

REQUESTOR NAME: **Richard T. Landale BCUC Intervener C-15**

INFORMATION REQUEST # **3**

TO: BRITISH COLUMBIA HYDRO & POWER AUTHORITY

DATE: **25 April 2017**

PROJECT NO: **3698869 BCUC**

APPLICATION NAME: BC Hydro Fiscal 2017 to Fiscal 2019 Revenue Requirements Application  
**Information Request on BC Hydro Rebuttal Evidence Exhibit B-20**

4 Response to Evidence of Mr. Landale 8

Q1. Do you have any general comments on Mr. Landale's evidence?

A1. *Yes. As a general comment, we disagree with the overall point of Mr. Landale's evidence. Our disagreement extends to the three main components of his evidence, which relate to: (i) the depreciation methodology applied to the Burrard Thermal Generating Plant assets, (ii) our attitude towards seniors on a fixed income, and (iii) our ability to reduce and reprioritize capital spending during the test period beyond what we have already done. We address the first two aspects of Mr. Landale's evidence below. The third point is answered throughout the Application and our responses to information requests, which describe the steps we have taken to prioritize capital spending.*

#### **Intervener IR. On A1**

**For the purposes understanding BC Hydro's "General Comments", how does BC Hydro distinguish the "Burrard Facility"; the "Burrard Thermal Generating Plant", and the "Burrard Synchronous Condenser Station" operations? For example, the Burrard Facility as a name only, having no distinguished operational definition. The Burrard Thermal Generating Plant, as a facility that uses thermal energy created by burning natural gas in boilers to create high pressure steam, released to turn/rotate steam turbines attached to a generators (6 in all) to produce electricity. The Burrard synchronous Condenser Station, as a Lower Mainland Power Grid Stabilizing Station (4 units in all).**

**Will BC Hydro please provide their functional definition for all three named references?**

4.1 BC Hydro Determined Depreciation Rates And Asset Classes Appropriately

Q2. Mr. Landale's evidence includes a discussion about BC Hydro's proposed depreciation rates for the Burrard Thermal Generating Station, which now serves as a synchronous condenser facility. He expresses the view that "on the whole BC Hydro follows these overarching principles and definitions prescribed in the USoA [the Commission's Uniform Rebuttal Evidence of British Columbia Hydro and Power Authority System of Accounts]", 37 and that the depreciation rates "appear consistent with accepted accounting practices". 38 How were the depreciation rates developed?

A2. *Mr. Landale is correct that BC Hydro used a standard approach for developing depreciation rates. The useful lives of the individual assets were adjusted to reflect the remaining useful life as a result of the change in use of the Burrard Facility. The adjusted remaining useful life was used as the basis to determine the depreciation for the assets.*

#### **Intervener IR. On A2**

**First, I never "ever" referred to the Burrard Thermal Generating Station.**

**Second, BC Hydro has not "clearly" stated in their above response: "HOW" were the depreciation rates derived, developed or adjusted? For example; how were the individual assets adjusted to reflect the remaining useful life of any given asset,**

Intervener IR. On A2 continued:

in conjunction with the given assets health (VG,G,S,P,VP). Will BC Hydro please provide a detailed explanation on how the “individual assets were adjusted to reflect the remaining useful life”. Please consider in BC Hydro’s response the differences between Steel, Concrete, Stator, DCS, Building, Pipelines, Pumps and so on. (I am not going to list all 106 assets/classes), but I do request BC Hydro provide some form of differentiation between major asset classes in their reply. (not all assets are equal by their very respective nature, please also consider how did an assets impaired status impact BC Hydro’s assessed asset valuations, just for example, Pump service life 10 years, in good health but is impaired for some particular reason) ?

Q3. Mr. Landale poses the question: “The question remains are the assets themselves appropriate.” 39 How did BC Hydro determine the asset classification it used for the Burrard Facility and why do you consider the asset classes used for the Burrard Facility to be appropriate?

A3. BC Hydro classifies assets into homogeneous groups of assets by the type/nature of the asset (e.g., Transformer) and useful life. The asset classes used for the Burrard Facility are appropriate because they reflect the physical nature or type of the assets (e.g., boiler, steam generator and components, concrete or steel building, etc.).

