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April 24, 2018

VIA ELECTRONIC MAIL

British Columbia Utilities Commission
Sixth Floor, 900 Howe Street
Vancouver, BC
V6Z 2N3

Attention: Patrick Wruck, Commission Secretary and Manager, Regulatory Support

Dear Sirs/Mesdames:

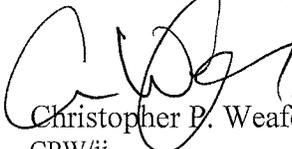
Re: British Columbia Hydro and Power Authority Review of the Regulatory Oversight of Capital Expenditures and Projects ~ Project 3698877

We are counsel to the Commercial Energy Consumers Association of British Columbia (the "CEC"). Attached please find the CEC's technical/clarifying questions to British Columbia Hydro and Power Authority with respect to the above-noted matter.

If you have any questions regarding the foregoing, please do not hesitate to contact the undersigned.

Yours truly,

OWEN BIRD LAW CORPORATION


Christopher P. Weafer
CPW/jj
cc: CEC
cc: BC Hydro
cc: Registered Interveners

**COMMERCIAL ENERGY CONSUMERS ASSOCIATION
OF BRITISH COLUMBIA**

**TECHNICAL AND CLARIFYING QUESTIONS TO BRITISH COLUMBIA
HYDRO AND POWER AUTHORITY**

**British Columbia Hydro and Power Authority Review of the Regulatory Oversight
of Capital Expenditures and Projects
Project No. 3698877**

April 24, 2018

1. Reference: Exhibit B-3, pages 12 and 13

2.3.3 Information Technology

The Information Technology capital investments are designed to support BC Hydro's operational and compliance requirements and to drive greater efficiency and effectiveness. This is done by improving communications, automation of specific activities or processes, and decision support. The Information Technology group manages about \$500 million in information technology assets including \$360 million in software and \$110 million in hardware.

The Information Technology Capital Planning process utilizes a portfolio management approach in developing its capital investment plan. It follows a four-step planning process.

- Proposed investments are captured through ongoing discussions with business groups, stakeholders and IT business advisors; active investments are tracked through the various phases of execution; and completed investments are maintained in the portfolio for reporting purposes.
 - 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.
 - The candidate plan then undergoes a series of reviews to allow dialogue among Planning team members and affected BC Hydro business stakeholders. The reviews consider factors such as portfolio value, risk, and balance.
 - A final review of the proposed technology capital investment plan is undertaken by both the Information Technology leadership team and BC Hydro's executive team, as part of the overall oversight of the Technology capital investment plan.
- 1.1 Given that BC Hydro is a regulated monopoly with costs recovered from ratepayers, please elaborate on the incentives that exist, if any, for BC Hydro to limit IT spending.
- 1.2 Please identify and discuss any processes that BC Hydro undertakes in order to ensure that proposed investments coming forward address IT 'needs' rather than IT 'wants'.
- 1.3 Please discuss how 'value' is determined for a candidate plan? Does this refer to financial value? Please discuss.
- 1.4 Please discuss how BC Hydro determines whether or not its IT investments have been valuable additions, financially, once implemented, for the business.

2. Reference: Exhibit B-3, page 13

Information Technology capital investments can be grouped into:

1. Business-driven expenditures related to information systems for supply chain, customer support, work management, asset management, the integration of systems and devices, and specialized business applications; and
 2. Foundational expenditures, which include the implementation and sustainment of software platforms and applications, information technology infrastructure and telecommunications, cyber security, analytics and mobility support.
- 2.1 Does BC Hydro typically provide quantifiable and measurable benefit/cost analyses for its business-driven expenditures related to IT?

- 2.1.1 If yes, please provide a discussion of where and how measurable benefit/cost analyses are incorporated into the analysis of the business driven expenditure planning.
- 2.1.2 If no, how does BC Hydro justify its business driven expenditures?
- 2.2 Does BC Hydro typically provide quantifiable and measurable benefit/cost analyses for its foundational expenditures related to IT?
 - 2.2.1 If yes, please provide a discussion of where and how measurable benefit/cost analyses are incorporated into the analysis of the foundational expenditure planning.
 - 2.2.2 If no, how does BC Hydro justify its foundational expenditures?

