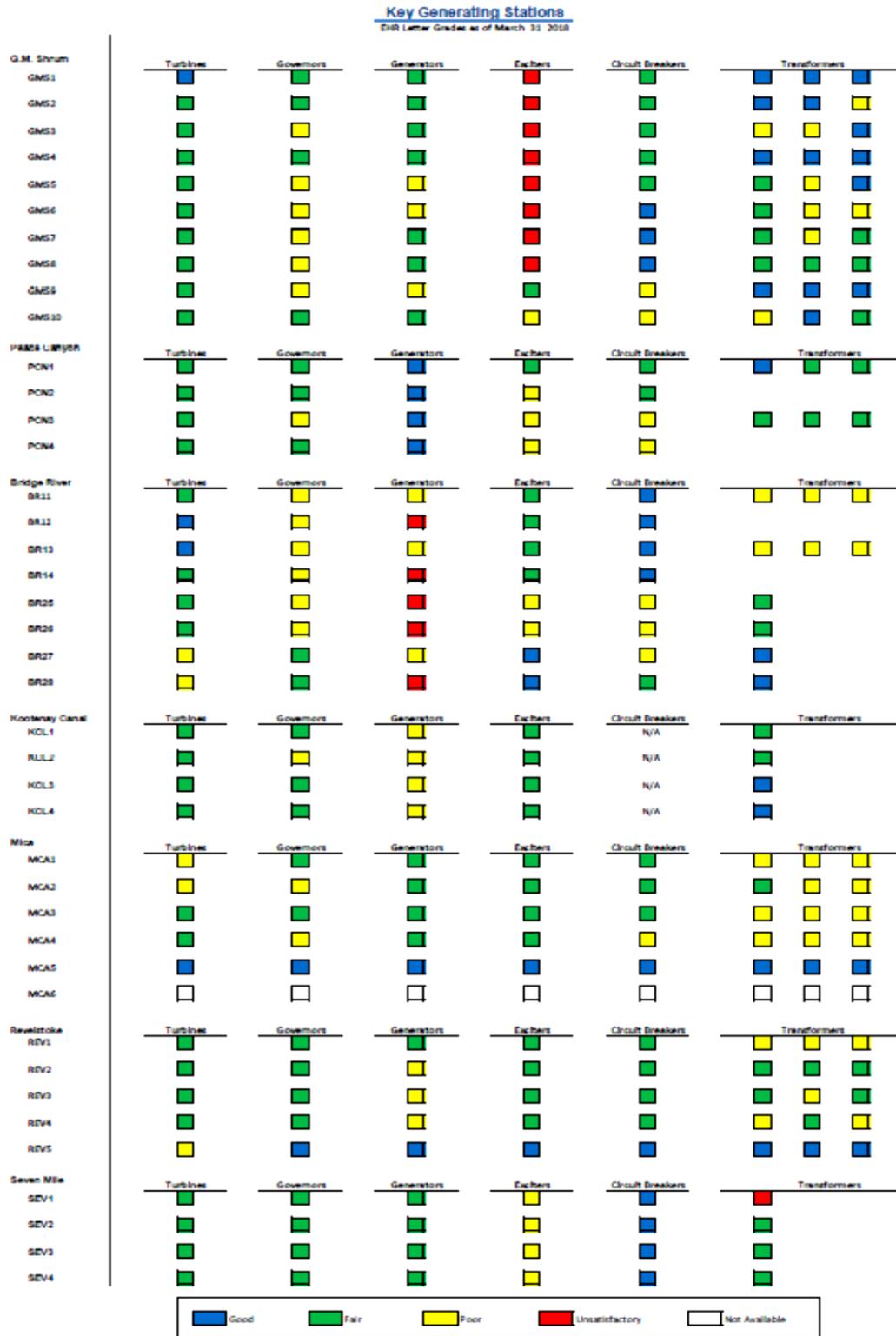


Table N-1 on page 3 of Appendix N provides Asset Health Index charts for Transmission and Distribution asset classes as of April 2018.

Table N-1 Asset Health Index Summary

T&D Assets	Number of Assets (% of Total Assets)	% of Asset Replacement Value												
		100	90	80	70	60	50	40	30	20	10			
T&D Assets	4,056,320 (100%)	█	█	█	█	█	█	█	█	█	█	█	█	█
Transmission	125,474 (3.1%)	█	█	█	█	█	█	█	█	█	█	█	█	█
Substation	54,361 (1.3%)	█	█	█	█	█	█	█	█	█	█	█	█	█
Distribution	3,876,485 (95.6%)	█	█	█	█	█	█	█	█	█	█	█	█	█

25.1 Please explain whether, in BC Hydro’s view, the asset health information provided in the F2020-F2021 RRA is sufficient to explain the need for capital spending.

25.1.1 Please explain, with examples, what further documentation BC Hydro could provide on asset health to justify capital investments.

26.0 Reference: REBUTTAL EVIDENCE
Exhibit B-15, pp. 7–8, 37; Exhibit C3-10, p. 117;
F2020-F2021 RRA, Exhibit B-1, Appendix J, p. 1, Attachment 1, pp. 1–2;
Appendix M, p. 3; Appendix N, p. 3
Business plans and justification documents

Table 1 on page 8 of Exhibit B-15, provides cross-references to the types of information Mr. Craig lists in paragraph 366 of Exhibit C3-10 with information provided in the BC Hydro’s F2020-F2021 RRA. The table is reproduced in part below:

	Mr. Craig’s Requested Additional Guidelines	F2020 – F2021 RRA
d	Review of BC Hydro’s business cases for any of its capital expenditure plans or investments and specifically the evidence that the decision for approval is based on cost-effective plans.	<ul style="list-style-type: none"> Chapter 6 – Capital Expenditures and Additions Appendix H – Fiscal 2020 to Fiscal 2024 Capital Plan Appendix J - Capital Expenditures Greater than \$20 million

On page 37 of its Rebuttal Evidence, BC Hydro states:

The business case or justification document for projects outlines and assesses the project’s justification, alternatives, cost, expected impacts and outcomes, and risk and risk mitigation strategies.

BC Hydro further explains:

We provide similar information in major project applications and as requested in revenue requirements proceedings. Given that we processed over 400 funding requests for projects with a forecast cost over \$1 million in fiscal 2018, it is not efficient to provide all business cases or justification documents in our revenue requirements applications.