#### **Intervener IR.ON A3**

**BC Hydro’s response is an over generalization; “BC Hydro classifies assets into homogenous groups” is not an informing response to the question. The following series of asset classifications do contain homogenous grouping of assets, but contain varying different life cycles and asset health derivatives/constraints. For the purposes of this IR questions, will BC Hydro please respond in detail as to the processes of assessment, classification, asset service life and asset health, leading to the depreciation rates given in Table 8-1 ? With the view of informing the Commission with new information, rather than repeating in general terms BC Hydro’s responses so far.**

1. Structure Supp Steel C25101 , (Building Columns inside and Structural Columns outside, service life, asset health for each general area inside, outside).
2. Foundations C25301 – and Steel, inside and outside, i.e: Transformer base, Switchyard structures, Switchgear base, Bridge and Catwalks
3. Insulation, Boiler C30102 – and Steel
4. Generator Components:  
Assets C34005, 34006  
42004 and 42102



5. Generator, Comp Pool C34007
6. Buswork & Stn Conduct C55401
7. Power Supp Uninterr C59001
8. Panels/Cubicles, P&C C65001
9. Distributed Ctrl Sys C68204

- c) 3 Phase Coils
- d) Wedging
- e) Steam turbine

Intervener IR.ON A3 continued:

**10. Water Supply System C75301**

**11. Loader/Backhoe C82504**

<u>Asset / Asset Class</u>	<u>Service / Cycle Life</u>	<u>Asset Health Classification</u>
Steel inside	50 yrs, 10 yrs remaining	Good
Foundation Steel	50 yrs, 25 yrs remaining	No assessment
Boiler Steel	50 yrs, 10 yrs remaining	Poor
<b><u>Generator for example:</u></b>		
Stator	25 yrs, 10 yrs remaining	Good
Wedging	25 years, just replaced	Very Good
Core Fields	25 yrs, 15yrs remaining	Satisfactory
<b>And so on:</b>		

Q4. Are the asset classifications and depreciation rates that you are proposing (and that were used in the calculation of the test period revenue requirements) the same as the asset classifications and depreciation rates specified in the Appendix to Direction No. 7 to the British Columbia Utilities Commission for 2015 and 2016?

A4. *The way BC Hydro classifies assets remains the same for the Appendix to Direction No. 7 and Table 8-1 of the F2017 – F2019 Revenue Requirements Application. The depreciation rates provided in Direction No. 7 are for fiscal years 2015 and 2016. The information in Table 8-1 of the F2017 – F2019 Revenue Requirements Application is for fiscal years 2017 through 2019. The approach to how the asset class depreciation rates are calculated remains the same.*

*Depreciation rates are changed when existing assets with remaining net book value are retired prior to what was expected when the rates were calculated or when new assets are added.*

**Intervener IR. ON A4**

**Will BC Hydro please discuss further the methodology employed in their “*approach to how the asset class depreciation rates are calculated remains the same. Depreciation rates are changed when existing assets with remaining net book value are retired prior to what was expected when the rates were calculated or when new assets are added.*” It may be instructive to understanding BC Hydro’s response to this IR by combining their response to Intervener IR.3 above.**

Q5. Mr. Landale refers to being “denied access” to BC Hydro’s Process Flow Diagrams, Pneumatic and Instrumentation Diagrams” and single line diagrams for the Burrard Facility.<sup>40</sup> He states that “the denial to access these drawings was imperative to assessing the validity of the asset in the Table 8-1.”

