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Sent via eFile

BC HYDRO WANETA 2017 TRANSACTION EXHIBIT A-4

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 – Waneta 2017 Transaction Application – Project No. 1598933

Dear Mr. James:

Further to your October 30, 2017 application of the above noted matter, enclosed please find Commission Information Request No. 1. In accordance with the regulatory timetable, please file you responses no later than Friday, January 12, 2018.

Sincerely,

Original signed by Ian Jarvis for:

Patrick Wruck
Commission Secretary

/kbb
Enclosure



British Columbia Hydro and Power Authority
Waneta 2017 Transaction

INFORMATION REQUEST NO. 1 TO BC HYDRO

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A. RISKS AND POTENTIAL VALUE OF THE TRANSACTION

**1.0 Reference: Load resource balance – small gap
Exhibit B-1, Business Case, p. 16**

BC Hydro states that: “The updated LRBs with future or planned resources per the IRP Recommended Actions (described above), in addition to existing and committed resources, are shown in Table 3-8 and Table 3-9 of Appendix A. Once these resources are included there is a planning need for new energy resources in F2034 and capacity resources in F2029.”

- 1.1 Please confirm that under the Small Gap Surplus/Deficit (Line 19 of Table 3-8 and Line 20 of Table 3-9), there is no need for new energy and capacity resources before the end of the F2017-F2036 planning period.
- 1.2 Please extrapolate Line 19 of Table 3-8 and Line 20 of Table 3-9 for the period F2037 to F2058 and provide all assumptions.
 - 1.2.1 Under the Small Gap Surplus/Deficit, in what year does BC Hydro expect the need for new energy and capacity resources?

**2.0 Reference: Load resource balance – without Site C
Exhibit B-1, (Appendix N), p. 16**

- 2.1 If the BC Government terminates Site C, please provide updated load-resource balances (LRB) without Site C and update the Business Case accordingly.

**3.0 Reference: Load resource balance – with Waneta
Exhibit B-1, Appendix O; Business Case, pp. 18, 38; Appendix A, pp. 1–2**

On page 18 of the Business Case, BC Hydro provides a graph showing its Planning LRB with and without 2/3 Interest Generation. On page 38 of the Business Case BC Hydro explains: “the 2/3 Interest’s generation and Teck load are both large, the long term disposition of this generation and load can have impacts on BC Hydro’s long term Load Resource Balance.”

- 3.1 Please confirm, otherwise explain, that the load resource balances used in the Waneta Business Case analyses include all corrections submitted in the Site C Inquiry proceeding. If not, please identify the differences and comment on their materiality to the Waneta Business Case.
- 3.2 Please confirm, otherwise explain, BC Hydro's 1/3 interest in Waneta is included in the most up-to-date LRB.
- 3.3 Using the most up-to-date LRB data (i.e. including BC Hydro's 1/3 interest in Waneta, Site C, REV6, and any recent corrections/updates), please add BC Hydro's proposed additional 2/3 interest in the capacity and energy from Waneta into BC Hydro's resource supply stack (capacity and energy) and add lines for Teck's demand and load. Please provide this information in data table form and discuss the results.
- 3.4 Similarly, using the most up-to-date LRB data, please add BC Hydro's proposed additional 2/3 interest in the capacity and energy from Waneta into BC Hydro's resource supply stack but do not include Teck's demand and load. Please provide in data table form and discuss the results.
- 3.5 Using the most up-to-date LRB data tables, please add BC Hydro's proposed additional 2/3 interest in the capacity and energy from Waneta into BC Hydro's resource supply stack but do not include Teck's load from year 5 onward, then from year 10 onward, and then from year 15 onward. Please provide in data table form and discuss the results.

**4.0 Reference: Load-resource balance – Fortis 3808 Agreement
Exhibit B-1, Business Case, p. 17**

On page 17 of the Business Case, BC Hydro states the following:

Fortis 3808 Agreement: BC Hydro has an existing agreement to supply FortisBC with electricity under a 2 tier rate – \$46.32/MWh for Tier 1 (the first 1,041 GWh annually) and LRMC (currently \$127/MWh as defined in the PPA) for Tier 2. This agreement currently expires September 30, 2033.

- 4.1 Please confirm that the rates above agree with Rate Schedule (RS) 3808 of BC Hydro's current electric tariff filed with the Commission. If not confirmed, please explain.
- 4.2 Would the rates under RS 3808 upon renewal be different under a "go" versus "no-go" scenario? If so, please briefly describe the difference.

**5.0 Reference: Counterparty risk
Exhibit B-1, p. 4-15; Business Case, pp. 26–28**

On page 4-15 BC Hydro explains: "One of the key quantifiable risks is the risk of an early termination of the Lease due to an event of default on behalf of Teck... To quantify the early termination risk, BC Hydro relied on a third-party assessment of the likelihood of Teck defaulting in each of the first 10 years of the Lease and extrapolated that risk to the end of the default 20-year lease term."

On page 28 of the Business Case BC Hydro explains that the value of the option was adjusted based on the probability of Teck default within the 20-year Lease Term based on information from Moody's.

On page 27, BC Hydro states: "In order to determine the overall impact of counterparty risk, BC Hydro obtained Moody's assessment of the yearly probability of Teck Resources Limited defaulting over the next 10 years and extrapolated the default probabilities for the following period. BC Hydro evaluated the cost or benefit of Teck default in each year of the 20-year term. The sum of the probability-weighted value over this 20-year term represents the risk-adjusted value of the transaction."

- 5.1 Please provide the Moody's assessment of the yearly probability of Teck Resources Limited defaulting over the next 10 years and elaborate on the main findings of that report.
- 5.2 Please provide a table with the yearly probabilities of Teck's default for the Lease Period and explain the assumptions used to extrapolate these probabilities for years 11 to 20.
- 5.3 Please provide an independent and detailed investment market analysis of Teck Resources, Teck Metals and Teck's Trail operations (e.g. analyst research reports, recommendations, forecasts, etc.) and provide comment.
- 5.4 Please discuss Teck's Trail operations' supply chain, including the state of source mines and their respective supply lives. How might these factors affect the value and risk of the proposed transaction? Please elaborate.
- 5.5 Please provide a detailed demand and load analysis of Teck's Trail operations of the past 10 years and forecast the demand and load for the next 20 years. For example, please provide an analysis similar to how BC Hydro and its key account managers would analyze demand and load for its other large industrial customers to include in the load resource balance.

**6.0 Reference: Counterparty risk – mitigation
Exhibit B-1, Business Case, pp. 19, 26–27, 34**

BC Hydro states that: "One of the key areas of variance is the value of the energy and capacity BC Hydro markets upon default. ... Figure 5 shows the value of the transaction under the LRMC (Clean + Gas) as well as the ABB and Extrapolated pricing curves depending on when a default occurs."

BC Hydro also states that "the determination and usage of BC Hydro's LRMC is outlined in Chapter 3 of BC Hydro's Fiscal 2017 to Fiscal 2019 RRA."

- 6.1 Please confirm that the Long-Run Marginal Cost (LRMC) (Clean) and LRMC (Clean + Gas) used to calculate the transaction value in Figure 5 reflect the marginal energy and capacity resources and related costs from Table 3-10 and 3-11 in the F2017–F2019 Revenue Requirements Application (RRA). If not, please explain why not.
- 6.2 To assess the value of the energy and capacity BC Hydro can market upon default during the Lease Period, did BC Hydro assume that the entire Waneta 2/3 energy would be either sold at market price (i.e., BC Hydro would be in surplus position) or would replace new resources (i.e., BC Hydro would be in a deficit position greater than the Waneta 2/3 energy) in any given year?
 - 6.2.1 How did BC Hydro assess the value of the energy and capacity it can market upon default in years where its deficit is less than Teck's entitlement?
- 6.3 Please revise Figure 5 by adding the "Panel Mid-C energy price forecast" from the Site C Inquiry Final Report (Revised Figure 5).
 - 6.3.1 Does it increase or reduce the risk of overpayment?

On page 26, BC Hydro states: "The costs and benefits of these consequences vary depending on when default on the Lease occurs. One of the key areas of variance is the value of the energy and capacity BC Hydro markets upon default – while current market prices are low, under the ABB market forecast they are expected to increase at a rate greater than inflation for the next several years" (Emphasis added).

On page 34, BC Hydro states: "There is the risk Teck defaults on the Lease Agreement. This would leave BC Hydro with the Waneta generation but no customer for the balance of the Lease Agreement term. This period coincides with the period that BC Hydro expects to be in surplus, and during this period the cost of service of the 2/3 Interest may be higher than market sales prices. This means that Teck default could result in additional costs to ratepayers" (Emphasis added).

- 6.4 In the context of the LRB in Table 3-8 of the F2017–F2019 RRA (Line 18), which shows BC Hydro in an energy surplus until F2033 and in an energy deficit starting in F2034, please explain why BC Hydro would show on Figure 5 the valuation of the Waneta 2/3 energy at the LRMC prices in years 0 to 15 or at market prices from years 16 onwards.
- 6.5 Please superimpose the LRB information from the up-to-date version of Table 3-8 from the F2017–F2019 RRA onto the Revised Figure 5 for Years 0 to 30 by adding a second Y axis to Revised Figure 5 with Firm Energy Surplus/Deficit (GWh), as follows:
- 6.5.1 For the first graph, add the Base Surplus/Deficit from Line 18 of the up-to-date Table 3-8 to Revised Figure 5. Include only the relevant transaction value for each year (i.e., in years where BC Hydro is in surplus, only show the transaction value based on market prices (including the “Panel Mid-C energy price forecast), for years where BC Hydro is in deficit, only show the transaction value based on LRMC values, etc.).
- 6.5.1 For the second graph: add the small gap surplus/deficit from Line 19 in the up-to-date Table 3-8 of F2017-F2019 RRA to Revised Figure 5. Include only the relevant transaction value for each year (i.e., in years where BC Hydro is in surplus, only show the transaction value based on market prices, including the “Panel Mid-C energy price forecast, for years where BC Hydro is in deficit, only show the transaction value based on LRMC values, etc.).
- 6.5.2 For the third graph: add the large gap surplus/deficit from Line 20 in the up-to-date Table 3-8 of F2017-F2019 RRA to Revised Figure 5. Include only the relevant transaction value for each year (i.e., in years where BC Hydro is in surplus, only show the transaction value based on market prices, including the “Panel Mid-C energy price forecast, for years where BC Hydro is in deficit, only show the transaction value based on LRMC values, etc.).
- 6.6 Please provide the sum of the probability-weighted transaction value over the 20-year term, taking into account BC Hydro’s up-to-date LRBs in Table 3-8 of the F17-F19 RRA (i.e., in years where BC Hydro is in surplus, use the transaction value based on the Panel Mid-C prices from the Site C Report and in years where BC Hydro is in deficit, use the transaction value based on LRMC clean or a combination of LRMC/Market price if the deficit is less than Waneta’s 2/3 energy) by completing the following table. Please provide all assumptions used and working spreadsheets.

	Value of Assets/Lease to BC Hydro		
	Un-risked	w/ Default Risk	Default Risk Impact
Panel Mid-C Prices from Site C Final Report & LRMC (Clean) – use Small Gap Surplus/Deficit in Line 19 Table 3-8 RRA			
Panel Mid-C Prices from Site C Final Report & LRMC (Clean) – use Base RRA in Line 18 Table 3-8 RRA			
Panel Mid-C Prices from Site C Final Report & LRMC (Clean) - use Large Gap Surplus/Deficit in Line 20 Table 3-8 RRA			

- 6.7 Please calculate the NPV of the transaction given the following default scenarios:
- i. Teck defaults 5 years after the Lease begins.
 - ii. Teck defaults 10 years after the Lease begins.

- iii. Teck defaults 15 years after the Lease begins.

7.0 Reference: Market prices
Exhibit B-1, Business Case, pp. 18–19, p. 25; BCUC Site C Inquiry proceeding, BC Hydro Submission F1-1, p. 64; BCUC Site C Final Report, p. 95

“BC Hydro uses a third-party vendor, ABB, to prepare a long-term Mid-C electricity spot market price forecast. BC Hydro then makes adjustments for the cost of wheeling or losses depending on whether BC Hydro is exporting energy from the BC Border to Mid-C (BC Border sell price) or importing energy from Mid-C to the BC Border (BC Border buy price).”

7.1 Please reference the page, figure and table from the “ABB Power Reference Case WECC | Spring 2016,” attached as Appendix B to Exhibit B-1-1 BC Hydro used for its long-term Mid-C electricity spot market price forecast.

7.2 Please confirm that the above statement means that wheeling adjustments are made when BC Hydro exports energy and losses adjustments are made when BC Hydro imports energy. If not, please clarify.

7.2.1 If confirmed, please explain why both wheeling and losses adjustments are not made for both exports and imports.

“The 20-year levelized market price from F2039 to F2058 is approximately \$65/MWh (\$2018) for a blend of energy and capacity.”