In Appendix J to the F2020-F2021 RRA, BC Hydro provides descriptions of capital projects and programs of projects with planned capital expenditures or additions in the test period, with planned total capital expenditures greater than \$20 million. On pages 1 to 2 of Attachment 1 to Appendix J of the F2020-F2021 RRA BC Hydro provides a description of the Revelstoke Install Unit 6 project:

Investment Planning ID: G000594	Project Name: Revelstoke Install Unit 6	
Forecast Capital Cost: \$569 million to \$317 million	Forecast In-Service: Fiscal 2030	Start Date of Construction: ¹ TBD
Development Phase: Definition	Filing Reference: 2008 LTAP: <ul style="list-style-type: none"> Appendix F1 Resource Options Database (RODAT) Sheets F11 RRA: <ul style="list-style-type: none"> BCUC IRs 1.5.1, 1.5.1.1 – 1.5.1.3, 1.217.1 Attachment 6, 1.285.6, 1.331.1 Attachments 1 and 2, 2.515.1, 2.545.5 Attachment 1, 2.599.3, 3.669.1; IPPBC IR 1.1.6 Attachment 4 Amended F12-F14 RRA <ul style="list-style-type: none"> Amended Appendix I, line 136; Amended Appendix J, page 72 F17-F19 RRA: <ul style="list-style-type: none"> Appendix I, line 1, Appendix J, page 1, BCUC IRs 1.70.3, 1.81.1 – 1.81.14, 2.249.8, 2.260.4, BCOAPO IR 1.36.1 	
Description: The purpose of the Revelstoke Unit 6 project is to install a 500 MW unit in the existing empty Unit 6 bay at the Revelstoke Generating Facility. The scope of the Revelstoke Unit 6 installation project would involve the installation of a sixth penstock, turbine, generator, and all ancillary equipment required in the generating station. In addition, there is a transmission requirement for an additional series capacitor station on the transmission line from Vaseux to Nicola and some enhancements within existing substations.		
Key Drivers: <ul style="list-style-type: none"> Reliability 		
Issues Being Addressed: There is one remaining empty bay where a sixth unit could be installed to meet the requirement for additional capacity in the BC Hydro system. Revelstoke Unit 6 is the least cost alternative for adding this additional capacity. Based on the Reference Price Update (December 2018), REV6 is the least cost alternative (\$58/kw-yr) for adding additional capacity to the BC Hydro system and, as such, is the next capacity resource option for the BC Hydro system. The load resource balance is in a deficit in fiscal 2023; by fiscal 2028, the load deficit is 500 MW and this increases to 1,250 MW by fiscal 2030.		
Discussion of Alternatives: Two alternatives were evaluated during Identification phase: <ol style="list-style-type: none"> Proceed with REV6; and Defer REV6. Alternative i. Proceed with REV6 was selected as the preferred alternative based on the 2013 Load Resource Balance (LRB). The project timing has been revised for an In Service Date (ISD) of fiscal 2030 to align with current load growth expectations.		
Project Impacts and Benefits: <ul style="list-style-type: none"> Provide dependable capacity to meet LRB capacity requirements. 		
Project Implementation Phase Risk: Risks are identified starting in the Identification Phase and finalized in the Implementation Phase.		Risk Treatment: To be determined when the project reaches Implementation.
Additional Information: "Revelstoke Unit 6, a project to install an additional turbine and related works and equipment at Revelstoke", is an exempt project pursuant to section 7(c) of the <i>Clean Energy Act</i> .		

26.1 Please explain the differences between a business plan, a justification document and the description of Capital Project and Programs of Projects provided in Appendix J of an RRA.

- 26.1.1 Please provide an example of each.
- 26.2 Please confirm, or otherwise explain, whether a business case or a justification document is developed for each Project or Program of Projects.
 - 26.2.1 If not confirmed, please explain the criteria used to assess whether a business case or a justification document is necessary for a Project or a Program of Projects.
- 26.3 Please discuss whether BC Hydro considers there is any other information that could be included in Appendix J of an RRA that would enhance the BCUC and interveners' understanding of the need or justification of a project or program, without unduly adding to the length of the summary sheets.

**27.0 Reference: BC HYDRO REVISED PROPOSAL
Exhibit B-4, BCUC IR 13.3, p. 1; Exhibit B-7, p. 62;
UCA, section 45(5)
Appendix J definition of Construction Start Date**

BC Hydro's response to BCUC IR 13.3 in part states:

BC Hydro can provide the forecasted or actual Implementation Phase start dates as a proxy for the start of construction for projects that are in Definition or Implementation Phases.

The BC Hydro Revised Proposal at page 62 states:

To assist in the Commission's review of projects in revenue requirements applications as discussed in section 4, BC Hydro proposes to include in Appendix J a summary of the project's Implementation Phase risk and risk treatment and impacts and benefits for projects over a specified materiality limit, and the construction start date for projects in the Implementation Phase.¹³ These summaries will be added to the supporting appendix similar to what was provided in Appendix J in the Fiscal 2017 – Fiscal 2019 Revenue Requirements Application. In Appendix D to this proposal, the template used in the latest filed revenue requirements application has been expanded to include these additional sections.

The construction start date will be recorded as the date funding is approved to proceed to the Implementation Phase.

Section 45(5) of the UCA states:

If it appears to the commission that a public utility should, before constructing or operating an extension to a utility plant or system, apply for a separate certificate of public convenience and necessity, the commission may, not later than 30 days after construction of the extension is begun, order that subsection (2) does not apply in respect of the construction or operation of the extension.

- 27.1 Please discuss how the date funding is approved to proceed to the Implementation Phase, the Implementation Phase start date, and the actual construction start date typically are related for projects to be addressed in Appendix J summaries, including representative ranges for the relative timing of the three dates.
- 27.2 Please confirm, or otherwise explain, whether the "Start Date of Construction" proposed to be shown in Appendix J summaries represents the date that "construction of the extension is begun" as set out in UCA section 45(5).
- 27.3 For projects in the Implementation Phase, please discuss the feasibility of including the actual

or projected start of construction date as well as the date of funding approval on the Appendix J summaries.

**28.0 Reference: BC HYDRO REVISED PROPOSAL
Exhibit B-4, BCUC IR 13.4, p. 1; Exhibit B-7, p. 62; Exhibit B-15, pp. 37–38
Content of and threshold for Appendix J summaries**

BCUC IR 13.4 and BC Hydro's response state:

To enable a factual assessment and comparison of the Alternatives shown in the template, how would the template in Appendix D include high level financial and technical information about the alternatives?