41 Are the documents referenced by Mr. Landale informative for the depreciation analysis?

A5. *No, they are not informative for the depreciation analysis. The diagrams requested by Mr. Landale are prepared for the purpose of detailing operational processes, piping and instrumentation connections, and showing simplified electrical connections. They would not assist Mr. Landale or the Commission in understanding the asset classification for depreciation purposes. There is no direct correlation between the diagrams and the classification of assets in the financial system. Asset classes used for financial purposes are comprised of multiple individual assets, summed to provide an asset class depreciation rate. BC Hydro Finance and Operations staff, including the Finance Manager responsible for accounting for the Burrard Facility, the Thermal Generation Area Manager and the Director of Regional Operations met with Mr. Landale on January 18, 2017 to discuss his round two information requests, including his requests for detailed process flow diagrams and Pneumatic and Instrumentation Diagrams. Our representatives discussed with Mr. Landale why providing drawings would not help to understand the depreciation of the Burrard facility assets. The Finance Manager provided examples of how depreciation amounts are determined for three asset classes, including an example of how they are comprised of*

BC Hydro A5. Continued:

*multiple individual assets, and how those individual assets are summed to provide an asset class depreciation rate. He also briefly described to Mr. Landale the accounting concepts of replacement, partial replacement and betterment, and how those concepts impact an individual asset and asset class. Mr. Landale subsequently commented to BC Hydro that he had found the meeting to be helpful.*

#### **Intervener IR. ON A5**

**BC Hydro's very short characterization of our January 18<sup>th</sup> meeting is amiss of detail, but is correct in the general tone. The "multiple individual assets" offered (3 in all) did not relate to impaired assets, asset health or service life/cycle, but did provided NBV's and depreciation rates through to 2025.**

**While we did discuss how drawings would not be relevant, the Burrard Area Manager discussed the existence of over 400 P&IDs, supporting the Accounting Finance Managers opinion that the drawings would not be informative. Basically the attendees were not interested in discussing the drawing issues, and steered the ensuing meeting to issues above my knowledge background. Please refer to Intervener Evidence for PFD and P&ID examples, pages 20 and 21 respectively, and pages 40 and 41 for further examples and pictures of specified assets.**

**Does BC Hydro believe the Commission would be less informed or more informed by having more information regarding the 106 Assets listed in Table 8-1. If not, why not, if so, how so ?**

Q6. Mr. Landale refers in several places to "impaired assets", and states: "The problem for this intervener, and I might add for the Commission Panel is, 'has BC Hydro followed the rules', including their own asset health index principles as alluded to in Table S3 above, with respect to the 106 asset classes in Table 8-1." 42 Has BC Hydro "followed the rules"?

A6. *Yes, BC Hydro followed the applicable accounting standards. IFRS International Accounting Standard 36 (IAS 36) Impairment of Assets provides the principles for assessing and recording asset impairments. The Burrard assets are not considered to be impaired under IFRS IAS 36. Under IAS 36, assets are assessed for impairment only to the extent they represent a cash generating unit (CGU). IAS 36 paragraphs 66 to 68 that address the requirement to assess for impairment at the level of the CGU are provided below.*

66 *If there is any indication that an asset may be impaired, recoverable amount shall be estimated for the individual asset. If it is not possible to estimate the recoverable amount of the 10 individual asset, an entity shall determine the recoverable amount of the cash-generating unit to which the asset belongs (the asset's cash-generating unit).*

67 *The recoverable amount of an individual asset cannot be determined if:*

(a) *the asset's value in use cannot be estimated to be close to its fair value less costs of disposal (for example, when the future cash flows from continuing use of the asset cannot be estimated to be negligible); and*

(b) *the asset does not generate cash inflows that are largely independent of those from other assets. In such cases, value in use and, therefore, recoverable amount, can be determined only for the asset's cash-generating unit.*

68 *As defined in paragraph 6, an asset's cash-generating unit is the smallest group of assets that includes the asset and generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. Identification of an asset's cash-generating unit involves judgement. If recoverable amount cannot be determined for an individual asset, an entity identifies the lowest aggregation of assets that generate largely independent cash inflows. The Burrard Facility assets do not generate cash flows independent from other of BC Hydro's assets or groups of assets; therefore, the IFRS assessment of potential impairment of assets is performed at the level of the BC Hydro legal entity (all BC Hydro assets) not at the level of the Burrard Facility assets. The Burrard Facility assets are therefore not considered to be impaired under IFRS IAS 36. Although the Burrard Facility assets are not impaired under IAS 36, under 12 IFRS International Accounting Standard 16 (IAS 16) Property, Plant and Equipment the Burrard Facility assets are subject to adjustments in useful life due to events that*