7.3 Please confirm whether the levelized market price of \$65/MWh is the BC Border sell price or BC Border buy price.

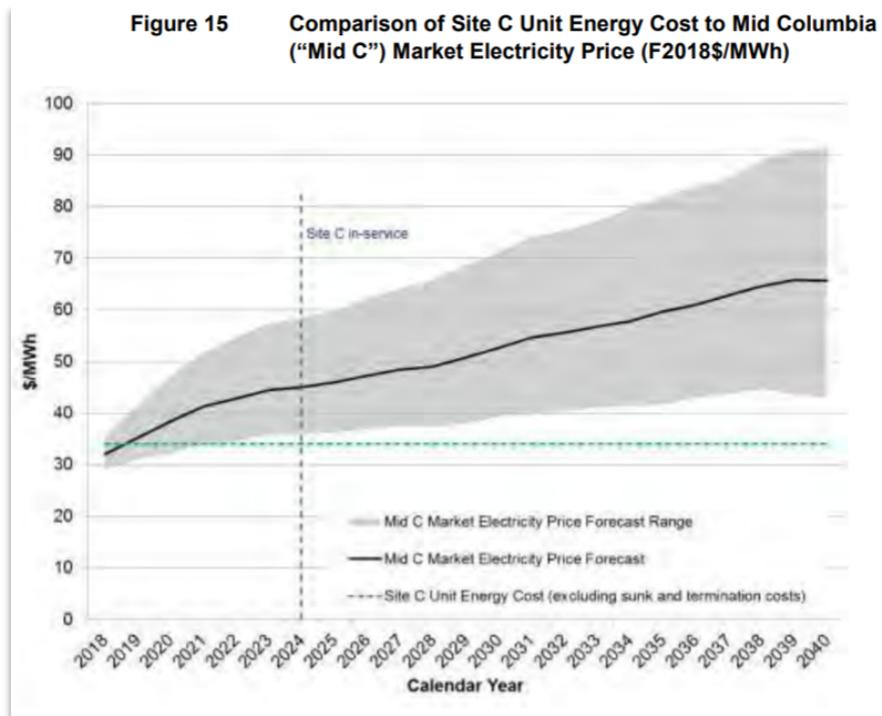
7.4 Please provide the formula and assumptions used to calculate this levelized market price, including escalation rate used after F2040. Please provide the working Excel spreadsheets supporting the calculation of this levelized market price.

7.5 Please clarify whether BC Hydro has used the 20-year levelized market price for the post Lease Period rather than using the forecast annual market price in the F2039 to F2058 period to value annual surplus sales.

BC Hydro further states on page 25: “In addition, a scenario where market prices increase more slowly than in the ABB market forecast – the ‘Extrapolated Prices’ – is also considered.”

7.6 Please state the assumptions used to derive the Extrapolated Prices.

BC Hydro submitted the following figure in the BCUC Site C Inquiry proceeding:



7.7 Please extend this graph to F2058 and provide assumptions.

The Site C Panel found: “Accordingly, the Panel finds that for the purposes of this assessment the future market price for 2024 and beyond should be considered to be at a point mid-way between BC Hydro’s proposed Mid C forecast and the low end of the ABB range.” The data series can be found on Line 57 of the Sensitivity Data Tab from Commission Exhibit A-26-1, Illustrative Alternative Portfolio Spreadsheet Errata, dated November 16, 2017.

7.8 Please add to the above graph, for F2018 to F2058, BC Hydro’s Extrapolated Prices and the Panel Mid-C energy price forecast found at page 95 of the Site C Final Report.

7.9 Please add Waneta UEC during and post Lease.

7.10 Please provide the working spreadsheets with supporting data.

7.11 Please file in this proceeding BC Hydro’s responses to BCUC IR 2.22.1 to 2.22.5, BCUC IR 2.22.7 (from Submission F1-8 and Confidential F1-8 in the BCUC Site C Inquiry).

8.0 Reference: Industrial tariff Exhibit B-1, Business Case, p. 19; Site C Inquiry Final Report, p. 80; BC Hydro F2017–F2019 RRA, Exhibit B-23, p. 1

BC Hydro states in the Business Case: “Using the expected load from the Teck smelter and escalating BC Hydro’s industrial tariff rates pursuant to the target rate increases under the 2013 10 Year Rates Plan and inflation thereafter, the 20-year blended levelized unit price of energy and capacity from F2039 to F2058 is approximately \$69/MWh (\$2018).”

The Site C Inquiry Final Report states: “The Panel finds there will be considerable upward pressure on rates for the remainder of the 2013 10 Year Rates Plan and beyond fiscal 2024.”

On November 8, 2017, as part of the F2017–F2019 RRA proceeding, BC Hydro wrote to the Commission to amend its requests as they relate to F2019, including to change the requested rate increase for F2019 from 3 per cent to 0 per cent. BC Hydro states:

The amendment of the fiscal 2019 rate increase from 3 per cent to 0 per cent is aligned with the Mandate Letter from Government. Since the development of the 2013 10 Year Rates Plan, both the Province and BC Hydro have taken action to keep our rates low and in line with the Plan. The Province and BC Hydro are committed to take further actions as required as part of the comprehensive review of BC Hydro that is expected to begin in fiscal 2018 and is likely to be completed in fiscal 2019. The comprehensive review of BC Hydro and refreshed plan for rates are expected to inform revenue requirement applications for subsequent fiscal years beginning in fiscal 2020.

- 8.1 Please confirm, or explain otherwise, that the \$69/MWh quoted above is the estimated future blended levelized electricity rate starting in F2039.
 - 8.1.1 If confirmed, what is the estimated future blended levelized electricity rate in F2048?
- 8.2 Please clarify if the estimated future blended levelized electricity rate would be different if the Waneta 2017 Transaction did not occur. If so, please explain and quantify the difference.
- 8.3 Please provide the formula and assumptions used to calculate this levelized price. Please provide the working Excel spreadsheets supporting the calculation of this levelized price, including the annual levelized industrial tariff in nominal dollars in each year from F2018 to F2058.
- 8.4 Please clarify whether BC Hydro has used the 20-year levelized unit price for the post Lease Period rather than using the forecast annual unit price in the F2039 to F2058 period to value annual sales to Teck.
- 8.5 Please provide a low and high 20-year blended levelized unit price of energy and capacity based on lower and higher annual rate increases than those used to derive the \$69/MWh, to reflect the BC Government’s mandate letter to BC Hydro on the one hand (low industrial tariff) and the view of the upward pressure on rates on the other hand (high industrial tariff).
 - 8.5.1 Please discuss whether the low-high range obtained is significant enough to warrant a sensitivity analysis.

**9.0 Reference: Long-Run Marginal Cost
Exhibit B-1, Business Case, pp. 19-20**

BC Hydro provides the following table for the marginal new resources and related costs:

Table 3 Marginal New Resources and Related Costs

Marginal Resources	Period of Applicability	LRMC (2018 real dollars)	
		Clean + Gas	Clean Only
Energy: Greenfield IPPs	F2034 and beyond	\$106/MWh	\$106/MWh
Capacity Resources	F2029 and beyond	\$88/kW-yr (SCGT)	\$221/kW-yr (pumped storage)
Combined Cost of Energy & Capacity	Effective for F2034 and beyond	\$122/MWh	\$145/MWh

BC Hydro states:

The 20-year blended levelized Long Run Marginal Cost from F2038 to F2057 is approximately \$122/MWh (\$2018) for a Clean + Gas portfolio. ... BC Hydro has also reviewed the potential for expanded use of gas for more than just capacity, such as through the construction of a simple-cycle gas turbine. ... The combined energy and capacity cost of a combined cycle gas turbine would be (in 2018 dollars):

- \$92/MWh if constructed by an IPP
- \$88/MWh if constructed by BC Hydro

- 9.1 Please explain why the 20-year period used to calculate the levelized LRM is F2038–F2057 instead of the F2039–F2058 period used for the market prices and industrial tariff. Please revise Table 3 if necessary.
- 9.2 Please confirm that BC Hydro meant to say “BC Hydro has also reviewed the potential for expanded use of gas for more than just capacity, such as through the construction of a combined-cycle gas turbine.”
- 9.3 What is the financing cost assumption if the Combined Cycle Gas Turbine (CCGT) is built by an IPP? By BC Hydro? Are there other differences that explain the different CCGT LRMCs? If so, please list the differences.
- 9.4 What is the financing cost assumption underlying the combined energy and capacity LRMCs of \$122/MWh and \$145/MWh?
- 9.5 Please provide the formula and assumptions used to calculate this levelized LRMC. Please provide the working Excel spreadsheets supporting the calculation of this levelized LRMC.

10.0 Reference: LRMC – energy
Exhibit B-1, Business Case, p. 19; BC Hydro F2017–2019 RRA, Exhibit B-1-1 , pp. 3-46, 3-49; BCUC Site C Inquiry, BCUC Final Report, Appendix C, p. 5, Item 13; Submission F1-8, BCUC IR 46.0, 62.0

BC Hydro states that “the determination and usage of BC Hydro’s LRMC is outlined in Chapter 3 of BC Hydro’s Fiscal 2017 to Fiscal 2019 RRA.”

On page 3-49 of the F2017–F2019 RRA, BC Hydro provides the following table:

Table 3-10 Marginal Energy Resources and Related Cost

Marginal Resources	Period of Applicability	\$/MWh
Demand-Side Management and Electricity Purchase Agreement renewals	fiscal 2022 to fiscal 2033	Less than: \$87/MWh (fiscal 2016\$) or \$85/MWh (fiscal 2013\$)
Greenfield IPPs	fiscal 2034 and beyond	\$102/MWh (fiscal 2016\$) or \$100/MWh (fiscal 2015\$)

On page 3-46, BC Hydro explains that “the estimated cost of energy from greenfield clean or renewable IPPs was revised from \$135/MWh (F2013\$) to \$125/MWh (F2013\$) in the 2013 Integrated Resource Plan. It is now estimated at \$100/MWh (F2015\$).³¹

Footnote 31 states: “Based upon BC Hydro’s most recent resource options updates, reflecting recent wind cost estimates.”

- 10.1 What is the data source and year for the wind cost estimates used by BC Hydro to derive the \$100/MWh (fiscal 2015\$)?
- 10.2 Please update the energy LRMC (Greenfield IPPs) using wind capital and O&M cost estimates used in the Commission Illustrative Alternative Portfolio in the BCUC Site C Inquiry. A description of these costs, which are from the National Renewable Energy Laboratory 2017 Annual Technology Baseline, is included in the Site C Final Report.

- 10.3 Please update the energy LRM (Greenfield IPPs) using the wind estimates from BC Hydro’s responses to BCUC IR 46.0 and 62.0 in the Site C Inquiry.
- 10.4 The term “Greenfield IPPs” imply that the marginal wind energy resources will be developed by IPPs. What is the financing cost assumption underlying this energy LRM.
 - 10.4.1 Please recalculate the LRM for wind energy if BC Hydro developed wind projects instead of IPPs.

**11.0 Reference: LRM – capacity
Exhibit B-1, Business Case, p. 19; BC Hydro F2017-2019 RRA, Exhibit B-1-1, p. 3-50;
BCUC Site C Final Report, Appendix A, pp. 71–74**

On page 3-50 of the F2017–F2019 RRA, BC Hydro provides the following explanation and table:

In the 2013 Integrated Resource plan, the long-run marginal cost for capacity was estimated at \$50 to 55/kW-year based on Revelstoke Unit 6 and the unit capacity costs for simple-cycle gas turbine generators was estimated at \$88/kW-year. These costs are both in fiscal 2013\$ and are at point-of-interconnection. In BC Hydro’s most recent resource options updates, the unit capacity costs of a simple-cycle gas turbine generators at point-of-interconnection has dropped to \$79/kW-year (fiscal 2015\$). To make the unit capacity costs comparable to the adjusted unit energy costs with delivery to Lower Mainland and to adjust for energy impacts, these unit capacity costs are adjusted to be \$57/kW-year (fiscal 2015\$) for Revelstoke Unit 6 and \$115/kW-year (fiscal 2015\$) for a simple-cycle gas turbine. (Emphasis added)

Table 3-11 Marginal Capacity Resources and Related Costs

Marginal Resources	Period of Applicability	\$/kW-year
Revelstoke Unit 6	Fiscal 2020 to fiscal 2028	\$50 - \$55/kW-year (fiscal 2013\$)
Simple-Cycle Gas Turbine	Fiscal 2029 and beyond	\$117/kW-year (fiscal 2016\$) or \$115/kW-year (fiscal 2015\$)

- 11.1 Please confirm that the capacity LRM (SCGT) provided in Table 3 of the Waneta Business Case and in Table 3-11 of the F2017–F2019 RRA should be identical. If not, please explain.
 - 11.1.1 In particular, please confirm that the capacity LRM (SCGT) of \$88/kW-yr provided in Table 3 of the Waneta Business Case is in F2013\$ and not in F2018\$.
 - 11.1.2 Please revise Table 3, and all other tables and figures of the Business Case that rely on the capacity LRM (SCGT), as required.
- 11.2 Is the capacity LRM for pumped storage at the point-of-interconnection (POI) or delivered to Lower Mainland?
 - 11.2.1 Please explain whether the capacity LRM based on SCGT or pumped storage should both be at the POI or delivered to Lower Mainland for comparison purposes.