3. Reference: Exhibit B-3, page 14

Fleet capital investments are of two major types:

- 1. Timely replacement of older vehicles to reduce financial risks, control lifecycle costs and address age-related mechanical, safety and reliability issues. These sustaining investments are optimized to manage increasing maintenance costs as assets age (including higher likelihood of costly unplanned maintenance events). On average, approximately 10 per cent of all vehicles in the fleet are replaced annually; and
 - 2. Upgrading and addition of required fleet assets to improve operational productivity, flexibility, and safety. This represents a small portion of the capital investment in the fleet and includes value-based vehicle purchases via the upgrading or the addition of new vehicles due to changing business needs and work method changes
- 3.1 How does BC Hydro define 'older vehicles'?
 - 3.2 What is the total value of BC Hydro's fleet of vehicles?
 - 3.3 What is the average age of BC Hydro's vehicle fleet?
 - 3.4 How does BC Hydro measure:
 - (1) Financial risks
 - (2) Lifecycle costs
 - (3) Age related mechanical issues
 - (4) Age related safety issues
 - 3.5 Does BC Hydro have an optimization model for its fleet, and if so, please provide the model.

4. Reference: Exhibit B-3, page 18

- At a specified period after the project's close, at substantial completion of the project, or a milestone specified by the Commission's Order, BC Hydro is normally directed to file with the Commission a final project report. The final project report provides the final update on the project, a reconciliation of final costs and schedule changes, and the realized project impacts and benefits.

4.1 How long after completion would BC Hydro typically file a final project report that discussed realized project impacts and benefits?

4.1.1 Is there typically long term follow-up or not? Please explain.

4.2 Does the Project Completion report cover the financial cost/benefit achievement or lack thereof? Please explain.

4.2.1 If not, why not?

5. Reference: Exhibit B-3 page 18 and 19

- The Board of Directors issues two types of approvals for capital projects whose costs are expected to be greater than \$50 million (\$20 million for Information Technology projects). The first approval is of the Preferred Alternative and is sought before the project can proceed to Definition Phase. The second approval is of the project itself, including forecast cost, and is sought before the project can proceed to Implementation Phase.
- The Capital Projects Committee is a sub-committee of the Board of Directors. It provides strategic and policy level advice and direction on the long-term capital plans and capital projects. This sub-committee reviews and recommends for the full Board of Directors approval any changes in total authorized cost (a cost

estimate that includes the expected cost and the management reserves) for Board-approved projects.

5.1 How many alternatives is the Board of Directors typically offered for capital projects when selecting the Preferred Alternative?

5.2 Is Status Quo and/or Do Nothing always offered as an alternative?

5.2.1 If no, why not?

5.3 Do any subcommittees of the Board of Directors review the projects before they are brought to the Board of Directors? Please discuss.

- 5.4 Please provide brief discussion of the level of analysis that is provided to the Board of Directors at the first approval.
- 5.5 Please provide a brief discussion of the level of analysis that is provided to the Board of Directors at the second approval.
- 5.6 Once the Preferred Alternative has received both approvals from the Board of Director, what processes exist, if any, for terminating the project?
- 5.7 Please confirm, or otherwise explain that the Board is presented with project costs as financial information, but does not necessarily or typically receive financial benefit data founded on measurable business process.

6. Reference: Exhibit B-3, page 19

- The Capital Delivery Management Committee includes members of the executive team and senior managers across the organization. It provides advice and direction: on the planning and delivery of BC Hydro's capital investments; BC Hydro's adherence to its regulatory requirements, standards, and long-term strategies; and the capital planning processes and re-alignment of priorities as needed.
 - The Capital Delivery Management Committee Working Team is composed of managers and directors responsible for managing assets, managing resources, and implementing capital projects. It provides feedback and recommendations to the Capital Delivery Management Committee to enable them to make informed decisions as part of the portfolio management process.
 - Project Management Meetings are held bi-weekly and perform as 'gates' to review and determine if a Generation, Transmission or Distribution project is ready to progress to the next stage of its lifecycle based on a review of the project's estimated cost, scope, alternatives, and implementation plans.
 - Project Accountability Meetings provide additional oversight to Generation, Transmission or Distribution projects with forecast capital costs greater than \$50 million, and for projects under \$50 million where there is the risk of significant delays or cost increases.
- 6.1 Please provide an overview, including position titles, of the composition of the Capital Delivery Management Committee.