BC Hydro A6. Continued:

*change expectations regarding the useful life of the asset. IAS 16 paragraph 51 provided below requires that the useful life of an asset is changed based on changes in the expected useful life of the asset.*

*51 The residual value and the useful life of an asset shall be reviewed at least at each financial year-end and, if expectations differ from previous estimates, the change(s) shall be accounted for as a change in an accounting estimate in accordance with IAS 8 Accounting Policies, Changes in Accounting Estimates and 22 Errors.*

*The change in the operation of Burrard resulted in changes in the expected useful life of the Burrard Facility assets. Therefore, the useful lives of the assets were adjusted to reflect the remaining useful life as a result of the change in use of the Burrard Facility. As required by paragraph 51 and IAS 8, changes in the useful life of an asset are recognized prospectively. The prospective treatment results in the net book value of the asset being amortized over the revised remaining useful life of the asset. For example, the net book value of a three-year old asset with an original useful life of ten years that has had a useful life reduction of five years, is depreciated over the revised remaining useful life of two years (five-year useful life less three years in-service) rather than the original remaining useful life of seven years (ten year original useful life less three years in-service). The depreciation of the asset is accelerated (net book value depreciated over two years rather than seven years) relative to the original remaining useful life depreciation.*

#### **Intervener IR. ON A6**

**BC Hydro's response to this question is instructive and helpful in an overarching viewpoint, but is very short on the assessment methodology of all 106 assets listed in Table 8-1. BC Hydro's response is completely void of any reference to asset health. Which is a 5 point (VG,G,S,P,VP) component used by BC Hydro to assess all of their assets.**

**Will BC Hydro please provide a complete Table of all 106 Assets listed in Table 8-1, providing the Asset name, number, (state whether the asset is Impaired or Not Impaired) NBV, Depreciation Rates for F2017 to F2025 (as applicable), and the Asset Health (VG,G,S,P,VP), and was the asset assessment certified by a Professional Engineer given to the technology. ?**

#### 4.2 BC Hydro Cares About Our Customers

Q7. Mr. Landale, in the course of discussing how BC Hydro rates compare to his Canada Pension Plan entitlements, suggests that "Hydro clearly does not care" about seniors. What is BC Hydro's response?

A7. *BC Hydro cares about all of our customers. We recognize that rate increases can pose a challenge to some customers. At the same time, we need to invest in the system to ensure that we are able to provide safe and reliable electricity service, both now and in the future. The 2013 10 Year Rates Plan keeps rates low and predictable for our customers while making the necessary investments required due to aging assets and equipment. The 2013 10 Year Rates Plan is built on the basis of average annual rate increases of 2.6 per cent in the last five years of the plan from fiscal 2020 to fiscal 2024, including the full recovery of the Rate Smoothing Regulatory Account. We have described in the Application a number of initiatives that have been implemented to reduce pressure on BC Hydro's revenue requirements and to remain on track to achieve the objectives of the 2013 10 Year Rates Plan. These efforts are summarized in Chapter 1 of the Application. In addition, there are demand-side management programs available to customers to reduce their electricity bills, which are discussed in Chapter 10 of 4 the Application. In Module 1 of its 2015 RDA BC Hydro applied for several changes to its Standard Charges, which will reduce the cost to customers of key services. By Order No. G-5-17, the Commission approved these changes, including:*

*Reducing the Minimum Reconnection Charge from \$125 to \$30*

*Reducing the Returned Payment Charge from \$20 to \$6; and*

*Maintaining the Account Charge at \$12.40.*

*The Commission also directed BC Hydro, by Order No. G-5-17 to file by July 20, 2017 a proposal for a pilot Crisis Intervention Fund. If the pilot is subsequently approved, the fund would be available to*

BC Hydro A7. Continued:

*residential customers who have arrears and are unable to pay their electricity bills. BC Hydro made a number of commitments in the 2015 RDA Oral Hearing, which will improve services and make it easier for customers to do business with BC Hydro. Our commitments included:*