The information relating to alternatives proposed in the Appendix D template is consistent with the level of information BC Hydro has provided in Appendix J in previous revenue requirements applications. This information has been sufficient in previous revenue requirements proceedings. BC Hydro's proposal would be that, as in previous proceedings, if the Commission and interveners wish to explore a project in greater detail, this should be done through the information request process.

The BC Hydro Revised Proposal at page 62 states:

To assist in the Commission's review of projects in revenue requirements applications as discussed in section 4, BC Hydro proposes to include in Appendix J a summary of the project's Implementation Phase risk and risk treatment and impacts and benefits for projects over a specified materiality limit, and the construction start date for projects in the Implementation Phase.¹³ These summaries will be added to the supporting appendix similar to what was provided in Appendix J in the Fiscal 2017 – Fiscal 2019 Revenue Requirements Application. In Appendix D to this proposal, the template used in the latest filed revenue requirements application has been expanded to include these additional sections.

The construction start date will be recorded as the date funding is approved to proceed to the Implementation Phase.

The Rebuttal Evidence at page 37 states:

For projects initiated to add economic value, financial criteria will be a key consideration in determining if a project will be advanced and what alternative is selected. For projects initiated to manage risks, where there are multiple viable alternatives, where applicable, financial criteria including net present value (or cost-benefit analysis) is considered in the selection of the preferred alternative. Financial criteria are considered along with other attributes including, but not limited to, safety, public interest issues, and environmental and archeological impacts using a decision-making framework. The decision-making framework provides a logical way to integrate multiple strategic objectives when comparing options and for the assessment of complex trade-offs for decision-makers, and is typically included in business cases or justification documentation.

We provide similar information in major project applications and as requested in revenue requirements proceedings. Given that we processed over 400 funding requests for projects with a forecast cost over \$1 million in fiscal 2018, it is not efficient to provide all business cases or justification documents in our revenue requirements applications.

The Rebuttal Evidence at page 38 shows Figure 6, Typical Project Lifecycle, which indicates a point in the Definition Phase at the beginning of the regulatory approval stage with a Preliminary Cost Estimate that is +15%/-10%.

- 28.1 Further to the response to BCUC IR 13.4 and for a project that is in the Implementation Phase, please discuss the feasibility of including additional summary financial information about alternatives, and summary business case information for the selected alternative.
 - 28.1.1 Please discuss whether including summary information about alternatives and a business case for projects in the Definition Phase would assist the BCUC and Interveners to more efficiently assess which of these projects appear reasonable and potentially reduce the number of projects that require further investigation through information requests.
- 28.2 Please confirm that a summary sheet for each project or program with a forecast capital cost of \$20 million or greater was filed in Appendix J of the F2020-F2021 RRA.
 - 28.2.1 If not confirmed, please provide information regarding any additional projects with capital costs \$20 million or greater.
- 28.3 Please provide the number of Project and Program summary sheets filed in Appendix J of the F2020-F2021 RRA.
 - 28.3.1 If the threshold for an Appendix J summary sheet had been \$10 million, please provide the number of summary sheets that would have been filed in the F2020-F2021 RRA.
- 28.4 Please complete the following table, providing the number of summary sheets filed in Appendix J of the F2020-F2021 RRA that meet criteria listed.

Table 1: Summary sheets filed in Appendix J of the F2020-F2021 RRA

Criteria	Number of summary sheets filed in Appendix J of the F2020-F2021 RRA
Construction start date in F2019 or earlier (i.e. Implementation Funding Approval Dates)	
Construction start date in F2020 (i.e. Implementation Funding Approval Dates)	
Construction start date in F2021 (i.e. Implementation Funding Approval Dates)	
Forecast In-Service Date in F2019 or earlier	
Forecast In-Service Date in F2020	
Forecast In-Service Date in F2021	
Projects or Programs in the Implementation Phase	
Projects or Programs in the Definition Phase	
Projects or Programs in the Definition Phase and with a Preliminary Cost Estimate of +15%/-10% or better	

- 28.5 The Appendix J template shown in Appendix D of the Revised Proposal shows information for an illustrative project in the Implementation Phase; please provide a copy of the template showing the information to be presented in Appendix J for the following:
 - a) a project in the Identification Phase;

- b) a project in the Definition Phase that does not have a Preliminary Cost Estimate; and
- c) a project in the Development Phase that has a Preliminary Cost Estimate that is at +15%/-10%.

28.6 Please confirm that Appendices I and J can identify whether a project was initiated mainly to add economic value or to manage risks.

28.6.1 If not confirmed, please discuss how this identification could be provided.

28.7 Where a project is part of a Program of Projects or is linked to a strategy, plan or study, please discuss whether Appendices I and J can identify the specific program, strategy, plan or study.

28.7.1 If not, please discuss how this identification could be provided.

28.8 Please discuss whether Appendices I and J identify all of BC Hydro's Programs of Projects as well as all the individual projects that form a Program of Projects.

28.8.1 If not, please discuss how this identification could be provided

29.0 Reference: GUIDELINES FOR MAJOR PROJECT APPLICATIONS
Exhibit B-7, p. 45
Exhibit B-4, Response to BCUC IR 8.1; BCOAPO IR 26.2
Duty to consult

On page 45 of the Revised Proposal, BC Hydro states:

The duty to consult arises when the Crown has knowledge of Aboriginal rights, whether asserted or established, and contemplates conduct that may adversely affect those rights. For projects where the duty to consult is triggered, the Commission's practice has been to assess the adequacy of consultation when BC Hydro applies for either a CPCN or acceptance of an expenditure schedule under section 44.2 of the UCA.

In response to BCUC IR 8.1, BC Hydro states:

Projects that do not exceed the applicable major project threshold should be reviewed in a revenue requirements proceeding in the same manner whether or not the duty to consult is triggered.

In response to BCOAPO IR 26.2, BC Hydro states:

A public review of the adequacy of consultation for a project may occur in other forums, including in other regulatory processes, such as an environmental assessment, statutory decisions associated with the issuance of permits by the Ministry of Forests, Lands, Natural Resource Operations and Rural Development, or in a court proceeding.

29.1 For projects reviewed in a revenue requirement proceeding that are not subject to a CPCN or expenditure schedule, please discuss whether BC Hydro believes that it is appropriate for BCUC to review the adequacy of consultation where the duty to consult has been triggered.

29.1.1 Please confirm if the F2020-F2021 RRA contains information that specifies whether a project has triggered or will trigger the duty to consult.