The BCUC Site C Final Report states on page 71 of Appendix A, that “the load curtailment program targets large industrial customer, offering them \$75/kW-year for up to 28 days of 16 hours per day curtailment (448 hours).” At page 72, it states “AMPC submits that the 400 MW of potential capacity savings identified by BC Hydro from industrial load curtailment was too small, and that the program should be broadened to include a larger set of industrial customers. AMPC also notes the success of the

industrial load curtailment pilot.” On page 74, the Final Report states:

In commenting on the Illustrative Alternative Portfolio, AMPC submits:

Curtable loads have already demonstrated that they can feasibly, cost-effectively and dependably provide system capacity for the necessary duration of peak load events. AMPC’s October 11 submission details the specifics of AMPC’s position. Once long term curtable tariffs are established; scalable capacity resources can be delivered in appropriate quantities and at very short notice compared to generation sources. From BC Hydro’s forecasts of capacity and energy need, the immediate implementation of curtable contracts and/or tariffs could provide the necessary time to take a more detailed look at how future energy needs are most reliably and affordably provided. This time is particularly valuable during a period of significant technological development in energy storage, to reduce the risk of adopting a potentially short-lived technology path. Moreover, this provides a non-rate mechanism to retain existing, and attract additional, industrial load.

...the Commission should, as part of any alternative energy portfolio evaluated, consider the full use of industrial load curtailment to generate needed system capacity, because load curtailment is a well-developed, well-studied program that can be implemented economically and quickly, without the need to speculate on the its potential availability in the future.¹

- 11.3 Please recalculate the capacity LRM of relying on industrial curtailment rather than pumped storage for capacity.
 - 11.3.1 Could relying on industrial curtailment delay more expensive investment in pumped storage and be more flexible than pumped storage? Please explain and provide the underlying assumptions.
- 11.4 Please discuss BC Hydro’s residential and commercial demand response initiatives.
- 11.5 Please provide and discuss the estimated volumes and costs of BC Hydro’s demand response initiatives. What are the estimated capacity costs for these initiatives in \$/kW-year?
- 11.6 How may the results from BC Hydro’s residential and commercial demand response programs affect BC Hydro’s capacity LRM assumptions and the potential value of the Transaction? Please elaborate.

12.0 Reference: LRM – combined energy and capacity Exhibit B-1, Business Case, p. 19

- 12.1 Please revise the combined energy and capacity LRM based on the revised energy LRMs (using revised wind cost estimates) and the revised capacity LRM (relying on industrial curtailment).
 - 12.1.1 Please indicate whether the new low-high range obtained through the various combinations is already contained in the LRM cost sensitivities provided in Table 11 of the Waneta Business Case. If not, please ensure the sensitivity analysis includes the

¹ Site C Inquiry proceeding, Submission F81-3, pp. 2-3.

revised LRMCS.

13.0 Reference: Discount rate
Exhibit B-1, Business Case, p. 20; Special Direction No. 7 to BCUC (OIC 097)

BC Hydro states that: "The BCUC Utility System Test Guidelines provide that a utility's discount rate should be based on the utility's cost of capital. As a result, the discount rate used in this business case is based on the weighted average cost of capital provided under BC Hydro Business Planning Common Rates of 6.0% nominal to calculate the present value of alternatives."

13.1 Please provide the debt/equity ratio, debt rate and return on equity that BC Hydro uses to derive a WACC at 6.0%.

OIC 097 defines "deemed equity" as: for any fiscal year, the product obtained by multiplying the rate base relating to that year by 30%.

Section 4 of OIC 097 on the basis for establishing BC Hydro's revenue requirements states:

... the Commission must ensure that those rates allow the authority to collect sufficient revenue in each fiscal year to enable the authority to ...

(d) achieve an annual rate of return on deemed equity

(i) for F2015, F2016 and F2017, that is equal to 11.84%,

(ii) for F2018 and subsequent fiscal years the annual rate of return on deemed equity that would be necessary to yield a distributable surplus in the applicable fiscal year equal to the product of the distributable surplus in the immediately preceding fiscal year, and 100% plus the percentage change in the British Columbia consumer price index in the applicable fiscal year.

13.2 Please recalculate BC Hydro's WACC based on the above directive (i.e. assume an ROE of 11.84% and BC Hydro's debt to equity ratio of 70/30).

14.0 Reference: Transaction costs
Exhibit B-1, p. 1-15; Business Case, p. 21

BC Hydro states:

BC Hydro will incur costs associated with the transaction. There are two categories of costs BC Hydro expects:

- BC Hydro costs associated with closing the transaction. BC Hydro expects these to include internal and consultant costs associated with regulatory proceedings, consultation, legal fees, and other associated costs.

- Property transfer taxes.

BC Hydro has estimated the total transaction costs associated with the transaction to be \$50 million.

It also states: "The assumption is generous and, because it is used in the financial analysis of the transaction, is also conservative, insofar as it tends to understate the net value of the transaction."

14.1 Please provide an estimate of the property transfer taxes.

- 14.2 Please provide a breakdown of the costs associated with the closing of the transaction and explain how these estimates were derived: regulatory costs, consultation, legal fees, and other.
- 14.3 Please explain why the assumption of \$50 million for the transaction costs is generous and conservative in light of the transaction cost risk (regulatory risk and property transfer tax risk) further described on page 36 of the Business Case.
- 14.4 Please provide a breakdown of the actual costs that were incurred in the Waneta 2010 Transaction.
 - 14.4.1 Please provide an analysis comparing the actual transaction costs in the Waneta 2010 Transaction with those estimated for the Waneta 2017 Transaction.
- 14.5 How is BC Hydro controlling transaction costs so that they are minimized?

**15.0 Reference: Unit Energy Cost
Exhibit B-1, p. 4-14; Business Case, pp. 15, 22–24**

On page 4-14, BC Hydro states that “UECs are for the costs of producing energy only, despite BC Hydro receiving capacity from the Waneta Assets after the Lease Period, and in this sense the associated capacity is included for no additional cost. ... Figure 4 of the Waneta 2017 Business Case shows that the post-lease UEC of Waneta electricity is in all cases less than the value of Waneta electricity.”

In the Business Case, BC Hydro states:

The UEC blends together two substantially different periods of cost. As discussed in Section 2.5, the cost of service (excluding financial charges) for the 2/3 Interest is negligible for the Lease Period as Teck is responsible for all operating and capital costs. The cost of service for BC Hydro is approximately \$13/MWh (levelized in F2018 dollars) excluding financing and amortization costs for the period following the Lease Agreement where BC Hydro is responsible for operating and capital costs (Emphasis added).

**Table 4 Unit Energy Costs for Transaction
(\$/MWh, 2018 dollars)**

Period	20-year Lease
Full term (years 1-40)	41.25
Post-Lease Term (years 21-40)	48.25

- 15.1 Please provide a definition for UEC and compare to the Site C Inquiry findings related to UEC.
- 15.2 Please provide the formulas for calculating the UECs in Table 4, along with a description of the numerator and denominator and the discount rate used. Please provide working spreadsheets to support these calculations.
- 15.3 For the purpose of calculating the UECs, please clarify whether BC Hydro excluded the financing charges for the Lease Period and the financing and amortization costs for the post Lease Period. If so, please explain why and recalculate the UECs without excluding those costs.
- 15.4 Please add the “Panel Mid-C energy price forecast” from the Site C Final Report to Figure 4.

On page 23 of the Business Case, BC Hydro states “the value of this initial Lease Term is substantial, as can be seen by calculating the net present value of the lease revenues less the administration costs of the Lease Term:

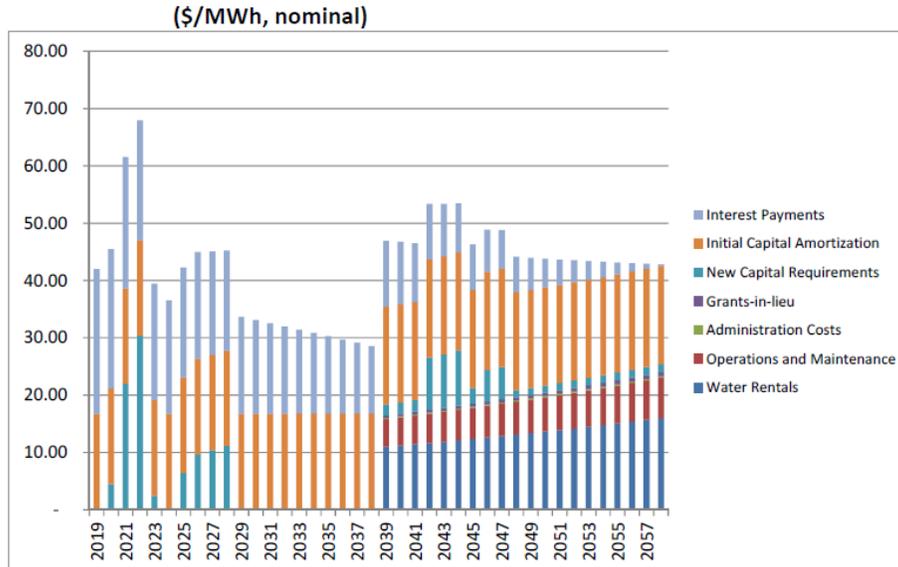
- The net present value of a 20-year lease is \$792 million

- The net present value of a 20-year lease with a 10-year extension is \$1,118 million”

15.5 Please provide the formulas for calculating these two NPVs, including all assumptions. Please provide working spreadsheets to support the calculations.

15.6 Please clarify how the NPV of the 20-year lease with the 10-year extension, valued at \$1.118 billion, relates to the analysis presented on pages 27 to 28 of the Business Case under Consideration of 10-year Extension.

On page 15 of the Business Case, BC Hydro provides Figure 1 below showing the operational cost of service for the 2/3 Interest.



15.7 Please clarify why the NPV of the 20-year lease only takes into account the administration costs, and not the other components of the cost of service as shown in Figure 1 above (e.g., new capital requirements).

**16.0 Reference: Un-risked value of the Transaction
Exhibit B-1, Business Case, p. 25**

BC Hydro states:

Market Prices where the 2/3 Interest’s generation is sold directly into the nearby electricity markets following the Lease Agreement. BC Hydro has used a Mid-C market price forecast as it is the closest electricity market with a liquid market for energy. This represents a scenario where load does not grow appreciably over the 40-year evaluation term, market prices unfold as expected in the ABB market forecast, and the smelter load is not served by BC Hydro following the Lease Agreement. In addition, a scenario where market prices increase more slowly than in the ABB market forecast – the “Extrapolated Prices” – is also considered.

**Table 5 Un-risked Value of Transaction
(Present value to 2018, \$ millions)**

Basis for Post-Lease Value	Value of 20-year Lease Period	Value of Post-Lease Period	Transaction Value	Net Benefit to Ratepayers @ Price of \$1.2B
LRMC – Clean only	792	1,482	2,274	1,071
LRMC – Clean + Gas	792	1,206	1,997	794
BCH Industrial Tariff	792	586	1,378	175
Market Prices (ABB)	792	570	1,362	159
Extrapolated Prices	792	440	1,232	29

- 16.1 Please clarify whether the PV of the capital expenditures following the Lease Period has been included in Table 5 within the values listed under the column titled “Value of Post-Lease Period.”
- 16.2 Please confirm that the post-lease transaction value at market prices assumes that the entire Waneta 2/3 energy is surplus energy for each year of the 20-year post-lease period.
- 16.3 Please confirm that the post-lease transaction value at LRMC assumes that the entire Waneta 2/3 energy is replacing new energy resources for each year of the 20-year post-lease period.
- 16.4 Please confirm that the post-lease transaction value at BCH Industrial Tariff assumes that the entire Waneta 2/3 energy is going to be sold to Teck for each year of the 20-year post-lease period.
- 16.5 Please confirm that BC Hydro does not take into account the possibility that it could go from surplus to deficit or from selling to Teck to not selling to Teck (in which case it could either be in surplus or deficit) in any given year of the post-lease period, which would change the un-risked value of transaction shown in Table 5. If not, please explain why not.
- 16.6 Please revise Table 5 by adding a line with the un-risk value of the transaction using the “Panel Mid-C energy price forecast” from the BCUC Site C Inquiry Final Report.
- 16.7 Please provide working spreadsheets to support all calculations in Table 5, including those related to the Panel Mid-C energy price forecast.

**17.0 Reference: 10-Year extension option
Exhibit B-1, Business Case, pp. 27–28**

BC Hydro states: “At the time of expiry, the volume is equivalent to 1,831 GWh/year at a strike price of \$60.50/MWh (2018 dollars, equivalent to the \$53/MWh extension price plus Teck’s operating costs of \$7.50/MWh).”