- Opening in-person customer service desks at the Dunsmuir and Edmonds offices, with plans to explore similar services in other offices (an in-person customer service desk is now available in Vernon and one opened in Prince George on March 31, 2017);*
- Implemented business process changes to relax installment plans to allow repayment over longer periods, provided bills are paid before the next winter heating season;*
- Delaying disconnections where customers demonstrate a medical reason for requiring power;*
- Established a low-income advisory group;*
- Posting business practices regarding payment plans and other customer-facing business practices;*
- Filing a proposal to update the Electric Tariff which would allow for another customer to take responsibility for a customer's account, e.g., a guarantor, in lieu of providing a security deposit; and*
- Implementing a pilot temperature-based moratorium on winter disconnections for the 2016/2017 winter.*

*BC Hydro also continues to engage customers and stakeholders regarding rate options as part of Module 2 of the 2015 RDA, which is expected to be filed with the Commission in fall 2017. 13Fiscal 2017 to Fiscal 2019*

#### **Intervener IR. ON A7**

**Based on BC Hydro's above response, it is clear BC Hydro is attempting to take credit for the Directives issued by the BC Cabinet in keeping "The 2013 10 Year Rates Plan is built on the basis of average annual rate increases of 2.6 per cent in the last five years of the plan from fiscal 2020 to fiscal 2024, including the full recovery of the Rate Smoothing Regulatory Account". Of the remaining programs discussed in BC Hydro's response, well done.**

**"Exactly" how has BC Hydro kept rate increases affordable, exclusive of the BC Cabinet Directives. (emphasis added)**

#### **Preamble to Intervener IR 8**

##### **6.3.1 Overview of BC Hydro Assets Chapter 6 page 6-8**

BC Hydro's system is composed of a large number of complex and diverse assets and infrastructure, which are located across the province, over a varied and challenging geography. Generation assets include 82 generating units at BC Hydro's 30 hydroelectric generating stations, three gas-fired units at BC Hydro's two thermal generating stations and four synchronous condenser units at a dedicated synchronous condenser station.

##### **6.3.5.1 Generation Capital Investment Planning Chapter 6 page 6-18**

Generation assets include 82 generating units at BC Hydro's 30 hydroelectric generating stations, 79 dams, three gas-fired generating units at BC Hydro's two thermal generating stations and four synchronous condenser units at one dedicated synchronous condenser station. During the test period, capital investments in these facilities include both asset sustainment and growth investments.

##### **Step 1 - Facility Asset Plans 1 Chapter 6 –page 6-24**

BC Hydro has developed Facility Asset Plans for its hydroelectric generating facilities and is currently developing plans for its thermal generating and synchronous condenser stations.

Preamble to Intervener IR 8 continued:

6.5.1.5 Thermal Generation 3 Chapter 6 page 6-79

Gas-Fired Generation

Burrard Generating Station: With BC Hydro's Interior to Lower Mainland transmission line, Mica Generating Station Units 5 and 6 and a third transformer at Meridian Substation in-service, BC Hydro is able to serve load in the Lower Mainland and better respond to unplanned events without the need for Burrard's generating capability. BC Hydro has stopped generating electricity at Burrard; however Burrard will continue to provide voltage support to the transmission system by operating up to four units as synchronous condensers. This will provide savings for BC Hydro customers. See IR #9a below

As a result, there is limited capital investment at Burrard in fiscal 2017 to fiscal 2019, while plans are developed for the investment required to convert Burrard from a generating station to a synchronous condenser station. Additional investments will be to implement sustainable synchronous condenser operations, address issues with asbestos at the facility and the building roof. Total capital investment planned at Burrard during the three-year test period is \$13.6 million.

Other Power Equipment 8 Chapter 6 page 6-89

Other power equipment expenditures are for the replacement or refurbishment of disconnect switches, surge arrestors, power transformers, instrument transformers, shunt reactors, shunt capacitors, synchronous condensers, high-voltage direct current systems, series capacitor stations.