7. **Reference: Exhibit B-3, page 20**

3.2.2 **Capital Investments Portfolio Performance**

BC Hydro sets targets for, monitors, and tracks its performance to ensure it is prudently managing its capital expenditures.

BC Hydro uses the Project Budget to Actual Cost performance measure to evaluate its financial performance for capital projects delivery. The measure captures a five-year rolling data set of actual costs compared to originally approved full scope implementation budgets, excluding project reserve funds, for capital projects that were put into service during the period. An under or over percentage is calculated based on these aggregated totals. The target result is +/- 5 per cent.

The table below includes data on generation, transmission, major distribution, smart metering and infrastructure, and properties projects over \$100,000. The results for F2016 and F2017 show actual cost was less than project budget.

Table 3-2 Results Fiscal 2016 and Fiscal 2017

Rolling Five-Year Period	2016 F2012 to F2016	2017 F2013 to F2017
Project Budget to Actual Cost (%)	-0.18	-0.94
Total Capital Cost (\$ billion)	6.49	6.36
Total Number of Projects	563	540

- 7.1 Please confirm that every capital project should have benefits that exceed costs.
 - 7.1.1 If not confirmed, please explain why not.
 - 7.1.2 Does BC Hydro quantify project benefits for all its projects?
 - 7.1.2.1 If no, please explain why not.
- 7.2 Will the Commission always receive an analysis of project benefits versus project costs in BC Hydro's project reporting?
- 7.3 If no, under what circumstances would BC Hydro's reporting exclude an analysis of project benefits versus project costs.

8. Reference: Exhibit B-3, page 25

4.2 Projects Underway Without Prior Commission Approval or Legislative Exemption: Commission Can Assess Need, Alternatives and Implementation

This category consists of projects that did not require a CPCN, were not the subject of previous section 44.2 applications, and are underway. A significant portion of BC Hydro's capital expenditures at any given time would fall within this category. BC Hydro's proposal is to continue with what already occurs today.

4.2.1 Proposed Guideline

BC Hydro is proposing the scope of a revenue requirements proceeding will generally include reviewing capital projects under development that neither meet the requirements for a CPCN application, nor have been the subject of a section 44.2 application. The review may include an assessment of need, alternatives, and cost, but any consideration of project execution will normally await project completion.

BC Hydro will include in revenue requirements applications information on all such projects that meet the appropriate threshold. The information that BC Hydro provides should generally be at the level of detail included in the Fiscal 2017 - Fiscal 2019 RRA.

4.2.2 Rationale for Proposed Guideline

Since the project need, alternatives, and justification have not yet been reviewed for this category of projects, the Commission may inquire into these matters in a revenue requirements application. While the execution of the project to date could potentially be reviewable, a review of the prudence of capital expenditures should generally occur only after the project is in service. As described above, waiting until the project is complete to perform this review is fair to both BC Hydro and ratepayers.

- 8.1 Please describe the circumstances that could result in neither a CPCN nor a Section 44.2 application being filed.
- 8.2 Are CPCNs and Section 44.2 applications approved before the project commences? Please discuss.

8.3 To the extent that a project is already underway, does not have approval through CPCN or Section 44.2, what options are open to the Commission in denying approval or requiring significant amendments? Please discuss.