- 17.1 Please confirm that, at the time of expiry, for Teck to exercise its option, the strike price of \$60.50/MWh must be lower than the forecast price curves that Teck could be exposed to for the extension of the term. If not, please clarify.

BC Hydro states: “ABB Market Prices, with a Mid-C market price of approximately \$74.70 (2018 real dollars, energy only, reflecting mid-market price rather than exports as used elsewhere in this business case).”

- 17.2 Why did BC Hydro not make adjustments to the Mid-C market price to reflect imports (i.e. the BC Border buy price referred to on page 18 of the Business Case)?

BC Hydro states that: “In order to address this, BC Hydro used the probability of option exercise from the scenario with ABB market prices (58%) and applied this to the expected reduction in value if the extension option is exercised under the LRMC scenarios.”

- 17.3 Please explain how BC Hydro calculated the 58 percent probability of option exercise with ABB market prices.
- 17.4 What are the probabilities of option exercise from the other price scenarios?
- 17.5 Please revise Table 7 to add the “Panel Mid-C energy price forecast” from the BCUC Site C Inquiry Final Report.

**18.0 Reference: Consolidated valuation
Exhibit B-1, Business Case, p. 29, Table 8**

“As shown, under core assumptions the Transaction has net positive present value compared to the purchase price of \$1.2 billion under all post-lease market valuation scenarios except for the extrapolated curves, indicating a net benefit accruing to BC Hydro ratepayers.”

- 18.1 Please confirm that BC Hydro’s LRBs from Table 3-8 of F2017-F2019 RRA are not reflected in Table 8. If not, please explain how BC Hydro’s annual LRBs were taken into account in this table.
 - 18.1.1 Please confirm that under the LRMC scenarios, the underlying assumption is that BC Hydro is in an energy deficit position for the entire 40-year assessment period and that the deficit is greater than Waneta’s 2/3 energy. If not, please clarify. If confirmed, please discuss the probabilities of this scenario occurring and the relevance of its valuation.
- 18.2 Please revise Table 8, taking into account BC Hydro’s up-to-date LRBs from Table 3-8 of the F2017-F2019 RRA. (i.e., in years where BC Hydro is in surplus, use the transaction value based on the Panel Mid-C prices from the Site C Report and in years where BC Hydro is in deficit, use the transaction value based on LRMC clean or a combination of LRMC/Market price if the deficit is less than Waneta’s 2/3 energy) by completing the following table. Please provide all assumptions used and working spreadsheets.

	Value of Assets / Lease to BC Hydro					
	Un-risked Lease Period	Default Risk Adj.	Post-Lease Value	Extension option	Total Value	Value net of purchase
Panel Mid-C Prices from Site C Final Report & LRMC (Clean) - use Small Gap Surplus/Deficit in Line 19 Table 3-8 RRA						
Panel Mid-C Prices from Site C Final Report & LRMC (Clean) - use Base RRA in Line 18 Table 3-8 RRA						
Panel Mid-C Prices from Site C Final Report & LRMC (Clean) - use Large Gap Surplus/Deficit in Line 20 Table 3-8 RRA						

**19.0 Reference: Capital cost sensitivities
Exhibit B-1, p. 4-7; Business Case, pp. 13, 32–33; Business Case, Appendix B, p. 3**

Table 13 on page 33 presents the sensitivity to capital cost assumptions based on an ABB market

scenario.

In Appendix B to the Business Case, BC Hydro explains: “The estimates in this memo are indicative only due to the low level of scope definition and the lack of any recent detailed inspections of the asset, and should be considered Class 5 estimates according to the AACE definition.”

On page 7 of Chapter 4 it states: “BC Hydro will bear a share of unanticipated capital expenditures. For the purposes of the Waneta 2017 Business Case, these have been estimated, together, to be \$180 million (nominal dollars) for a 20-year Lease Period, based on BC Hydro's due diligence efforts.”

Further on page 13 of the Business Case it states:

Additional capital within the Lease Term of ~\$300 million for the full facility to reflect investments that are anticipated to be required based on BC Hydro's assessment of asset condition against current BC Hydro standards. Note that a portion of these costs would be considered extraordinary capital with costs and shared by Teck, while BCH would be responsible for those projects considered upgrades. Sharing of extraordinary capital costs is done via pro-rating Teck's share based on the portion of the economic life of the investment that occurs during the Lease Term.

- 19.1 Please confirm that the \$180 million for unanticipated capital expenditures is a portion of the anticipated \$300 million for the full facility.
- 19.2 Please calculate the sensitivity of capital costs using the following assumptions:
 - i. Base Case (Leading Utility Practice) and Teck Default in Year 5.
 - ii. Base Case (Leading Utility Practice) and Teck Default in Year 10.
- 19.3 Please confirm the time period over which BC Hydro's portion of capital expenditures is amortized in each of the following scenarios:
 - i. Cost increase of 50 percent for major capital works.
 - ii. Addition of \$200 million spillway upgrade in year 21.
 - iii. Change to Good Utility Practice.
- 19.4 Please reproduce Table 13, using the following price scenarios instead of the ABB market price scenario:
 - i. Extrapolated Prices.
 - ii. Flat Prices.
 - iii. Panel Mid-C energy price forecast from the Site C Final Report.
- 19.5 Please comment on the alignment of O&M and capital cost sensitivity analyses with the expected accuracy range of AACE Class 5 estimates. What are the expected accuracy ranges of AACE Class 5 estimates?
- 19.6 Please provide the accuracy range of BC Hydro's capital and O&M cost assumptions provided in the Application (both within and after the Lease Period). Please provide sensitivity analyses around the point estimates using BC Hydro's high and low end points of the accuracy ranges.
- 19.7 Please provide sensitivity analyses assuming all capital costs in each year are 30 percent and 100 percent higher than the base case and 20 percent and 50 percent lower than the base case (within and after the Lease Period).

19.8 Please provide sensitivity analyses assuming all O&M costs in each year are 30 percent and 100 percent higher than the base case and 20 percent and 50 percent lower than the base case (within and after the Lease Period).

**20.0 Reference: Capital costs
Exhibit B-1, Business Case, Appendix B, pp. 3, 4–9**

On page 3 of Appendix B to the Business Case, it states “This analysis does not consider any capital constraints at BC Hydro.”

- 20.1 Please explain how capital expenditures and additions at Waneta would be affected if capital constraints were considered. Are capital constraints probable? Please elaborate.
- 20.2 Please provide the annual capital expenditure and addition forecasts for Waneta for the 40-year period in tabular form, broken down by what BC Hydro would be expected to cover and what Teck would be expected cover, and also associated with the 1/3 interest and the 2/3 interest.
- 20.3 Please confirm that the value of capital expenditures and additions related to the Waneta Transaction and during the first years of Lease Period are included in the current 10-Year Rates and Capital Plans.
- 20.3.1 If not included, please articulate the impact of such expenditures on the existing 10-Year Rates and Capital Plan.

Page 3 also states “Estimates are provided in 2017 real dollars and are for the entire generating Facility, rather than the 2/3 of the Facility currently considered for the purchase under the Waneta transaction.”

- 20.4 Please confirm, otherwise explain, that the estimates provided on pages 4 through 9 are in 2017 real dollars.
- 20.4.1 If yes, please re-state estimated capital expenditures in 2018 dollars.

**21.0 Reference: Capital costs
Exhibit B-1, Business Case, p. 13; Appendix B, p. 11**

Page 13 states that “...the purchaser will likely have a substantial rehabilitation project to undertake following the end of the Lease Agreement. Due to this expected approach, BC Hydro limits the economic life to 40 years....”

On page 11 of Appendix B to the Business Case BC Hydro provides a graphical representation of expected capital forecasts in two scenarios: Leading Utility Practice and Good Utility Practice.

- 21.1 Please confirm whether substantial rehabilitation projects referenced on page 13 of the Business Case are reflected in either Figure 2 or Figure 3 of Appendix B to the Business Case.
- 21.1.1 If not confirmed, please provide a brief description of each of the major items required to complete the substantial rehabilitation project, a high level estimate of costs associated with each of the major items, and the timeline for when each of the major items as identified are expected to complete.

**22.0 Reference: Economic life sensitivities
Exhibit B-1, p. 4-18**

In footnote 131 on page 4-18 of the Application BC Hydro explains that it “...did not test the sensitivity of an economic life shorter than 40 years because that assumption is already inherently conservative.”

- 22.1 Please comment on the appropriateness of aligning economic life with the term of the lease.
- 22.2 Please provide sensitivity analyses of the value of the Transaction assuming 20 and 30 year economic life.

**23.0 Reference: Financial risk
Exhibit B-1, pp. 1-1, 1-3, 4-4; Business Case, p.37**

On page 1-1, BC Hydro explains it "...enjoys through its fiscal agent, the B.C. Government, an 'AAA' credit rating (the highest possible)."

On page 37 of the Business Case, BC Hydro explains: "The Transaction represents a substantial capital investment which will be financed through debt. Such an increase in debt has the potential to have an impact on the financial performance and/or credit health of BC Hydro and/or the Province. In order to determine the magnitude of this risk, BC Hydro and Government consulted with Moody's regarding the Transaction."

On page 1-3, BC Hydro also explains: "BC Hydro will purchase Teck's remaining two-thirds interest in Waneta for \$1.203 billion."

On page 4-4, BC Hydro explains: "The Waneta 2017 Business Case uses an assumed financing rate of 3.4 per cent. This assumed financing rate was based on forecast interest rates provided to BC Hydro by the Ministry of Finance on May 30, 2017 and adjusted to reflect the average rate at which BC Hydro expects to issue debt after the transaction completes in the spring or summer of 2018."

- 23.1 Please confirm that there would be no impact on BC Hydro's total equity for ratemaking purposes. If not confirmed, please explain.
- 23.2 Please elaborate on how this transaction will be financed (i.e. bonds, rates, terms, equity, other instruments, etc.). For example, is the assumed financing rate of 3.4% based on the actual debt rate BC Hydro expects to incur if it took out a \$1.2 billion in 40-year bonds to pay for the Waneta transaction? Please elaborate.
- 23.3 Please discuss the risks to the transaction, in relation to the probabilities and consequences of interest costs being higher or lower than assumed in the Business Case.
- 23.4 Please discuss the likelihood that BC Hydro will be brought back into 'normal' rate base regulation, and what effect this may have on the cost and value of the Transaction.
- 23.5 Please provide BC Hydro's position regarding taking on the Waneta Transaction on behalf of its shareholder without being compensated for the additional risk.
- 23.6 Please provide a sensitivity analysis on the value of the Transaction assuming the debt financing rate was 0.5%, 1% and 2% higher, and 0.5% lower.
- 23.7 How will this transaction affect BC Hydro's annual financial position (e.g. overall debt level, debt to equity ratio, operating cash flow/ratio etc.)? Please provide financial analysis before and after the Transaction.
- 23.8 Please provide and comment on any documents/reports prepared by Moody's and submitted to BC Hydro with respect this Transaction.

**24.0 Reference: Sensitivity analysis
Exhibit B-1, Business Case, pp. 29-33**

- 24.1 Please calculate the present value net of purchase price in 2018\$ for the Base Case, as defined

in the purple column below and complete the remainder of the table by changing the value of one input variable at a time:

Base Case Present Value Net of Purchase Price: [please fill in] 2018 \$ millions

Input Variable	Low Value [A]	[A] less Base Case value	High Value [B]	[B] less Base Case value	Low Value	Base Case	High Value
Discount Rate (nominal)					8%	6%	4%
Energy LRB Gap growth					Small Gap Line 19 Table 3-8 RRA	Base RRA Line 18 Table 3-8 RRA	Large Gap Line 20 Table 3-8 RRA
LRMC					40% decrease in LRMC (Clean)	15% decrease in LRMC (Clean)	LRMC (Clean)
Market Prices					Flat/Real	"Panel Mid-C" in Site C Report	ABB Market price
Capital Cost					Leading Utility Practice – 50% (AACE Class 5 estimate low point)	Leading Utility Practice	Leading Utility Practice + 100% (AACE Class 5 estimate high point)
Economic Life					20 years	40 years	70 years
Financing cost with debt and equity financing					(3.43%X30%) + (11.84%X70%)	6%	5.5%
Debt rate with 100% debt financing					5.4%	3.4%	2.9%

24.2 Please use a Tornado graph to present the results from the table above, ordering the input variables so that the one at the top of the graph has the greatest impact on the present value net of the purchase price and the one at the bottom has the least impact and provide comment.

**25.0 Reference: Risk Assessment (Valuation Risk)
Exhibit B-1, Business Case, p. 37; BCUC Site C Final Report Executive Summary**

BC Hydro states:

Valuation Risk: The analysis of the Transaction value provided in Section 4.2.2 is based on assumptions that have uncertainty associated with them. The key assumptions that affect the analysis include:

- The growth in BC Hydro's LRB gap. This is, in turn, driven by factors such as load growth in BC and the actions taken by BC Hydro to add new resources or manage existing ones. A substantially lower LRB gap would reduce the potential for the 2/3 Interest generation to be assessed against BC Hydro's LRMC.
- Long-term market prices for electricity and capacity. For periods where the 2/3 Interest generation is in surplus it will be valued against market prices. As a result, variability in market prices will affect the valuation of the transaction in LRB surplus scenarios. [...]