29.1.1.1 If not confirmed, please discuss the feasibility of including this information in RRAs.

D. CPCN AND SECTION 44.2 APPLICATIONS

30.0 Reference: **APPROPRIATE SCOPE OF REVIEW IN REVENUE REQUIREMENTS APPLICATIONS** **Exhibit B-7, Section 4.3, pp. 30–31** **Streamlined Review Process**

On pages 30 to 31 of the Revised Proposal, BC Hydro provides its summary for the proposed guideline for future projects that do not trigger a CPCN or expenditure schedule. BC Hydro states:

This category consists of future projects that have not been, and will not be, the subject of a CPCN or section 44.2 expenditure schedule application. A significant portion of BC Hydro's capital spending would fall into this category. The revenue requirements application should continue to be the primary venue for reviewing these projects.

- 30.1 Please discuss BC Hydro's views on the options for regulatory processes that the BCUC has to review a CPCN or section 44.2 application.
- 30.2 In BC Hydro's view, please discuss what flexibility the BCUC CPCN Guidelines¹ provide in the BCUC review of CPCN applications.
- 30.3 Does BC Hydro consider there to be any role for an alternate review process, such as a streamlined review process, to review certain projects in the category discussed in the preamble that have potential public interest issues?
 - 30.3.1 If yes, please discuss whether the BCUC would need to require a CPCN or section 44.2 application to initiate an alternate process of such a project that is below the major project threshold.
 - 30.3.2 If yes, please discuss what criteria could be used to determine the use of an alternate process.

31.0 Reference: **BC HYDRO REVISED PROPOSAL** **Exhibit B-15, p. 56; UCA section 45(6)** **Annual Report Statement of Planned Extensions**

The BC Hydro Revised Proposal at page 56 states:

The Annual Report has historically included the following information on capital expenditures and projects:

- (a) a summary of capital expenditures by capital category;
- (b) a listing of the planned expenditures in the current fiscal year for projects over the materiality limit (\$2 million for Information Technology projects, \$5 million for all other capital projects), and Demand Side Management;
- (c) an indication of which projects are considered extensions, pursuant to section 45(6) of the UCA for all projects over the materiality limit; and
- (d) a listing of projects over the major project threshold and the anticipated type of regulatory filings.

Starting in fiscal 2017, changes to the Annual Report have increased the transparency, improved efficiency, reduced redundancy, and provided more relevant information on capital expenditures and projects.

¹ BCUC 2015 Certificate of Public Convenience and Necessity Application Guidelines, Order G-20-15 dated February 20, 2015 (CPCN Guidelines).

Section 45(6) of the UCA states:

A public utility must file with the commission at least once each year a statement in the form proscribed by the commission of the extensions to its system that it plans to construct.

- 31.1 For a year in which an RRA is not filed, please discuss the advantages and disadvantages of filing near the start of the fiscal year, versions of Appendices I and J providing information about planned extensions and other capital expenditures for the year to fulfil the requirements of section 45(6).

E. COMPLIANCE FILINGS

32.0 Reference: COMPLIANCE REPORTING Exhibit B-7, Section 8.2, p. 57 Periodic Project Progress Report

On page 57 of the Revised Proposal, BC Hydro states:

BC Hydro proposes to continue to file semi-annual project progress reports for most capital projects meeting the criteria for CPCN or section 44.2 applications. BC Hydro will request to file only annual project progress reports if it is deemed appropriate given the project's schedule. BC Hydro does not support quarterly progress reporting.

- 32.1 In addition to Site C, please identify any other capital projects undertaken within the past 5 years where BC Hydro has been required to file quarterly reports and explain why quarterly reporting was found to be appropriate in these situations.
- 32.2 Please explain whether BC Hydro foresees any future projects where a quarterly reporting strategy may be more suitable than semi-annual.
- 32.2.1 In situations where quarterly reporting may be deemed warranted by the BCUC, please confirm that the guidelines would not limit such reporting.

BC Hydro further states:

BC Hydro will continue to make project-specific compliance filings with the Commission in the manner and form of previous project-specific compliance reports or in a manner or form directed to by the Commission. BC Hydro considers the form most commonly directed by the Commission to be effective as it provides the Commission with timely updates on a project's progress, and changes to the project's schedule and costs.

- 32.3 Please confirm, or otherwise explain, whether the baseline scope, schedule and cost used for the purpose of tracking project changes in the progress reports are the scope, schedule and cost estimates provided in the respective project application approved by the BCUC.
- 32.3.1 If not confirmed, please provide details of the baseline metrics used to track ongoing project spending and how the BCUC can effectively track changes to the project relative to the BCUC approved project.
- 32.4 Please explain what details are appropriate to provide to the BCUC in progress reports regarding changes to board approved budgets as the project progresses.

**33.0 Reference: COMPLIANCE REPORTING
Exhibit B-7, Section 8.2, p. 58
Project Final Report**

On page 58 of the Revised Proposal, BC Hydro states:

BC Hydro proposes to file with the Commission the Project Final Report three months after receiving Board Approval of the Project Final Report. This milestone is clearer and more aligned with BC Hydro's governance practices. This milestone is met when the Project Final Report, which is required for all major projects, is reviewed by the BC Hydro Board of Directors and is available for wider distribution.

- 33.1 Please explain what processes BC Hydro has in place to ensure that the Project Final Report will be approved in a timely manner, and how the BCUC will be notified of any expected delays.

F. SCOPE AND PROCESS OF BCUC REVIEWS

**34.0 Reference: OVERSIGHT & PERFORMANCE OF BC HYDRO'S CAPITAL INVESTMENTS
Exhibit B-7, p. 23
Adequacy of planning and execution**

On page 23 of the Revised Proposal, BC Hydro states:

Sections 6.3 and 6.4 of BC Hydro's Fiscal 2017 – Fiscal 2019 RRA described BC Hydro's capital investment planning process, and capital project and program delivery, respectively. Although the running of the utility is exclusively the responsibility of BC Hydro's management, this evidence was filed in support of BC Hydro's forecast capital expenditures and additions over the test period. In the Commission's Decision on March 1, 2018, the Panel recommended that the issue of the adequacy of BC Hydro's planning and execution related to large capital projects be explored in this proceeding. In accordance with the approved scope of this proceeding, BC Hydro has focussed this filing on the regulatory processes by which the Commission oversees BC Hydro's capital expenditures, with the goal of having updated Capital Filing Guidelines approved by the Commission. In this context, BC Hydro's view is that the adequacy of BC Hydro's planning and execution related to large capital projects is properly the subject of review in its revenue requirements applications or major project applications, where it could inform the Commission's determinations on the reasonableness of BC Hydro's capital expenditure or additions forecasts or the prudence of completed projects. [Emphasis added].