9. **Reference: Exhibit B-3, Appendix B, page 1 and 2 of 5**

Review of Projects in Revenue Requirements Applications

3. For projects with a CPCN, accepted expenditure schedule, or an exemption and that have capital expenditures or additions in the test period and have not been reviewed in a previous test period, the scope of review in a revenue requirements proceeding may include consideration of the execution of projects. Detailed consideration of BC Hydro's project execution is best reviewed at project completion when total cost and outcomes are known.
4. For projects subject to a future CPCN or section 44.2 application and that have capital expenditures or additions in the test period and have not been reviewed in a previous test period, the scope of review in a revenue requirements proceeding may include examination of project need and alternatives to the extent reasonably required to test the forecast capital expenditures or additions in the test period. A detailed assessment of need and alternatives should be left to the pending CPCN or section 44.2 application for these projects.
5. For projects that do not meet the requirements for a CPCN application or have not and will not be the subject of a section 44.2 application, the scope of review in a revenue requirements proceeding may include an examination of project need and alternatives and the reasonableness of the forecast assuming the project proceeds. Any consideration of project execution will normally await project completion.

Revenue Requirements Application Filing Requirements

6. BC Hydro will include in its revenue requirements applications for all individual projects above a specified materiality limit:⁹

⁹ Historically, the materiality limits have been determined through dialogue between BC Hydro and the Commission.

9.1 Please provide a brief discussion of the dialogue that occurs between BC Hydro and the Commission when determining the materiality threshold.

- 9.2 Would it be reasonable for the Commission to be informed of projects at the earliest stage of BC Hydro approval rather than at the CPCN, Section 44.2 application or Revenue Requirements application? Please explain why or why not.
- 9.3 The CEC wishes to understand the stages of authorization and spending that will likely already have occurred at the time that the Commission and interveners are likely to become aware of major projects and when they become subject to approval. Please provide timelines for each project review type ie. CPCN, Section 44.2 applications, Revenue Requirements review; no BCUC review (if applicable):
- Key decision points for the creation and development of a new project in BC Hydro with the authorizing committees identified.
 - Project stages with spending authorizations.
 - When and how the Commission would first expect to become aware of the decision.
 - Commission approvals.

10. Reference: Exhibit B-3, Appendix B, page 2 of 5 and page 3 of 5

Revenue Requirements Application Filing Requirements

6. BC Hydro will include in its revenue requirements applications for all individual projects above a specified materiality limit:⁹
- a. the project's unique planning identification number;
 - b. the project's driver;
 - c. the project's lifecycle stage or phase;
 - d. key project milestone dates;
 - e. project forecast capital expenditure and additions;
 - f. an indication of whether a project will be subject to a CPCN or expenditure schedule application;
 - g. an indication whether a project is an extension;
 - h. if applicable, an indication of which strategies, plans, or studies a project is linked to; and
 - i. descriptions of the strategies, plans, or studies identified in (h) above.

7. BC Hydro will continue to provide relevant information on project justification and alternatives for major projects over a specified materiality limit. In addition, BC Hydro will include information on Implementation Phase risk and risk treatment and impacts and benefits.
 8. Recurring Capital Programs may be reviewed in the appropriate section(s) in a revenue requirements application.
- 10.1 How frequently does BC Hydro provide Revenue Requirements applications filings?
 - 10.2 Do Revenue Requirements applications typically reflect up to date project information at the time of review by the Commission and interveners, or do they require such lead time that the project information may be out of date? Please explain.
 - 10.3 On page 33 BC Hydro lists the stages of project lifecycle as including Initiation Phase, Identification Phase, Definition Phase and Implementation Phase. What is the earliest project stage at which BC Hydro would include a project in its Revenue Requirements applications?
 - 10.4 Is it possible for a major project to essentially skip 'approval' by the Commission, either because they are not provided to the Commission at all, or are at such a late stage that approval becomes meaningless? Please explain?
11. **Reference: Exhibit B-3, Appendix B, page 2 of 5 and Appendix B page 3 of 5 and page 4 of 5**

in the test period. A detailed assessment of need and alternatives should be left to the pending CPCN or section 44.2 application for these projects.