The Site C Panel found "BC Hydro's mid load forecast to be excessively optimistic and considers it more appropriate to use the low load forecast in making our applicable findings as required by the OIC. In addition, the Panel is of the view that there are risks that could result in demand being less than the low case."

Further:

The Panel found that a more conservative approach for the estimation of future market pricing is warranted, given that markets have been in decline for the past decade and that BC Hydro's proposed Mid-C forecast should not be relied upon. Accordingly, the Panel finds that, for the purposes of this assessment, the future market price for 2024 and beyond should be considered to be at a point mid-way between the proposed forecast and the low end of BC Hydro's Mid-C market price forecast.

- 25.1 Please discuss the implications for the valuation of the Waneta 2017 Transaction if this Panel finds similarly as the Site C Panel regarding the growth in BC Hydro's LRBs and the appropriate Mid-C forecast energy price to use.

**26.0 Reference: Environmental risk
Exhibit B-1, pp. 4-19, 4-20; Business Case, pp. 33-38; Appendix K, p. 2**

On page 35 of the Business Case BC Hydro explains:

There is the risk of a major environmental incident or issue associated with the facility in the future. A specific area of potential environmental risk is associated with contamination of soil and sediment in the Waneta area. This contamination was attributed to historic activities that occurred within the Waneta area, including construction of the dam or unrelated railway loading/unloading of industrial materials. BC Hydro commissioned an assessment (carried out by Golder Associates Ltd.) of this issue as part of its due diligence on the purchase of the 1/3 Interest and concluded that there is potential liability associated with any structural change to Waneta Dam, including de commissioning.

- 26.1 Please provide the Golder Associates Ltd. assessment and comment on its findings.
- 26.2 Please provide an assessment of the potential environmental risk of the Transmission Assets and related ROWs and how this risk has been allocated.

On page 2 of Appendix K, it states that "the Grantor hereby grants unto the Grantee a statutory right of way...to...enter...the Grantor's Lands for the purposes of performing such investigations and remedial activities as are reasonably required to develop and implement the Wide Area Remediation Plan..."

- 26.3 Please confirm, otherwise explain, that BC Hydro is not responsible for paying for any costs associated with any investigations or remedial activities related to the Wide Area Remediation

Plan.

**27.0 Reference: Previous engagement on the sale of Teck’s two-thirds interest
Exhibit B-1, Business Case, pp. 8–9**

On pages 8 to 9, BC Hydro explains that it did not elect to enter into a transaction with Teck for the purchase of Teck’s 2/3 interest in Waneta twice before deciding to exercise its ROFO pursuant to the ROFO Sale Notice dated June 2, 2017.

27.1 Please highlight the key differences between the ROFO Sale Notice that forms the basis of the proposed transaction and the first ROFO Sale Notice from June 2016, and the subsequent discussions with a third party regarding an alternative transaction structure.

**28.0 Reference: Assessment of no-go scenario
Exhibit B-1, Business Case, p. 38**

On page 38 of the Business Case BC Hydro explains: “...there is ~150 GWh/year additional surplus energy that will be held by the owner of the 2/3 Interest and is not reflected in the below analysis.”

28.1 Please expand on the above statement. What is the effect of including the ~150 GWh/year and why was it not included in the analysis?

**29.0 Reference: Assessment of no-go scenario – core NPV analysis
Exhibit B-1, Business Case, p. 39**

29.1 Based on the effects a Fortis Inc. ownership may have, please assign probabilities to the four scenarios included in Table 14.

29.2 Based on these probabilities and the costs/benefits of the four scenarios, what is the expected value of the no-go scenario?

29.3 In Table 14, what energy price was used to value the energy in each of the four scenarios? Why?

29.4 Please provide working spreadsheets showing all calculations and data supporting the No-Go valuations in Table 14.

**30.0 Reference: Assessment of no-go scenario – sensitivity analysis
Exhibit B-1, Business Case, pp. 39–41; BCUC Site C Inquiry Final Report**

30.1 Please revise Table 16 to include 15 percent and 40 percent decreases in the LRCM (Clean) value and comment on the results.

30.2 Please revise Table 17 by adding a column for BCH in surplus/Panel Mid-C energy price forecast from the BCUC Site C Inquiry Final Report and comment on the results.

**31.0 Reference: Assessment of No-Go Scenario – Risk Assessment (Regulatory)
Exhibit B-1, Business Case, p. 42**

BC Hydro states “Teck has stated that they do not expect the generation component of the Fortis transaction to require a regulatory filing, although a filing is expected for the wheeling services related to transmission.”

31.1 Please explain why, in BC Hydro’s view, a filing would be expected for the wheeling services related to transmission.

31.1.1 Would Fortis Inc. or FortisBC Inc. be expected to make the filing? Why?

31.1.2 What is this filing expected to request from the Commission? Why?

31.1.3 Under which sections of the UCA is this filing expected?

31.2 Would the transmission wheeling services obligations of the Purchaser of the Transmission Assets have any impact, positive or negative, on BC Hydro's transmission wheeling services in the area? Please explain.

31.3 Would the transmission wheeling services obligations of the Purchaser of the Transmission Assets have any impact, positive or negative, on BC Hydro more generally? Please explain.

**32.0 Reference: Assessment of no-go scenario – Risk Assessment (Valuation Risk)
Exhibit B-1, Business Case, p. 42; Site C Final Report Executive Summary, pp. 3, 14**

BC Hydro states:

Valuation Risk: The analysis of the No-Go scenario is based on assumptions that have uncertainty associated with them. The key assumptions that affect the analysis include:

- The growth in BC Hydro's LRB gap. This is, in turn, driven by factors such as load growth in BC and the actions taken by BC Hydro to add new resources or manage existing ones. A substantially lower LRB gap would reduce the potential for the 2/3 Interest generation to be assessed against BC Hydro's LRMC.
- Long-term market prices for electricity and capacity. For periods where the 2/3 Interest generation is in surplus it will be valued against market prices. As a result, variability in market prices will affect the valuation of the transaction in LRB surplus scenarios. [...]

The Site C Panel "finds BC Hydro's mid load forecast to be excessively optimistic and considers it more appropriate to use the low load forecast in making our applicable findings as required by the OIC. In addition, the Panel is of the view that there are risks that could result in demand being less than the low case."

In addition, "The Panel found that a more conservative approach for the estimation of future market pricing is warranted, given that markets have been in decline for the past decade and that BC Hydro's proposed Mid-C forecast should not be relied upon. Accordingly, the Panel finds that, for the purposes of this assessment, the future market price for 2024 and beyond should be considered to be at a point mid-way between the proposed forecast and the low end of BC Hydro's Mid-C market price forecast."

32.1 Please discuss the implications for the valuation of the no-go scenario if this Panel finds, similarly as the Site C Panel, that it is appropriate to use the low load forecast and that the future market price for 2024 and beyond should be a point mid-way between the proposed forecast and the low end of BC Hydro's Mid-C market price forecast.

**33.0 Reference: Ratepayer Impact Analysis
Exhibit B-1, Business Case, pp. 44–45**

33.1 Section 5.1 is entitled "annual" rate impact analysis but Figure 6 is entitled "cumulative incremental" rate impact. Please clarify whether the rate decreases (%) in Figure 6 are annual or cumulative.

33.2 Please add the following index to Figure 6: "Panel Mid-C energy price forecast" from the BCUC Site C Inquiry Final Report.

33.3 Please confirm a purchase price of \$1.203 billion, and not \$1.2 billion, was used to assess the

rate impact.

33.4 Is Figure 6 based on Table 5 (p. 25) results?

In a previous information request, BC Hydro was asked to complete the following table:

	Value of Assets / Lease to BC Hydro					
	Un-risked Lease Period	Default Risk Adj.	Post-Lease Value	Extension option	Total Value	Value net of purchase
Panel Mid-C Prices from Site C Final Report & LRMC (Clean) - use Small Gap Surplus/Deficit in Line 19 Table 3-8 RRA						
Panel Mid-C Prices from Site C Final Report & LRMC (Clean) - use Base RRA in Line 18 Table 3-8 RRA						
Panel Mid-C Prices from Site C Final Report & LRMC (Clean) - use Large Gap Surplus/Deficit in Line 20 Table 3-8 RRA						

33.5 Please revise Figure 6 by using the information in the purple columns to calculate the rate impact (Revised Figure 6).

33.6 Please provide the working spreadsheets supporting the calculations and data in Figure 6/Revised Figure 6.

On page 45, BC Hydro states: “under the default scenario, there is a rate change upon default due to a shift from lease revenues to either market prices or LRMC (depending on BC Hydro’s LRB position at the time).”

33.7 Please confirm that in F2028, BC Hydro expects to be in a surplus position in the base case of its up-to-date LRB and the slow growth case (lines 18 and 19 in Table 3-8 from the F2017-F2019 RRA).

34.0 Reference: Net present value of revenue requirements Exhibit B-1, Business Case, pp. 24, 46–47

BC Hydro states: “As shown [in Table 19], the benefits to ratepayers are substantially larger than the benefits determined under the free cash flow methodology.

**Table 19 Ratepayer Benefit Present Value
(Present value net of purchase price, \$ millions)**

Basis for Post-Lease Value	Free Cash Flow Un-risked (6% financing)	Ratepayer Benefits (3.4% financing)
LRMC – Clean only	1,071	1,502
LRMC – Clean + Gas	794	1,224
BCH Industrial Tariff	175	589
Market Prices (ABB)	159	570
Extrapolated Prices	29	436

(Note: in both cases costs/benefits are discounted at 6% nominal)

- 34.1 Please provide all working spreadsheets supporting the calculations and data in Table 19.
- 34.2 Please convert the information contained in Table 19 into the same format as Figure 6 to illustrate the cumulative incremental rate impact of the revenue requirement.

On page 24 of the Business Case, BC Hydro states that: “BC Hydro constructed a discounted cashflow model to assess the net present value (NPV) costs and benefits of the proposed Transaction. This model considered the present value of the free cash flows resulting from the Transaction.”

- 34.3 Please clarify where in section 4.2.2 on Core NPV Analysis the reader can find the free cash flow un-risked (6% financing) results shown in the middle column of Table 19.
 - 34.3.1 If the middle column results are not explained elsewhere in the Business Case, please explain them fully and provide all assumptions.

**35.0 Reference: Analysis and recommendations
Exhibit B-1, p. 2-19; Business Case, pp. 29, 49–50**

On page 29, BC Hydro states below Table 8: “As shown, under core assumptions the Transaction has net positive present value compared to the purchase price of \$1.2 billion under all post-lease market valuation scenarios except for the extrapolated curves, indicating a net benefit accruing to BC Hydro ratepayers.” (Emphasis added)

On pages 49-50, BC Hydro states: “As shown in Section 5, under all valuation scenarios the Transaction is expected to result in lower ratepayer costs in every year of the Transaction.”

- 35.1 Please reconcile the two statements.

**36.0 Reference: Line 71 – Line 71 agreement and 1987 letter agreement
Exhibit B-1, p. 2-19; Business Case, Appendix C, pp. 67, 69**

On page 67, BC Hydro states that: “Under the 1987 letter agreement with Teck, FortisBC also has import and export scheduling rights to and from the BC-US border using the residual Line 71 rights not used by Teck.”

On page 69, BC Hydro notes that one of the assumptions made for the purposes of developing a recommendation for Line 71 is that the 1987 letter agreement for FortisBC rights to Line 71 use remains in place despite BC Hydro purchase of the transmission assets.”

On page 2-19 BC Hydro submits:

Pursuant to a 1987 letter agreement, FortisBC has an interruptible right to use Line 71 for imports and exports subject to Teck's rights and obligations. In addition, under the 1994 Power Asset Sale and Development Agreement (PASDA), Teck committed to “not

unreasonably deny access” to Line 71 to the Brilliant Expansion Project and the Waneta Expansion Project for export purposes. After the Lease Period, BC Hydro expects to continue to fulfil these obligations in its capacity as an open-access wholesale transmission service provider under its OATT.

- 36.1 Please provide the 1987 letter agreement and the PASDA and elaborate on how the proposed transaction may affect FortisBC’s rights and costs under these agreements, both during and after the Lease Period.
- 36.2 How much capacity is FortisBC entitled to under the 1987 letter agreement?
- 36.3 What is FortisBC’s priority access to Line 71 under the 1987 letter agreement?
- 36.4 Please provide the annual usage of Line 71 by FortisBC since 1987.
- 36.5 What is BC Hydro’s expectation of FortisBC’s continued use of Line 71 after BC Hydro would have acquired the Transmission Assets at the end of the Lease Period?