Intervener IR.8

- a) **Will BC Hydro please separate in a new table all capital power equipment expenditures (as noted above) from Appendix I and Appendix J that relate to "Power Grid / Voltage Stabilization" for the entire Provincial Grid, using Synchronous Condense Motors, along with all other Static Capacitor Stations / Assets in major substations, giving their service life, asset health index and equipment heat status, with their respective planned expenditures and depreciation rates over the given service life of each equipment / asset.**
- b) **Will BC Hydro also please provide in a separate table all planned "Stations Auxiliary (this includes Burrard) Equipment Auxiliary equipment expenditures are for the replacement of station equipment used to support the transmission system, including station cables, bus work and insulators, steel structures, equipment foundations, grounding systems, station power supplies, batteries and chargers, air compressors and dryers, buildings and Heating, Ventilating and Air Conditioning equipment, perimeter fences, drainage systems, and gravel." (underlined for focus), giving their service life, asset health index and equipment health rating, with their respective planned expenditures and depreciation rates over the given service life of each equipment / asset.**

5.2.2.2 Other Power Equipment Appendix K page 3

Fiscal 2015 capital expenditures were \$12 million above plan primarily due to:....There was also an increase in the cost and a schedule delay to refurbish an out of service synchronous condenser at Vancouver Island Terminal whose condition was found to be worse than anticipated after disassembly of the equipment;

- c) **Will BC Hydro also please provide the background relating to the above equipment, how did this condition arise, what is the need to refurbish, why was the equipment disassembled. What lessons has BC Hydro gained from this experience useful to the Maintenance of the Burrard Synchronous Condense Station.**

**Intervener IR.8 continued:**

- d) What is the capital expenditure required “to avoid scheduled delay” for the refurbishment of this equipment. And how will these costs affect the Rate Base and how will the assets involved be depreciated over their operational service life. Please provide a depreciation table with each year’s depreciation rates and dollar amounts.**
- e) Does BC Hydro require / need the Commission to approve this project and the depreciation rates now ,or in any future application. If no, please explain why not, and why is this situation different from Burrard.**
- f) Has this synchronous condenser have “any association” with BC Hydro’s application to cease operations at their Salmon River Dam and related equipment and the loss of 4% water supply resource. (emphasis added).**

Appendix S page 3

Asset Health – Transmission and Distribution, from table:

12 - Synchronous Condensers 4

13 - Static VAR Compensator 5

- g) Will BC Hydro please provide background information relating to the above assets, their location/s, reasons for their given asset health, what operating circumstances have lead to their deterioration, asset health condition. How much capital is required to return these assets to “Very Good” condition. What lessons has BC Hydro learned from these assets health that can contribute to the safe operation of Burrard and Burrard’s specific equipment.**
- h) For clarity, will BC Hydro please confirm or otherwise correct, the 4 synchronous condensers are at Burrard, and not elsewhere, like Vancouver Island or Kelly Lake.**

PUBLIC Appendix J page 54 of 86

Project Name: Peace Region to Kelly Lake 500 kV Transmission Reinforcement

- i) Given the project description and Appendix I line item 17, it appears BC Hydro is planning to spend \$268 million on this project in F2019. Will BC Hydro please confirm this understanding. If not, please elaborate and or correct the understanding.**
- j) In what manner of operations does this project have once installed and operational on or before F2025, will this project impact the operations of Burrard Synchronous Condense Station in an ongoing Lower Mainland voltage stabilization, if any. If none, please explain why not given the project description in Appendix J. (underlined for emphasis).**

**Intervener IR.9**

- a) Will BC Hydro please explain why they currently do not track hourly or daily the “VARs” required to stabilize the Lower Mainland voltage, and the cost savings gained by operating the Burrard synchronous condenser motors, as suggested in their justification, on Page 6-79, quote: “*BC Hydro has stopped generating electricity at Burrard; however Burrard will continue to provide voltage support to the transmission system by operating up to four units as synchronous condensers. This will provide savings for BC Hydro customers*”.**
- b) Will BC Hydro please provide in a “VAR” table by month the last 12 months of the total energy savings and the cost savings (\$\$\$) by means of operating the Burrard Synchronous Condenser motors.**