5. For projects that do not meet the requirements for a CPCN application or have not and will not be the subject of a section 44.2 application, the scope of review in a revenue requirements proceeding may include an examination of project need and alternatives and the reasonableness of the forecast assuming the project proceeds. Any consideration of project execution will normally await project completion.

Certificate of Public Convenience and Necessity and section 44.2 Expenditure Schedule Acceptance

11. BC Hydro will file an application for a CPCN pursuant to subsection 46(1) of the UCA for Major Projects that are extensions. An extension is a project initiated with the intent to expand the geographic extent or capacity of a utility plant or system.
12. Extension projects may include: facility end-of-life replacement projects (as opposed to individual component(s) that have reached end-of-life); new projects designed to serve incremental energy and/or peak load growth; and refurbishment projects that are not undertaken to serve incremental load growth, but through efficiencies result in additional MWs and/or GWhs/year on a planning basis.
13. Under section 44.2 of the UCA, a public utility may file an expenditure schedule for acceptance of capital expenditures that it has made or plans to make. Although the Commission cannot require BC Hydro to file a section 44.2 application for acceptance of a capital expenditure schedule, BC Hydro commits to filing a section 44.2 applications for Major Projects that are not extensions.
 - 11.1 On page 2 of Appendix B, BC Hydro discusses the situation for projects that do not meet the requirements for a CPCN application and have or will not be the subject of a section 44.2 application. On page 3 and 4 of Appendix B, BC Hydro commits to filing CPCN for extension projects, and section 44.2 applications for projects that are not extensions. Please rationalize the two statements.
 - 11.2 For clarity, please confirm that BC Hydro will file either a section 44.2 application or a CPCN application for all Major Projects.
 - 11.3 If not confirmed, please explain.
 - 11.4 Please provide a table identifying any significant projects that the Commission has denied, or significantly reduced expenditures for in the last 10 years. Please provide the project name, year, benefits cited by BC Hydro, expenditures requested, expenditures approved, Commission rationale and Commission decision reference.

12. Reference: Exhibit B-3, Appendix B, page 3 of 5 and page 4 of 5

Expenditure Thresholds

9. A Major Project is a capital project that has an authorized cost estimate that exceeds one of the following thresholds:
 - a. \$100 million threshold for Power System projects;
 - b. \$50 million threshold for Buildings projects; and
 - c. \$20 million threshold for Information Technology projects.

13. Under section 44.2 of the UCA, a public utility may file an expenditure schedule for acceptance of capital expenditures that it has made or plans to make. Although the Commission cannot require BC Hydro to file a section 44.2 application for acceptance of a capital expenditure schedule, BC Hydro commits to filing a section 44.2 applications for Major Projects that are not extensions.

- 12.1 How does BC Hydro propose to report strategic decisions that result in multiple projects which individually fall under the Major Project thresholds but together constitute an expenditure that would exceed the materiality threshold? Please explain.
- 12.2 When would the Commission and ratepayers expect to become aware of strategic decisions such as these?
- 12.3 Please provide BC Hydro's views as to whether or not it is appropriate for the Commission to evaluate such decisions.

13. Reference: Exhibit B-3, page 28

4.4 Future Projects that do not Trigger a CPCN or Expenditure Schedule: Commission Can Assess Need in Revenue Requirements Proceeding

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.

4.4.1 Proposed Guideline

BC Hydro is proposing the scope of review in a revenue requirements proceeding should include consideration of forecast capital expenditures and additions in the test period, but should exclude future projects for which there are no forecast expenditures or additions in the test period.

For those projects with forecast expenditures or additions in the test period, the scope of review may include examination of project need and alternatives, and the reasonableness of the forecast given the stage of the project and assuming the project proceeds. BC Hydro will include in revenue requirements 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.

4.4.2 Rationale for Proposed Guideline

The Commission can review the project need, alternatives and justification, as these issues would not have been addressed in a separate CPCN or section 44.2 application. BC Hydro's forecast would be reviewed in the ordinary course. There would be no actual costs to review, since the projects have not yet commenced.

13.1 How would BC Hydro describe the 'level of detail included in the Fiscal 2017- Fiscal 2019 RRA'? Is this equivalent to that found in Appendix D of this document?