Also on page 2-19 BC Hydro explains: “After the Lease Period, BC Hydro will purchase the Transmission Assets, including Line 71. Provided Teck still has a smelter load in Trail, BC Hydro will provide a wheeling service to Teck that maintains Teck’s rights to access wholesale power markets in the U.S. for import purposes to serve its smelter load, consistent with the rights it has under the Line 71 Agreement at the end of the Lease Period.”

- 36.6 Please directly compare the rights included in the Line 71 agreement to the rights proposed under the transaction in a manner similar to the comparison provided in the Application Appendix G.

**37.0 Reference: Line 71 – capacity
Exhibit B-1, Business Case, Appendix C, p. 69**

Footnote 2 states: “Currently under the Co-ownership and Operating Agreement, in relation to BC Hydro’s one-third interest in Waneta, BC Hydro has first priority capacity on Line 71 for 246 MW through 2035; and first priority on Line 71 for 123 MW after 2035.”

- 37.1 Why does the first priority capacity of BC Hydro on Line 71 decrease from 246 MW to 123 MW after 2035?
- 37.2 Please reconcile the fact that after 2035, BC Hydro has first priority capacity on Line 71 for 123 MW and Teck will hold 300 MW of import rights on the same line, which has a capacity of 370 MW.
- 37.3 Before 2035, BC Hydro has first priority capacity on Line 71 for 246 MW. How much import rights would Teck hold on Line 71 during the Lease Period?

Footnote 3 on page 69 states: “Based on a BC Hydro usage of 150 GWh/yr on the FortisBC system, the present value cost over a 20-year post-lease period is approximately \$15M (2018\$).”

- 37.4 Please clarify how the \$15 million is calculated and provide the assumptions.

**38.0 Reference: Line 71 – import and export rights
Exhibit B-1, Business Case, Appendix C, p. 69**

Table 1 indicates that Teck would hold 300 MW of import rights under scenarios 1 and 2 and that

BC Hydro would hold sufficient rights for Waneta under scenario 3.

38.1 Please explain how the 300 MW of Teck's import rights was determined.

38.1.1 How much right does BC Hydro hold in scenarios 1 and 2?

38.2 Please clarify what is meant by "sufficient rights." Is there a range of MW that would represent "sufficient rights" and why?

On page 67, BC Hydro states: "During the lease period it is expected that the 2/3 interest in the Waneta generation would serve the Teck smelter load and that Teck will require the Line 71 asset to periodically import to serve smelter load in the case of a Waneta outage, or to export a small volume of surplus Waneta electricity to market."

38.3 After the Lease Period, would Teck need access to Line 71 to continue exporting a small volume of surplus Waneta electricity to market? If so, at what cost would Teck use Line 71 for export if owned by BC Hydro?

**39.0 Reference: Analysis of Waneta transmission options – cost and revenues
Exhibit B-1, Business Case, Appendix C, pp. 69–71**

39.1 Please provide the assumptions used to calculate the stream of revenues from FortisBC under the 1987 letter agreement post-lease in scenarios 1 and 2.

39.2 Please provide the assumptions used to calculate the lease payments from Teck during the Lease for Scenario 2.

39.3 Please provide the assumptions used to calculate the cost of transmission paid to Teck post-lease in scenario 3.

39.3.1 Would this agreement between Teck and BC Hydro need Commission approval? If so, under which section of the UCA?

39.4 Please provide the calculations and working spreadsheets to support the net present value of the three scenarios in Table 2.

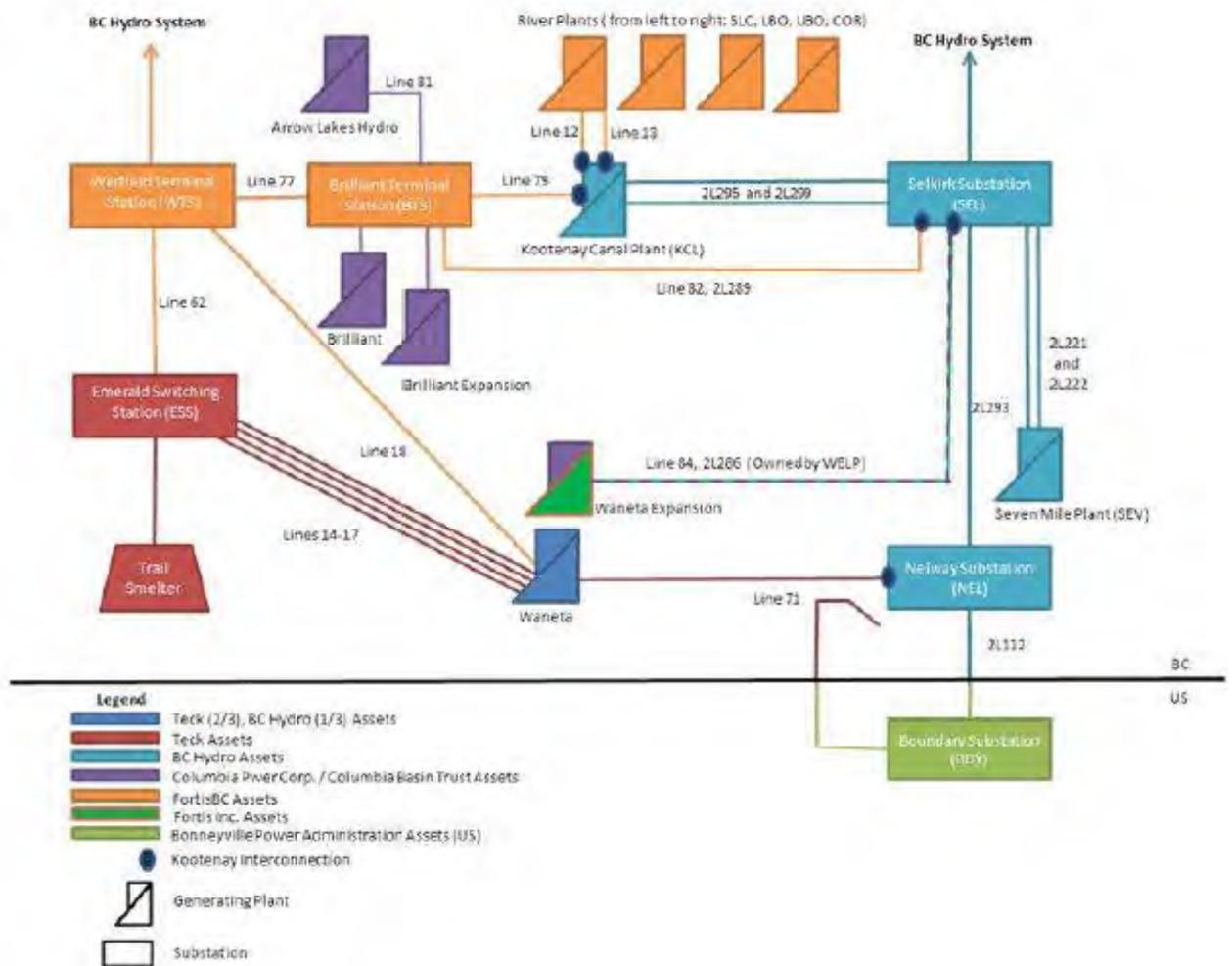
**40.0 Reference: Analysis of Waneta transmission options – risk and opportunities
Exhibit B-1, Business Case, Appendix C, pp. 72-73**

On page 73, BC Hydro states: "... with the exception of the Line 62/77/79 option which has a variable option price based on the book value at the time that the option is exercised."

40.1 Until what year can this option be exercised?

41.0 Reference: Transmission condition and costs
Exhibit B-1, pp. 2-9, 2-13, 3-20

Figure 2-3 Regional Generation and Transmission Facilities - Current⁶⁰



In footnote 58 on page 2-13 BC Hydro explains:

The maximum output of Waneta is 490 MW and the transfer capability of Line 71 is 370 MW. Under a Transmission Facilities Agreement between Teck and FortisBC, up to 150 MW of the transfer capability on each of Lines 62, 77 and 79 may be acquired. The exercise by Teck of its rights in respect of these assets on behalf of BC Hydro would be at BC Hydro's cost, and that cost is not included in the \$20 million BC Hydro will pay to purchase the Transmission Assets.

In footnote 101 on page 3-20 BC Hydro also explains:

The capacity of Line 71 is 370 MW which is approximately 120 MW less than the full capacity of the Waneta plant. After the Lease Period has ended, in the infrequent hours where Waneta is not serving the smelter load and is generating near full output, BC Hydro may need to acquire additional transmission capacity to ensure delivery of the

entire output of Waneta generation. This could be done via the purchase of transmission rights on the FortisBC system via Lines 62, 77 and 79.

- 41.1 Please provide, if available, and elaborate on the Transmission Facilities Agreement between Teck and FortisBC.
- 41.2 Please provide and discuss the estimated cost for BC Hydro to acquire the required transfer capability on each of Lines 62, 77 and 79.
- 41.3 Please discuss any risks to the transaction, with respect to cost and access to the transmission required over and above Line 71's capacity.
- 41.4 How and where does the line in the top left corner of Figure 2-3 connect to BC Hydro's transmission system? Please explain.
- 41.5 Please elaborate on the FortisBC transmission lines shown in Figure 2-3, including the un-numbered transmission line in the top left corner of the figure including, but not limited to, rating, directionality and purpose.
- 41.6 Please discuss any other transmission constraints related to the flow of energy from Waneta with or without Teck's load, if any. Do these constraints in any way affect the potential value of energy from Waneta? Please elaborate.
- 41.7 Please provide and discuss any applicable Waneta/Teck transmission local operating orders.

On page 2-9, BC Hydro explains:

These transmission assets are in reasonable condition given their age. Consistent with the Waneta 2010 Transaction, Teck remains responsible for all costs associated with operating and maintaining the Line 71 assets, including costs associated with permits and licences, until January 1, 2036. After that time, BC Hydro will be responsible for costs that are proportionate with its one-third interest until such time that the Transmission Assets are purchased by BC Hydro.

- 41.8 Please provide and explain the basis for the statement that the transmission assets are in reasonable condition given their age. For example, please provide and explain any recent inspections/test results/engineering reports.
- 41.9 Please provide and discuss any Transmission Assets related asset plans.
- 41.10 Please provide and explain any recent operating committee minutes with respect to transmission related items.
- 41.11 Please provide transmission reliability metrics and information for Line 71, Lines 14-17 and the Waneta hydro station and directly compare these results to BC Hydro's reliability metrics for similar assets.
- 41.12 What level of reliability of service does Teck currently receive (e.g. N-0)? During the Lease Period what level of service does Teck expect to receive (e.g. N-0)? After the Lease period ends, in the event that BC Hydro provides service to Teck, what level of service would BC Hydro be obliged to provide Teck (e.g. N-1)? Would there be any changes to service reliability that would cause BC Hydro to incur extra costs? If so, please provide an estimate of those costs.
- 41.13 Please provide an estimated cost to rebuild the Transmission Assets to their current capacity and to rebuild to the capacity required to transmit all Waneta energy to the BC Hydro system.

**42.0 Reference: Due diligence
Exhibit B-1, pp. 4-30–4-31**

On page 4-30 of Chapter 4 of the application BC Hydro states: “BC Hydro conducted extensive due diligence in regards to its purchase of the one third interest on Waneta in 2010” and that “outside experts were retained on a number of number of topics.”

On page 31 of Chapter 4, BC Hydro further states:

Upon receipt of the Sale Notice from Teck in May of this year, BC Hydro initiated a further due diligence effort focused on a structured review of new information available since 2009 to 2010, as informed by the information that had been gathered as part of the 2009 to 2010 effort. This renewed due diligence effort was greatly assisted by the establishment by Teck of an electronic "data room", through which it made available to potential bidders in its 2016 to 2017 competitive sales process the information it had at its disposal. Specific topics considered in the course of the more recent due diligence effort includes Technical; Operations; Environmental; Financial; and Legal.

- 42.1 Please elaborate on why BC Hydro opted not to complete an independent due diligence review regarding the additional two thirds purchase of Waneta. How long would it take for BC Hydro to obtain an independent due diligence review?
- 42.2 Please elaborate on the due diligence did BC Hydro carry out in addition to reviewing Teck’s “data room information.”
- 42.3 Please provide and discuss all material “data room” documents. For example, recent dam safety reports, turbine-generator or transmission health condition assessments, etc.
- 42.4 Please discuss the pros and cons of a due diligence effort assisted by the seller establishing an electronic data room for information.
- 42.5 Please confirm, otherwise explain, that if the purchase of Waneta was not based on matching an offer through a competitive arm’s length process, BC Hydro would have carried out their due diligence differently. If confirmed, please elaborate on what BC Hydro would have done.

**43.0 Reference: Operational value
Exhibit B-1, pp. 2-1, 2-4; Section 2.3**

On page 2-1 of the Application, BC Hydro explains: “The Waneta Expansion Project (described in section 2.5.7) was completed in 2015 and is located immediately adjacent to Waneta and shares the existing hydraulic head of the Waneta Dam. The Waneta Expansion Project was not part of the Waneta 2010 Transaction and does not form part of the Waneta 2017 Transaction.”