- 34.1 Please confirm whether in future major project filings BC Hydro intends to include information respecting capital investment planning process, and capital project and program delivery (as applicable) as a means of providing information regarding project planning and execution.
- 34.2 Please discuss, in BC Hydro's view, whether the filing of major project applications provides the BCUC with sufficient opportunity and information to assess the adequacy of BC Hydro's planning related to large capital projects.

**35.0 Reference: COVER LETTER – CAPITAL PLANNING
Exhibit B-7, Cover Letter p. 5; Exhibit B-15, pp. 34–35
Risk and value-based investments**

On page 5 of the covering letter to the Revised Proposal, BC Hydro states:

Most of BC Hydro's capital investments are risk based. Risk-based investments are

assigned a risk score based on an assessment in one or more of the following risk categories: safety, reliability, financial performance, environmental performance, and reputational. This type of qualitative assessment of risk reduction benefits is reasonable given the difficulty in quantifying such benefits. Value-based capital investments are assigned a value score based on the economic benefits such as cost reductions or avoided future costs, and/or qualitative benefits such as improved service quality that a project is expected to produce. The methodology to assess value-based capital expenditures is the economic value (or financial cost-benefit analysis) or other benefits for BC Hydro.

On pages 34 to 35 of the Rebuttal Evidence, BC Hydro states:

Given the size and complexity of BC Hydro’s capital portfolio, we have been working over the past 18 months in a structured and deliberate manner to enhance our existing enterprise prioritization framework by implementing a value-based decision making approach that will build on our existing capital investment planning processes. The value-based decision-making approach is a prioritization tool that will capture the relative importance of the capital cost and value of an investment by translating a variety of investment benefits into a common economic scale. Using this tool, the capital portfolio can be optimized by selecting the investments that will bring the highest total net value to the organization while satisfying any financial, resource, or timing constraints.

- 35.1 Recognizing that each project is different, in a general sense does BC Hydro consider that it is appropriate for there to be any difference in the degree of BCUC oversight for value-based projects compared to risk-based projects?
 - 35.1.1 Please discuss in BC Hydro’s view whether there is any rationale for Major Project thresholds for revenue building projects to be different from BC Hydro’s risk-based projects.
- 35.2 Please discuss whether BC Hydro views that risk score information could be useful to the BCUC and interveners in the review of project applications to the BCUC or RRAs.
 - 35.2.1 Please discuss whether BC Hydro is amenable to including project specific risk scores in its applications to the BCUC.
- 35.3 Recognizing potential challenges involved with monetizing on a common economic scale investment benefits of a capital expenditure, please outline the current status and stage of development of the “value-based decision making approach” and discuss whether BC Hydro expects to present it to the BCUC.
 - 35.3.1 Please discuss whether BC Hydro views that information regarding the value score could be useful to the BCUC and interveners in the review of project applications or revenue requirements applications.
 - 35.3.2 Please discuss whether the approach is expected to recognize all investment objectives and benefits, both risk based and financial.
 - 35.3.3 Has BC Hydro identified a situation, such as a CPCN application, where the value-based decision making approach could be used on a trial basis?
 - 35.3.4 Please discuss if there may be circumstances where a project had a negative value score, but could still be justifiable based upon other factors.

**36.0 Reference: BC HYDRO REVISED PROPOSAL
Exhibit B-7 p. 31; Cover Letter, p. 3
Prudence Reviews and Treatment of a Disallowance**

The BC Hydro Revised Proposal on page 3 of the cover letter states:

BC Hydro considers a prudence review to be a retrospective review of project execution. As BC Hydro has indicated in its Filing, BC Hydro believes that a prudence review is best undertaken after project completion, when final costs and outcomes are known. After project completion, a prudence review could occur in a revenue requirements proceeding or in a specific process designed for that purpose.

If the Commission found that capital expenditures were not prudent, the Commission could reduce the amount of amortization recovered in rates subject to the restriction on retroactive ratemaking. Changes to amortization in the current test period would be captured by BC Hydro's Amortization of Capital Additions Regulatory Account. However, as capital additions are typically amortized over many years, the amount of capital amortized in the first years after a project enters service would generally not represent a significant portion of the capital additions of the project. If the Commission is concerned about ongoing depreciation on a particular project it could establish a deferral account to capture ongoing depreciation on the project, or make BC Hydro's rates interim until the matter is resolved.

The BC Hydro Revised Proposal on page 31 states:

BC Hydro presents information regarding both forecast capital expenditures and capital additions in revenue requirements applications, and will continue to do so. However, BC Hydro believes that the Commission should focus its review only on capital additions, as only the forecast additions affect BC Hydro's revenue requirements in the test period. Forecast capital expenditures are capital spending associated with work in progress, which do not affect BC Hydro's revenue requirements until the projects go into service and the expenditures become capital additions. Forecast capital expenditures in one test period will become forecast capital additions in the current or next (subsequent) test periods. Those test periods are the subject of revenue requirements applications, and the Commission and interveners will have the opportunity to probe those same projects at that time. BC Hydro is not proposing a guideline to limit reviews to capital additions but encourages the Commission and interveners to be cognizant of the potential for redundant reviews and regulatory inefficiency when considering capital expenditures.

- 36.1 Considering BC Hydro's view that a prudence review should be undertaken after project completion and the actual cost of the work is known, please discuss when and in which proceeding the final determination on the amount of capital addition that results from a project should be made.
- 36.2 Please discuss how the information filed in the F2020-F2021 RRA identifies those capital project and program expenditures that have been completed and that the final, actual capital cost is presented, and provide illustrative examples.
- 36.3 For projects and programs that have not been completed but which are forecast to represent a capital addition in the test period, what BCUC actions and determinations with respect to deferral accounts or interim rates does BC Hydro consider would be required so as to avoid retroactive ratemaking?
 - 36.3.1 Please discuss whether the BCUC actions and determinations can be done on a global

basis or if they need to be for individual projects and programs.

- 36.4 Please discuss the pros and cons of the BCUC reviewing forecast capital expenditures in a test period prior to the capital project going into service.
- 36.5 Please confirm, or explain otherwise, that the BCUC can only disallow capital additions in a test period that it finds to be imprudent expenditures.