14. Reference: Exhibit B-3, page 29

In light of the fact that revenue requirements applications are focused on a particular test period, the Commission should limit its review to projects for which there are forecast capital expenditures or capital additions in the test period. The Commission should defer its review of future projects without forecast capital expenditures or capital additions in the test period to a future revenue requirements application. This approach has two key benefits. First, it leads to a better quality of review, as projects tend to be subject to a higher level of definition closer to the commencement of construction. Second, it avoids multiple reviews of the same projects in successive revenue requirements applications, which is inefficient.

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.

- 14.1 The above statement references 'Future Projects that do not Trigger a CPCN or Expenditure Schedule:' If the Commission and interveners are unable to probe capital expenditures at the time they are being undertaken, is it essentially too late to evaluate the expenditures for their cost/benefit at the time they are becoming capital additions? Please explain.

- 14.2 Please discuss the recourse open to the Commission if the review of capital additions is not found to be adequately justified in a cost/benefit analysis.
- 14.3 BC Hydro proposes that the Commission and interveners focus their analysis on capital additions rather than capital expenditures to avoid duplication. What would be the impact of the Commission and interveners focusing their review on capital expenditures rather than capital additions, so that the review is undertaken earlier than at project completion.

15. Reference: Exhibit B-3, page 33

As described in section 6.3.5 of the Fiscal 2017 – Fiscal 2019 RRA, when developing capital plans each Business Group considers, amongst other factors, the size, scope, complexity and costs of capital investments. This consideration may at times lead to previously identified projects being re-scoped into smaller or larger projects to manage risk, for delivery efficiency, meet changing business requirements, adapt to resource constraints, or due to the discovery of new and better solutions. BC Hydro will provide in revenue requirements applications, as part of its variance explanation for projects over the materiality limit, an explanation for any resulting changes in overall project costs.

- 15.1 Will BC Hydro identify any projects that were originally over the materiality threshold and broken down into smaller projects that are below the materiality threshold?
 - 15.1.1 If no, or not always, please explain why not.

16. Reference: Exhibit B-3, page 36 and 37

5.3.1 Proposed Major Project Categories and Thresholds

BC Hydro proposes the following expenditure threshold levels and the threshold categories as follows:

1. \$100 million threshold for Power System projects (described in section 2.3.1);
2. \$50 million threshold for Buildings; and
3. \$20 million for Information Technology projects.

5.3.2 Rationale for Major Project Categories and Thresholds

The 2010 Guidelines are working well, and capturing BC Hydro's most significant capital projects for review by the Commission. The proposed changes would not change the quantity or type of projects that would have been reviewed under the thresholds as outlined in the 2010 Guidelines. The aim of the proposed modifications is to align the thresholds with current capital planning processes, and to increase clarity and ease of use.

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.

5.3.2.1 Anticipated Major Project Filings Under Proposed Changes

The proposed categories and thresholds will result in a similar number of applications filed with the Commission as would be expected under the 2010 Guidelines. Below, [Table 5-3](#) is the estimated number of filings using the categorization and thresholds of the 2010 Guidelines. [Table 5-4](#) is the estimated number of anticipated filings under the proposed changes. The total number of estimated filings is similar to that under the Proposed Guidelines. [Table 5-5](#) lists the projects (including description and current phase) that may meet the criteria for a CPCN or section 44.2 filing.

- 16.1 Please provide the original rationale for having a separate threshold for Distribution projects.
 - 16.2 Please provide the original rationale for establishing the threshold for Distribution projects at \$50 million.
 - 16.3 Please elaborate on how 'Including all power systems projects under one threshold will make it easier to apply thresholds for projects involving work on the transmission and distribution systems' when BC Hydro anticipates no changes to the number of projects which will require Commission review over the next decade.
17. **Reference: Exhibit B-1, page 43 and 44**

6.1 Program of Projects

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 benefits not available if managed individually.