On page 2-4 of the Application BC Hydro explains:

The Waneta Expansion Project is a generation-only facility that shares the existing hydraulic head of the Waneta Dam with the Waneta generating facility. Licenced water is allocated between Waneta and the Waneta Expansion Project as follows:

1. First 25,000 cfs (708 cms) for power purpose at Waneta;
2. Next 22,107 cfs (626 cms) for power purpose at Waneta Expansion Project; and
3. Next 7,910 cfs (224 cms) for power purpose at Waneta;

- 43.1 Please further elaborate on how Waneta and the Waneta Expansion project are dispatched. For

example, is all of Waneta dispatched first, up to its first 708 cms, then WELP up to its 626 cms, then finally Waneta again?

- 43.2 Has the introduction of the Waneta Expansion Project affected the value of the energy and capacity from the proposed Transaction to BC Hydro as compared to the value of the energy from Waneta when the time the 2010 Transaction was completed? Please elaborate.

In Section 2.3 of the Application, BC Hydro explains the operation of the plants in the Pend d'Oreille Basin.

- 43.3 Please provide charts for and analyze Waneta's hourly, daily, monthly, seasonal and annual generation for each of the last 10 years.
- 43.4 Does BC Hydro expect changes to Waneta's generation profile in the next 20 years? For example, due to changes in equipment, inflows, load or demand profiles. If so, would these changes make Waneta's energy and capacity more or less valuable in the future? Please elaborate.
- 43.5 Please compare the value of energy from Waneta to the value of energy from a flat block of energy. Is Waneta's energy and capacity more or less valuable? Please elaborate.

On page 4-29 of the Application, BC Hydro submits: "...the energy shaping and coordination characteristics of Waneta are comparable with highly dispatchable resources such as the Seven Mile facility, and are superior to most other resource options available to BC Hydro."

- 43.6 Please elaborate on the above statement. Would BC Hydro consider Waneta highly dispatchable before and/or after the Lease Period? Why or why not?
- 43.7 Please graphically/visually show how Waneta can provide energy shaping.
- 43.8 Please discuss and provide all generation constraints.
- 43.9 Please provide and discuss the Waneta generating station local operating order.

**44.0 Reference: Surplus Power Rights
Exhibit B-1, pp. 1-2, 1-10, 3-25, 4-29; Appendix H, p. 98**

On page 1-2, BC Hydro explains: "Teck's smelter load at Trail can be supplied, on average, by Teck's two-thirds interest in the generation from Waneta."

On pages 1-10 and 3-25 BC Hydro discusses the Surplus Power Rights Agreement (SPRA) and notes that it expires in 2035. In particular, BC Hydro states that "The SPRA obliges Teck to provide BC Hydro with an effective right of first offer over planned surplus power sales, and an obligation on BC Hydro to purchase unplanned surplus power in certain circumstances. The intent of the unplanned purchase mechanism was to compensate Teck for power acquired by BC Hydro but to maintain clear market signals to encourage Teck to package planned surpluses for sale under the right of first offer mechanism."

On page 4-29, BC Hydro elaborates:

During the Lease Period, and under the continuing arrangements contemplated in the SPRA and the Scheduling Agreement, Teck's market activities are limited to importing to serve their load and exporting any surplus electricity. These agreements have the effect of reducing Teck's trade activity and providing schedule and load certainty for BC Hydro. BC Hydro's experience since the Waneta 2010 Transaction has shown greatly reduced Teck exports during heavy load periods (virtually all sold to BC Hydro) and reduced Teck imports during light load periods (as needed to serve their load and/or sell to BC Hydro).

These reductions confirm the value associated with the highly predictable and stable smelter load.

- 44.1 Please provide a copy of the SPRA.
- 44.2 Please elaborate more on how the SPRA currently works. In particular, clarify how the market signals work under the SPRA.
- 44.3 Please confirm, otherwise explain, that during the Lease Period (up to expiry of the SPRA) no changes to the SPRA are anticipated on account of the proposed transaction.
- 44.4 Please explain what BC Hydro expects to occur after expiry in 2035, both within a Lease Period and after a Lease Period.
- 44.5 Please identify the amount (MW/GWh), cost and timing of the surplus BC Hydro was required to purchase under the SPRA in each of the last 7 years. At what prices does BC Hydro purchase unplanned surpluses versus planned surpluses? If the transaction is approved, are the amounts, cost or timing expected to change in any material way?
- 44.6 Please provide and analyze Teck's monthly peak demand and load for each of the last 7 years.
- 44.7 Please provide and analyze a typical day of load at Teck.
- 44.8 What is the risk to the value of the transaction if Teck's annual smelter load is 5 percent, 10 percent and 25 percent higher or lower than it is currently?

**45.0 Reference: Columbia River Treaty, Pacific Northwest Coordination Agreement, Canal Plant Agreement (CPA)
Exhibit B-1, pp. 2-16-2-17, 2-20-20-22**

On pages 2-16 and 2-17 BC Hydro discusses the Columbia River Treaty and the Pacific Northwest Coordination Agreement.

- 45.1 Is BC Hydro in discussions with US entities regarding the Columbia River Treaty and the Pacific Northwest Coordination Agreement, with respect to improving coordination of plants on the Pend d'Oreille? If not, why not. Please elaborate.
- 45.2 Are there any potential benefits to the Transaction if better coordination between US and Canadian entities on the Pend d'Oreille were achieved? Please elaborate.
- 45.3 Are there any risks to the Transaction that may result from renegotiating/changes to the Columbia River Treaty? Please elaborate.
- 45.4 If the Canadian Entitlement were repatriated, how would this affect the potential value of this Transaction? Please elaborate.

On pages 2-20–2-22, BC Hydro explains:

The CPA dated for reference November 15, 2011 is the version of the agreement currently in effect...BC Hydro notes that the CPA, as amended from time to time, is exempt from regulation by Commission Order No. G-41-06... BC Hydro will be filing, for information purposes, an amended CPA with the Commission when those amendments have been made and executed by the necessary parties... As discussed above, amendments to the CPA will need to accommodate the removal of Waneta after the Lease Period, and further operational changes are not currently contemplated but are possible, and likely modest.

- 45.5 For information purposes, please file the current version of the CPA.
- 45.6 Please elaborate on the potential changes to the CPA as a result of the proposed transaction.
- 45.7 How have these potential changes been accounted for in the valuation of the transaction? Please elaborate. If they have not been accounted for, please explain why not.

**46.0 Reference: BC energy objectives
Exhibit B-1, pp. 4-22–4-23**

On page 4-22 of the Application BC Hydro evaluates the Waneta Transaction against BC's Energy Objectives. With respect to BC Energy Objectives (d) and (k), BC Hydro submits:

(d) to use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources;

The Waneta 2017 Transaction neither serves nor impedes this objective...

(k) to encourage economic development and the creation and retention of jobs;

The Waneta 2017 Transaction serves this objective insofar as it results in the full public ownership of a valuable resource that has made a meaningful contribution to the economic well-being of the West Kootenay region for decades.

- 46.1 Please confirm, otherwise explain, that obtaining a further 2/3 interest in Waneta may reduce the need of pursuing further DSM and/or reducing the need for other forms of supply. Please elaborate.
- 46.2 Please confirm, otherwise explain, that there would be no material difference to meeting objective (k) had the Fortis Transaction been complete or had Teck continued to own and operate Waneta.
- 46.3 Please confirm, otherwise explain, that by either completing the Fortis Transaction or the Transaction, the retention of jobs related to Teck's Trail operations is more likely.

B. WANETA LEASE AGREEMENT

**47.0 Reference: Waneta Lease Agreement
Exhibit B-1, Appendix F, p. 8**

On page 8 of the Waneta Lease Agreement, collectively the "Leased property" is defined as:

- (A) the Waneta Real Property;
- (B) the Waneta Buildings and Fixtures; and
- (C) the Waneta Personal Property;

- 47.1 Please provide an aerial schematic of the Waneta property, clearly defining the buildings and boundaries of the leased property area.

**48.0 Reference: Waneta Lease Agreement
Exhibit B-1, Appendix F, p. 10**

On page 10 of the Lease Agreement under Section 5.1 it states:

The Tenant acknowledges and agrees that the Landlord has made no representations or warranties with respect of the environmental condition of the Waneta Owned Land, the Waneta Related Land and the Waneta Buildings and Fixtures, and that the Tenant is leasing its interest in the Leased Property under this Lease Agreement on an “as is, where is” basis with respect to the environmental conditions thereof.

- 48.1 Please detail all the known major environmental conditions associated with the Waneta owned land, the Waneta related land and the Waneta buildings and fixtures.
- 48.1.1 What expenditures, if any, have been assigned to the potential liability associated with any major environmental incident as a result of any structural change to Waneta Dam including decommissioning?

**49.0 Reference: Accounting for the lease transaction
Exhibit B-1, pp. 3-6 – 3-8**

On pages 3-6 to 3-8 of the Application, BC Hydro states the following:

The Lease will effect the lease to Teck of a two-thirds interest in Waneta for a period of 20 years (extendable to 30 years at Teck’s option).

Together with the COPOA, the Lease effectively maintains the status quo for 20 years (renewable to 30 years) and allows Teck to continue to be an “owner” of Waneta for the purposes of the *Water Sustainability Act*.

Basic rent: the initial rent payable by Teck is \$74,180,644 per annum...escalated at 2 per cent per annum; if the Lease is renewed, the initial rent for the renewal term is \$144,409,031 per annum, also escalated at 2 per cent;

Other amounts payable by Teck: Teck is responsible for any rental taxes and amounts payable pursuant to the COPOA including two-thirds of the operating costs, two-thirds of certain sustaining capital and insurance costs and its share of property taxes and water rentals...;

Other amounts payable by BC Hydro: BC Hydro is responsible for certain amounts payable under the COPOA, including, for example, non-sustaining capital costs, a share of sustaining capital costs, and upgrade costs...;

Teck’s entitlements: the Lease confirms that as lessee and holder of a two-thirds interest in Waneta-related contracts, Teck is entitled to the entitlement capacity and entitlement energy made available to the “owner” of the Waneta Assets pursuant to the CPA;

- 49.1 Please confirm that the Lease will be accounted for and reported in BC Hydro’s financial statements using International Accounting Standard (IAS) 17 in F2019 and using International Financial Reporting Standards (IFRS) 16 from F2020 onwards.
- 49.1.1 If not confirmed, please provide the accounting standard that BC Hydro proposes to use and explain the rationale for reporting under this standard.
- 49.1.1.1 Please provide the accounting entry for the initial recognition of the Lease, the annual lease payments in F2019 and F2020, and the associated expenses (i.e. initial direct costs, depreciation expense, finance costs, etc.) under this standard.

- 49.1.2 If confirmed, please clarify whether BC Hydro will be classifying the Lease as a “finance lease” or an “operating lease” as defined in IAS 17, and the rationale behind this assessment.
- 49.1.2.1 Please provide an analysis of the classification of the Lease based on each of the criteria/examples listed under paragraphs 10 and 11 in IAS17.
- 49.1.2.2 Please provide the “interest rate implicit in the lease” as defined in IAS 17.
- 49.1.2.3 Please provide the accounting entry for the initial recognition of the Lease, the annual lease payments in F2019 and F2020, and the associated expenses (i.e. initial direct costs, depreciation expense, finance costs, etc.) under the scenario that it is classified as (i) a “finance lease”, (ii) an “operating lease” as defined in IAS 17. Please also show how each of the amounts in the accounting entry was calculated.
- 49.2 Please confirm that the \$1.203 billion purchase price equals the fair value of the Waneta Assets, exclusive of the lease. Please explain why or why not.
- 49.3 Please confirm that the proposed lease payments in the Lease Agreement are at market rates. Please explain why or why not.

**50.0 Reference: Lease payments and post-lease payments
Exhibit B-1, p. 4-6; Business Case, p. 45**

- 50.1 Please confirm, or explain otherwise, that BC Hydro is not requesting approval under sections 59–61 of the UCA of the Lease Agreement or the proposed lease payments under the agreement.
- 50.1.1 Please explain why BC Hydro considers approval under sections 59–61 of the UCA to be necessary or unnecessary.
- 50.2 Please confirm, or explain otherwise, that BC Hydro is proposing to include the \$1.203 billion purchase price of the Waneta Assets and the actual transaction costs (currently estimated at \$50 million) in BC Hydro’s rate base.
- 50.2.1 Please provide the incremental cumulative rate impact (figure and data) of the Waneta 2017 Transaction. Please also provide the incremental revenue requirement, the amount offset by the revenue from the lease agreement, and the amount remaining to be recovered from ratepayers.
- 50.2.1.1 Would these amounts change if the Lease is classified as (i) a finance lease or (ii) an operating lease as defined in IAS 17? Please explain.
- 50.2.1.2 Please provide a comparison of the rate impact of the Waneta 2017 Transaction versus the no-go scenarios listed under section 4.3 of the Business Case.
- 50.3 Please clarify if and when BC Hydro proposes to include the \$20 million for the Transmission Assets in rate base.
- 50.4 Please briefly describe how the lease payments were derived.
- 50.5 Please confirm that the rate charged to Teck under the Lease Agreement is equivalent to \$40/MWh for the first 20 years of the Lease Period and \$53/MWh for the 10-year extension period of the lease as referenced on page 45 of the Business Case. If not confirmed, please explain.
- 50.6 Under the scenario that BC Hydro purchased the Waneta Assets, but Teck purchased energy directly from BC Hydro instead of leasing back the assets, what would be the rate charged to

Teck during and after the “lease period”?