G. GUIDELINES FOR IT EXPENDITURES

37.0 Reference: APPLICATIONS PURSUANT TO SECTIONS 46(1) AND 44.2 OF THE UCA Order G-63-16, Appendix B Exhibit B-7, pp. 15, 44; Cover Letter, p. 7; Appendix B, p. 3 Exhibit B-4, Response to BCUC IR 7.1 IT capital expenditures

Item 2 of the scope for this Review, as outlined in Appendix B to Order G-63-16, states:

The appropriateness of BC Hydro's 2010 Guidelines for IT capital expenditures and projects or propose separate IT capital project filing guidelines.

On page 3 of the proposed 2018 Capital Filing Guidelines (Appendix B of Exhibit B-7), BC Hydro outlines its proposed expenditure thresholds for Major Projects.

- 37.1 Please discuss whether there are any aspects of capital investments in IT that are distinctly different to other types of capital investment.
 - 37.1.1 Please discuss whether separate IT capital project filing guidelines are appropriate.
- 37.2 Please provide further discussion on how and why the major project threshold for IT projects was originally determined to be appropriate.
- 37.3 Given the lower proposed Major Project threshold for IT projects, please discuss whether lower materiality thresholds for IT projects would also be appropriate for the information filed in Appendices I and J in an RRA.

On page 7 of the covering letter to the Revised Proposal, BC Hydro states:

Information Technology (IT) initiated a pilot program in fall 2017 as a first step in establishing a formal benefits realization process. The objective of the pilot is to evaluate the feasibility and effectiveness of using a standard methodology to assess the results of IT-enabled business initiatives. The pilot focuses on business outcomes and seeks to improve the identification, tracking, protection and expansion of related business benefits over time. The new benefits realization methodology will be fully rolled out by July 2018.

- 37.4 Please discuss if and how BC Hydro intends to provide information regarding the pilot program to the BCUC and other interested parties.
 - 37.4.1 Please discuss how the benefits realization process could inform the regulatory oversight of IT projects.

On page 15 of the Revised Proposal, with respect to IT capital investments, BC Hydro states:

Once the new and existing Capital Portfolio entries have been fully captured and detailed, a candidate plan is developed. The consolidated portfolio of proposed and active investments typically exceeds available financial and labour resources in each year. As a result, a process of ranking and selecting a subset of the portfolio is initiated.

- 37.5 Please confirm if the ranking of the IT Capital Portfolio is made available to the BCUC.

37.5.1 Please discuss whether BC Hydro believes that this information could improve the effectiveness of the BCUC's oversight of IT projects.

In response to BCUC IR 7.1, BC Hydro states:

BC Hydro assesses a project as appropriate for a two-phase regulatory process if a significant proportion of the project's expenditures are undertaken in the Definition Phase and BC Hydro considers it appropriate to obtain Commission acceptance before proceeding to the next phase. On average, approximately 4 per cent of a major project's capital expenditures is undertaken in the Definition Phase and earlier. BC Hydro will consider any significant deviation from that average to be an attribute relevant to this determination. BC Hydro will only consider a two-phase regulatory process for section 44.2 applications.

On page 44 of the Revised Proposal, BC Hydro states:

A two-phase regulatory process was used by the Commission for BC Hydro's Supply Chain Applications Project. In the first phase, BC Hydro filed an application at the beginning of the Definition Phase seeking acceptance of the costs until the end of the Definition Phase. In the second phase, BC Hydro seeks acceptance of the Implementation Phase costs. The two-phase process may be appropriate for projects where a significant proportion of project expenditures will be undertaken in the Definition Phase and BC Hydro determines that it would be preferable to seek Commission acceptance before incurring those costs. BC Hydro will propose a two-phase process in a section 44.2 application if appropriate given the specific attributes of the project.

- 37.6 Please explain what would constitute a "significant deviation" from the average expenditure undertaken in the Definition Phase and earlier, which could warrant a two-phase review process.
- 37.7 Please explain whether under a two-phase regulatory process, the major project threshold would be applicable to the entirety of a project's expected expenditures, or the expenditures in a given phase.
- 37.8 Please discuss if the 2018 Capital Filing Guidelines should include a definition and an explanation of the potential for a two-phase regulatory process for IT projects.

H. PROGRAMS OF PROJECTS

38.0 Reference: CLARITY ON PROGRAMS
Exhibit B-7, pp. 46–48, 63
Exhibit B-4, Response to BCUC IR 10.8
BC Hydro Inquiry of Expenditures related to the adoption of the SAP Platform,
Exhibit B-3, Attachments 11, 13–15; Final Report, pp. 41–42
Programs of projects

On pages 46 to 47 of the Revised Proposal, BC Hydro provides information regarding programs of projects. On pages 47 to 48, BC Hydro summarized recurring capital programs.

BC Hydro on page 48 states:

As projects within the program are initiated, they should be reviewed as individual projects in a revenue requirements application and, if the project exceeds the major project threshold, in a major project filing. BC Hydro will identify in Appendix I of revenue requirements applications projects above the materiality limit that are

anticipated to be delivered as part of Programs of Projects, and where available will provide a summary of the program strategy for all identified Programs of Projects.

On page 63 of the Revised Proposal, BC Hydro states:

BC Hydro is proposing to provide additional data on capital projects and programs in revenue requirements applications. This additional data will be included in Appendix I in future revenue requirements applications. The proposed changes are as follows:

...

- Indication of which projects are part of Programs of Projects.

In the BC Hydro Inquiry of Expenditures related to the adoption of the SAP Platform (SAP Inquiry), BC Hydro sets out the following:

- “Approval must be obtained in advance of any monetary outlays” (Exhibit B-3, Attachment 11, p. 2)
- An Expenditure Approval Request (EAR) is “an approval document required for all initiatives exceeding \$100,000.” (Exhibit B-3, Attachment 15, p. 1)
- A business case is required for “any project (or initiative) requiring investment, expenditure or commitment which has a significant impact on business operations, creates material risk, and/or where there are credible alternatives to a recommended course of action.” (Exhibit B-3, Attachment 14, p. 1)
- Approval levels for business cases are based on estimated project costs, as described in the EAR procedures. (Exhibit B-3, Attachment 14, Table 1)
- “Multiple projects that are intended to be run as a program, or that have a common objective with similar characteristics, shall be consolidated into one Program Initiative for approval purposes. Approval is required at the FAAP [Financial Approval Authority] level for the entire program.” (Exhibit B-3, Attachment 15, p. 2)
- “Documentation-splitting is prohibited as it circumvents the intent of the [Financial Responsibility] policy.” (Exhibit B-3, Attachment 13, page 1)

In the SAP Inquiry Final Report, on pages 41 and 42 the BCUC found that the SAP “the SAP Decision was a financial decision” and that “BC Hydro should have developed an EAR and an accompanying business case to properly support the SAP Decision.”