Programs of Projects (except for those managed by Information Technology) are usually planned and financially approved with a single business case (the justification for each project is interrelated), have long durations (multiple years), a finite end date, and can be flexible in scope with new projects added over time (for example the H-Frame Eliminations - Chinatown program).

6.2 Recurring Capital Programs

There are two sub-types of recurring capital programs – work programs and acquisitions.

6.3 Proposed Guidelines for Programs

BC Hydro proposes the following guidelines for reviewing programs.

- (i) Program of Projects: 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.
- (ii) Recurring Capital Programs: Work Programs and Acquisitions, irrespective of forecast cost, are best reviewed in a revenue requirements application.

17.1 How would BC Hydro characterize the various projects included in its ongoing move to SAP? As a Program of Projects or as Recurring Capital Programs?

18. **Reference: Exhibit B-3, page 57 and 58**

9.2.2 A Master Source for Capital Project and Program Information

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:

- A listing of planning identification numbers to allow a projects or program to be more easily tracked throughout its lifecycle and across filings;
- Annual capital expenditure cost forecast for projects over a specified materiality limit and in the test period;

-
- Indication of which projects are considered extension projects;
 - Identification of projects that may require a major project regulatory filing and the type of filing anticipated – CPCN or 44.2 expenditure schedule application; and
 - Indication of which projects are linked to strategies, plans, and studies.

18.1 Please provide the proposed materiality limits if different from those of major capital projects requiring a regulatory filing.

19. **Reference: Exhibit B-3, Appendix E, page 2 of 2**

Below is a new template to summarize strategies, plans, and studies as noted in section 7.5. The template summarizes key points in a sample Substation Asset Plan. The information included below is for illustrative purposes only.

Capital Strategy Name: Asset Plan – ABC Substation
Summarize Issue: ABC is a 60 year old substation in Vancouver which serves over 60,000 customers. It is considered a high criticality station. The firm load capacity of the station is expected to be exceeded in 2025. The existing 12 kV feeder sections are at end of life and require replacement. In addition they have significant safety issues including limits of approach violations, high fault levels imposing operational constraints (split bus) when workers in the station, and underrated feeder breakers. In addition, the following assets are at or near end-of-life and will need to be replaced: <ul style="list-style-type: none">- Two of the three power transformers are near end-of-life and expected to fail within five years;- Two of the over 40-year old 230 kV Capacitive Voltage Transformers are at end of life;- Six of the ten 12 kV bus circuit breakers are obsolete bulk oil breakers in end of life condition, and represent a fire and environmental risk;- The 12 kV voltage regulators are at end of life;- The two station service transformers are 40 years old and approaching end-of-life;- The control building contains asbestos and does not meet seismic standards;- The standby diesel generator is at end of life; and- Unsafe pin and cap style insulators on the 230 kV disconnects and bus supports.
Summarize Solution: The following investment staging is anticipated to address these issues and ensure the integrity of supply from ABC Substation. Short term Initiate project to address the following: <ul style="list-style-type: none">- Replace existing transformers with new 150 MVA transformers with dual secondary windings of 12 kV and 25 kV- Upgrade substation security- Decommission and remove old equipment Add scope to Work Programs to address the following: <ul style="list-style-type: none">- Address end-of-life feeder sections- Upgrade station service Medium Term <ul style="list-style-type: none">- Add an additional feeder section Long Term <ul style="list-style-type: none">- Convert feeders to 25 kV- Upgrade P&C & Telecom equipment including replacing the existing control building

19.1 Is there any opportunity for the Commission to review the cost/benefits of a BC Hydro 'strategy' as opposed to a project?

19.1.1 If yes, please describe when the Commission has the opportunity to evaluate the 'strategy' as a whole, and where this review would occur relative to the individual project(s)' status.

19.1.2 If no, please explain why not.

19.2 Does BC Hydro always evaluate the cost/benefit of any of its strategies?

- 19.2.1 If yes, please explain where the Commission is provided with evidence of these cost/benefit analyses.
- 19.2.2 If no, why not.
- 19.2.3 If no, please describe which strategies have a cost/benefit analyses undertaken and which types of strategies do not.