In response to BCUC IR 10.8, BC Hydro states:

A strategy may identify specific investments over a definite period of time that could be combined into a single project, which would be filed as a single CPCN or section 44.2 application if it exceeded the Major Project threshold.

- 38.1 Please explain whether BC Hydro includes information in Appendix I of the RRA, and files an Appendix J summary sheet, for all forecasted programs of projects that exceed or are expected to exceed the relevant materiality threshold, regardless of whether the individual projects meet the relevant materiality threshold.
- 38.1.1 If not, please discuss how the proposed guidelines ensure that the entire cost of programs, including the costs of all related projects, are reviewed by the BCUC.
- 38.1.2 Please confirm if Appendix J of the RRA contains the current total forecast costs of all programs of projects.
- 38.1.3 Please explain why, in RRA proceeding, the separate review of individual projects within a program is the more effective and efficient approach.
- 38.2 Please explain why BC Hydro does not propose that the total costs of programs of projects

should be classified as Major Projects (or “Major Programs”), if they exceed the applicable threshold.

- 38.3 Please confirm whether BC Hydro’s Financial Approval Authority must approve the full cost of a Program of Projects.
- 38.3.1 If confirmed, please discuss whether BCUC review of expenditures at a program level in a Major Project application is appropriate.
- 38.3.2 Please discuss the feasibility of developing a threshold for major programs of projects in the 2018 Capital Filing Guidelines.
- 38.4 Where it appears that the total cost of a program of a project may approach or exceed the Major Project threshold, please discuss the feasibility of undertaking a separate, CPCN type review for the program.
- 38.5 For a major recurring capital program, such as one involving a large and ongoing capital expenditure, viable alternatives, or significant impacts on customers, First Nations or stakeholders, please discuss the feasibility of undertaking a separate, CPCN type review of the program.
- 38.6 How do the proposed 2018 Capital Filing Guidelines ensure that related expenditures are grouped together and are not separated into multiple projects, each separately below the threshold?
- 38.7 How do the proposed 2018 Capital Filing Guidelines ensure that BC Hydro’s decisions to adopt strategies, which have financial implications exceeding the appropriate threshold, are filed for BCUC approval?

I. INTEGRATED RESOURCE PLAN

- 39.0 Reference: STRATEGIES, PLANS, AND STUDIES**
Exhibit B-7, Section 7, p. 51;
Exhibit B-15-1, pp. 4, 15;
BC Hydro, Integrated Resource Plan, November 2013, Section 1.2, pp. 1-11 to 1-23;
F2020-F2021 RRA, Appendix C, p. 2
Integrated Resource Plan

Page 2 of the Comprehensive Review, in Appendix C of F2020-F2021 RRA states:

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.

Section 1.2 of the 2013 BC Hydro IRP described the IRP planning objectives that are used to analyze resource options and portfolios to inform Recommended Actions, which are set out in section 9 of the IRP.

Section 7 of the Revised Proposal describes BC Hydro’s strategies, plans and studies. BC Hydro states:

Strategies, plans, and studies are developed to seek solutions to effectively invest in the power system and infrastructure. These strategies, plans, and studies investigate and/or implement broader regional, system, or business unit solutions or policies.

On page 4 of Exhibit B-15-1, the Brattle Group states:

The overall strategic direction of BC Hydro's capital expenditure plans, as with utilities in many North American jurisdictions, is tested through an Integrated Resource Planning (IRP) process.

On page 15, the Brattle Group states:

The IRP process is the logical place to review BC Hydro's strategic plans. As the strategic plans are worked up into proposals for specific projects, those proposals are appropriately reviewed in CPCN and Section 44.2 proceedings, with these proceedings testing whether the proposed projects are cost-effective.

- 39.1 Please discuss if BC Hydro considers that the IRP is an appropriate review process to test drivers of capital expenditure (for example, the load forecast).
 - 39.1.1 Please comment on whether BC Hydro considers that the IRP will enhance the BCUC's oversight of the drivers of capital expenditure.
- 39.2 With respect to the Brattle Group's statement that "The IRP process is the logical place to review BC Hydro's strategic plans," please confirm if BC Hydro agrees with this position.
 - 39.2.1 Please discuss how the IRP informs BC Hydro's strategies, plans and studies with respect to capital expenditures.
- 39.3 Please discuss BC Hydro's position on whether there may be circumstances where it is appropriate for BCUC to exempt a project from requiring a CPCN, pursuant to section 44.1(9)(a) of the UCA.
 - 39.3.1 Please discuss how this process would fit with BC Hydro's Revised Proposal.
- 39.4 If the IRP is to be reviewed by the BCUC in future, please explain whether BC Hydro considers that the 2018 Capital Filing Guidelines should include a proposed guideline to help inform the efficient and effective review of the IRP with respect to capital.

**40.0 Reference: The Brattle Group Evidence
Exhibit B-15-1, p. 15; Exhibit B-15, p. 46
Processes for Oversight of Capital Planning and Expenditures**

Question and Response 22 in the evidence of the Brattle Group state:

Q22. In your view, what are the appropriate processes for oversight of BC Hydro's capital planning?

A22. The IRP process is the logical place to review BC Hydro's strategic plans. As the strategic plans are worked up into proposals for specific projects, those proposals are appropriately reviewed in CPCN and Section 44.2 proceedings, with these proceedings testing whether the proposed projects are cost-effective. Finally, it continues to be appropriate for the Commission to review the prudence of past investments to ensure that BC Hydro's implementation decisions are reasonable.

The Revised Proposal at page 46 states:

A Program of Projects is a group of related projects with common business drivers and or technical characteristics which are managed in a coordinated way to deliver a common business requirement or achieve delivery efficiencies by sharing teams, resources, and information technology environments. The projects are managed together to reduce risk and achieve efficiencies and other delivery benefits not available if managed individually.

- 40.1 Between filings of updated IRPs, please discuss the necessity for BC Hydro to regularly review and update as required its load forecast used for capital planning.

J. BC HYDRO REBUTTAL EVIDENCE

**41.0 Reference: BCUC EXISTING REGULATORY PROCESSES PROVIDE MEANS FOR EFFECTIVE OVERSIGHT
Exhibit B-15, pp. 9–15
Performance measures**

On pages 9 to 15 of its Rebuttal Evidence, BC Hydro summarizes the performance information it collects, which is primarily benchmarked through the Service Plan. On page 14, BC Hydro submits that it has delivered \$6.9 billion of projects within 0.4 percent of budget.

- 41.1 Please discuss the merits of using BC Hydro’s performance, as measured through the Service Plan, to affect the degree of regulatory oversight of capital expenditures required by the BCUC. For example, if performance levels were to decline over time, would lower Major Project thresholds be appropriate?
- 41.2 Please confirm the performance against budget for projects above the Major Project thresholds in the five year period assessed.

**42.0 Reference Rebuttal Evidence
Exhibit B-15-1, pp. 6–7
Anticipated levels of capital expenditures**

In response to question #8, the Brattle Group states:

...anticipated levels of capital expenditure do not ultimately influence the level of costs recovered from customers. BC Hydro’s rates are trued-up such that rates ultimately only reflect actual capital expenditure. In particular, if actual capital expenditure turns out to be lower than the anticipated level, then that difference is returned to customers by reducing rates. It does not accrue to BC Hydro as increased returns. In contrast with BC Hydro’s situation, many other utilities are governed by a regulatory framework in which rates are set to recover anticipated capital expenditures and are not trued up (retrospectively) for differences between actual and anticipated expenditures. For these utilities it is necessary for regulators to assess the cost-effectiveness of the planned level of capital expenditure, since for these utilities the planned level of capital expenditure is reflected in rates.

- 42.1 Please clarify how the difference between the anticipated and actual levels of capital expenditures is returned to ratepayers. In particular, please discuss if this is accomplished through the use of deferral accounts.
- 42.2 Under a hypothetical scenario where BC Hydro’s return is based on its rate base, would BC Hydro’s anticipated levels of capital expenditures influence its rates? Please explain why or why not.
- 42.3 Please discuss, in the Brattle Group’s view, if there would ever be situations where it would be necessary for regulators to assess the cost-effectiveness of the planned level of capital expenditures for BC Hydro as it would for other utilities.

In response to question #7, the Brattle Group states:

In some jurisdictions authorized revenues (and therefore rates) reflect anticipated future capital expenditures, and there are infrequent and prospective true-ups for differences between anticipated and actual capital expenditures. This contrasts with the regime that applies to BC Hydro, where authorized revenues and rates are trued up

retrospectively at every test period for differences between anticipated and actual capital expenditures.

In response to question #10, the Brattle Group explains the rationale for limiting the true-up for differences between anticipated and actual capital expenditures.

42.4 In the Brattle Group’s view, what is the rationale for the regime that applies to BC Hydro, “where authorized revenues and rates are trued up retrospectively at every test period for differences between anticipated and actual capital expenditures?”

42.4.1 Please discuss if and how the regime that applies to BC Hydro, aligns customer and utility incentives and strengthens the utilities incentive to control costs.

**43.0 Reference BC Hydro’s Revised Proposal
Exhibit B-7, p. 40, Tables 5-3 and 5-4
Estimated number of applications over the next decade**

BC Hydro provides the following tables:

Table 5-3 2010 Guidelines: Estimated Number of Applications Over Next Decade

Threshold Categories	Generation	Transmission (incl. SDA)	Distribution	Buildings	Information Technology	Total Applications
Threshold (\$ million)	100	100	50	50	20	23
#	15	7	0	0	1	

¹ This table is estimated based on the projects in the Updated Fiscal 2019 to Fiscal 2028 Capital Forecast and is subject to change.

Table 5-4 2018 Filing Guidelines: Estimated Number of Applications Over Next Decade

Threshold Categories	Power System Investment	Buildings	Information Technology	Total Applications
Threshold (\$ million)	100	50	20	23
#	22	0	1	

¹ This table is estimated based on the projects in the Updated Fiscal 2019 to Fiscal 2028 Capital Forecast and is subject to change.

43.1 Please expand the above tables to include:

- the total number of projects,
- the number of projects that would be reviewed in a revenue requirements application,
- the number of projects that are exempt from BCUC review through Legislation or Government direction, and
- the number of projects, for reasons other than Government exemption, that do not require BCUC review.

43.2 Please provide tables with the information in Tables 5-3 and 5-4 and the information in the preceding IR with respect to projects over the last 5 years (fiscal 2014 to 2018).

**44.0 Reference: THE BRATTLE GROUP EVIDENCE
Exhibit B-15-1, p. 15; Attachment 3, pp. 1–2
Experience of Witnesses**

The Brattle Group evidence addresses two questions, as outlined on pages 1 to 2 of Fasken Martineau DuMoulin LLP’s Letter of Instruction, provided in Attachment 3 of Exhibit B-15-1:

QUESTION 1

Has Mr. Craig properly characterized the role and objectives of a regulator such as the Commission with respect to its oversight over a public utility’s capital expenditures and projects?

...

QUESTION 2

What is your assessment of Mr. Craig’s framework and proposal to attempt to assess the cost-effectiveness of BC Hydro’s capital drivers, strategies and plans through annual capital reports?

Question and Response 23 on page 15 of the Brattle Group evidence state:

Q23. Would an annual review of capital plans or the capital planning process improve Commission oversight of cost-effectiveness?

A12. No. The CPCN and Section 44.2 processes already test the cost-effectiveness of proposed projects, and the Commission is already able to review past expenditure for imprudence in the RRA. If BC Hydro’s capital planning process is defective and results in imprudence, the Commission already has the ability to ensure that imprudent spending is not reflected in rates. Furthermore, the RRA process provides the Commission with information about capital projects, including projects which do not reach the thresholds for requiring Commission approval.

- 44.1 Recognizing that Dr. Brown and Dr. Carpenter have broad experience in utility regulation, for each consultant, please outline specific experience in the planning and regulatory oversight of capital expenditures and projects.
- 44.1.1 Please identify any prudency reviews that each consultant has been involved with recently, and briefly describe the role played in the proceeding and which party the consultant was acting for.
- 44.2 Please discuss whether need and justification for the expenditure, as well as project execution, may be factors considered in a prudency review for a capital expenditure.
- 44.2.1 In the experience of Dr. Brown and Dr. Carpenter, in what proportion of prudency reviews, that resulted in a disallowance, was the need and justification for the expenditure a significant cause for the disallowance?
- 44.3 BC Hydro currently files revenue requirements applications that have test periods of two or more years. Considering all factors, please clarify, with rationale, whether or not the Brattle Group consider that an annual review of BC Hydro’s capital plans and capital planning process would benefit the oversight of capital expenditures and projects.