50.6.1 Please clarify if the rate charged to Teck would be different if the Waneta Assets were sold to a third party and Teck purchased energy directly from BC Hydro instead of leasing back the assets. If so, please explain and quantify the difference.

50.6.2 Please confirm, or explain otherwise, that if Teck were to purchase energy directly from BC Hydro, then it would be taking service under Rate Schedule 1823.

50.7 Please compare the per MWh rate under the lease agreement with the rate that would have been charged to Teck for the equivalent amount of energy if Teck were to purchase the energy directly from BC Hydro.

50.7.1 Please discuss how the rate under the lease agreement is “fair, just and reasonable” from a ratemaking perspective.

**51.0 Reference: Annual lease payment
Exhibit B-1, Appendix F, p. 6**

51.1 On page 6 of Appendix F of BC Hydro’s Application, Please explain why the annual lease payment decreases from \$103.9 million in Lease Year 18 to \$103.1 million in Lease Year 19.

51.1.1 If this is incorrect, please provide an updated lease schedule.

C. CO POSSESSOR AND OPERATING AGREEMENT

**52.0 Reference: Manager
Exhibit B-1, Appendix H, p. 65**

On page 65 of the COPOA under section 8.1(b) it states: “The Co-Possessors acknowledge that FortisBC is the Manager.” Section 8.1 (a) also states: “The Operator (if it is also a Co-Possessor) may, subject to the provision of the Management Agreement, remove the manager at anytime.”

52.1 What length of the term has FortisBC been assigned as Manager?

52.1.1 If FortisBC’s role as Manager were to cease, would BC Hydro consider appointing themselves as the Manager at any time during the lease term? Please elaborate.

52.1.2 Please compare BC Hydro’s operational management costs to FortisBC’s management costs.

D. RATE RELATED REQUESTS

**53.0 Reference: Line 71 Agreement
Exhibit B-1, Section 2.5.5, pp. 2-18-2-19; Order G-34-04, Appendix A (OIC 285)**

BC Hydro states that:

The Line 71 Agreement is an agreement between Teck and BC Hydro. It was entered into in 2002 for the purpose of confirming and clarifying Teck’s historical rights to transmission access to and from the U.S. on Line 71 that existed prior to BC Hydro becoming the control area operator under the CPA. It has been amended once, in 2003, to account for the interconnection of Line 71 with BC Hydro’s Nelway Station. The Line 71 Agreement, as amended, has previously been filed in confidence with the Commission.

BC Hydro further states: “The transmission capacity made available to Teck reflects its historical right to

access the U.S. system for both exports and imports on an unregulated, merchant-basis.”

- 53.1 What is the basis for Teck’s historical transmission rights to access the US system for imports and exports on an unregulated, merchant-basis?
- 53.1.1 What does “merchant–basis” mean?
- 53.2 Why does transmission capacity have to be made available to Teck on Line 71 since Teck is the owner of Line 71?
- 53.3 Did BC Hydro become the control area operator under the original CPA, dated August 1, 1972? If not, when did BC Hydro become the control area operator?
- 53.3.1 Please explain what issues might have arisen between the time when BC Hydro became the control area operator and 2002 due to a lack of agreement confirming and clarifying Teck’s historical rights.
- 53.4 Please provide a copy of Line 71 Agreement, as amended.

BC Hydro states: “When Line 71 is looped through the Nelway Substation, Teck's historical Line 71 rights are effectively provided by BC Hydro. To avoid inconsistencies with BC Hydro's Line 71 obligations and its obligations under its OATT, BC Hydro was exempted from section 61(3) of the *UCA* as it applies to the OATT in regard to power flows on BC Hydro's system that would historically have been on Line 71.”⁶⁶ “Footnote 66: Commission Order G-34-04.”

In Appendix C to Appendix N to the Application, BC Hydro references the 1987 letter agreement for FortisBC rights to Line 71 use whereby Teck provides wheeling services to FortisBC.

- 53.5 Please clarify whether FortisBC rights to use Line 71 are also effectively provided by BC Hydro.
- 53.5.1 If yes, please clarify whether the 1987 letter agreement is consistent with BC Hydro’s Line 71 obligations under its OATT.

BC hydro states that:

Provided Teck still has a smelter load in Trail, BC Hydro will provide a wheeling service to Teck that maintains Teck’s rights to access wholesale power markets in the U.S. for import purposes to serve its smelter load, consistent with the rights it has under the Line 71 Agreement at the end of the Lease Period. The wheeling service will be provided by way of the Teck Wheeling Agreement. That agreement will continue to grandfather Teck's right to use Line 71 scheduling rights for import load-serving purposes as it has been used since it was built by Teck's corporate predecessors. BC Hydro expects that the Line 71 Agreement will come to an end at the end of the Lease Period.

- 53.6 Since BC Hydro expects the Line 71 Agreement to come to an end at the end of the Lease Period and since the Teck Wheeling Agreement is designed to grandfather Teck’s rights under the Line 71 Agreement, what happens to Order G-34-04 once the Line 71 Agreement comes to an end? Does it de facto expire?
- 53.7 Please clarify whether BC Hydro is looking for the same type of exemption from the Commission for the Teck Wheeling Agreement as it had for the Line 71 Agreement.

Order in Council No. 285 from 2004 ordered that: “approval is given to the British Columbia Utilities Commission to issue an order to exempt BC Hydro from the application of Section 61(3) of the Utilities Commission Act for the purposes, and subject to terms, substantially set out in the attached draft order of the British Columbia Utilities Commission.”

53.8 Does BC Hydro expect that it would require a similar OIC to exempt the Teck Wheeling Agreement from section 61(3) of the UCA?

**54.0 Reference: Waneta Transmission Agreement
Exhibit B-1, Section 3.2.11, pp. 3-20–3-21**

BC Hydro states that: “At the expiry or termination of the Lease, the Waneta Transmission Agreement will provide for the sale of the Transmission Assets to BC Hydro, including Line 71, for \$20 million.¹⁰⁰”
Footnote 100: “In dollars at the time of purchase.”

54.1 How does BC Hydro take into account depreciation of the Transmission Assets by purchasing them for \$20 million (nominal) regardless of time of purchase?

BC Hydro states that: “Because Teck will continue as owner/operator of the Transmission Assets during the Lease Period, provisions will be included in the Waneta Transmission Agreement that require Teck to use commercially reasonable efforts to extend the time for exercising its options to purchase capacity and/or asset rights on Lines 62, 77 and 79 until 90 days after expiry or earlier termination of the Lease.”

54.2 What is the expected outcome/benefit to BC Hydro if Teck’s efforts to extend the time to exercise its option are successful.

54.3 What is the expected outcome/implications for BC Hydro if Teck’s efforts to extend the time to exercise its option are not successful.

**55.0 Reference: Teck Wheeling Agreement
Exhibit B-1, Section 3.2.12, pp. 3-21–3-22**

BC hydro states: “The Teck Wheeling Agreement is intended to maintain Teck’s long-standing rights to import electricity to serve its Trail smelter load when it is economic to do so.”

55.1 Please discuss the probability of these imports being economic after the Lease Period, taking into account the forecast market price at the BC Border versus the tariff under which BC Hydro would be selling energy to Teck.

BC Hydro states that: “The schedule and curtailment priority for Teck’s imports under the Teck Wheeling Agreement will be equivalent to its (import) scheduling rights under the Line 71 Agreement at the end of the Lease Period.”

55.2 Please discuss whether there will be a mechanism included in the Teck Wheeling Agreement to adjust the schedule and curtailment priority for Teck’s import over time after the Lease Period.

BC Hydro states that: “Wheeling will be provided to Teck at no cost, other than a share of eligible operating costs based on use.”

55.3 Please quantify BC Hydro’s cost of opportunity of providing 300 MW of import wheeling services to Teck at no cost. Please provide the assumptions used in the calculations.

**56.0 Reference: Cost of service
Exhibit B-1, p. 4-7; Business Case, pp. 13–15**

On page 14 of the Business Case, BC Hydro states the following:

The ongoing capital cost requirements have been recognized as incurred – in practice these costs would be [amortized] over periods specific to the nature of the capital expenditure.

An estimated amount for the amortization of the initial purchase price, based on the simplifying assumption that the purchase price will be depreciated over the 40-year economic planning life of the 2/3 Interest.

An estimated amount for the incremental interest payments that would be incurred on the financing of the initial purchase price. These amounts are based on BC Hydro's current interest rate forecast.

- 56.1 Please reproduce, to the best of your ability, the information in Figure 1: Operational Cost of Service for 2/3 Interest, with the amortization expense of the ongoing capital cost instead of the incurred ongoing capital cost requirements. Please also provide the assumptions used.
- 56.2 Please confirm that the amortization of the initial capital is based on the initial purchase price of \$1.203 billion plus \$50 million in transaction costs. If not confirmed, please explain.
- 56.3 Please confirm that the incremental interest payments are based on BC Hydro's assumed financing rate of 3.4 percent (Application, section 4.1.5). If not confirmed, please explain.
- 56.4 Please confirm that Figure 1 includes the amortization costs of the transmission assets from fiscal 2038 onwards. If not confirmed, please explain.
- 56.5 Please confirm that the cost of service does not include a return on investment.
 - 56.5.1 If confirmed, please explain why there is no return on investment.
 - 56.5.2 If not confirmed, please explain and clarify if Figure 1 needs to be updated to show a return on investment.
- 56.6 Please update Figure 1 with the information above, as applicable.
- 56.7 Please provide the information in the original and updated Figure 1 in table format.

On page 13 of the Business Case, BC Hydro states the following:

Additional capital within the Lease Term of ~\$300 million for the full facility to reflect investments that are anticipated to be required based on BC Hydro's assessment of asset condition against current BC Hydro standards. Note that a portion of these costs would be considered extraordinary capital with costs and shared by Teck, while BCH would be responsible for those projects considered upgrades. Sharing of extraordinary capital costs is done via pro-rating Teck's share based on the portion of the economic life of the investment that occurs during the Lease Term.

On page 4-7 of the Application, BC Hydro states the following:

Capital costs: ...BC Hydro will bear a share of unanticipated capital expenditures. For the purposes of the Waneta 2017 Business Case, these have been estimated, together, to be \$180 million (nominal dollars) for a 20-year Lease Period.... These values are expected to change once these investments are reviewed and prioritized as part of BC Hydro's Enterprise Capital Planning processes. This amount may increase should Teck extend the Lease Period to 30 years.

- 56.8 Please clarify if the ongoing capital cost requirements are expected to increase the economic life of the asset beyond the 40 years that is currently estimated. If so, by how much?

**57.0 Reference: Requested accounting orders
Exhibit B-1, pp. 1-19 – 1-20**

- 57.1 Please confirm that neither the incremental revenue nor the expenditures associated with the

Waneta 2017 Transaction have been included in the Fiscal 2017 to Fiscal 2019 Revenue Requirement Application. If not confirmed, please explain.

- 57.2 Please clarify if the lease revenue is revenue from leasing an asset that is used by the lessee to generate energy or revenue from the sale of energy.
- 57.3 Please provide the rationale for deferring the variance from the F2019 forecast and actual lease revenue to the Non-Heritage Deferral Account (NHDA) versus a different deferral account.
- 57.4 Please clarify why BC Hydro is not requesting the F2019 cost of service associated with the Waneta Assets, other than the amortization of capital additions and financing charges, to also be deferred to regulatory accounts.
- 57.4.1 If BC Hydro is requesting the F2019 cost of service associated with the Waneta Assets, other than the amortization of capital additions and financing charges, to also be deferred to a regulatory account, please provide a breakdown of the cost of service amount requested for deferral to the NHDA and other regulatory accounts.
- 57.4.2 Please clarify if for F2020 and onwards, BC Hydro plans to defer the variance between the actual and forecast costs related to the Waneta Assets to the NHDA.
- 57.4.3 Please confirm, or explain otherwise, that the amortization of capital additions and financing charges associated with the Waneta 2017 Transaction for F2019 and only the variances between actual and forecast costs for the fiscal years thereafter will be deferred to the Amortization of Capital Additions Regulatory Account and Total Finance Charges Regulatory Account, respectively.
- 57.4.4 Please confirm, or explain otherwise, that the forecast cost of service associated with the Waneta Assets will be added to the revenue requirement of future test periods.

On pages 1-19 to 1-20 of the Application, BC Hydro states the following:

With regard to capital expenditures incurred by Teck, BC Hydro will have to recognize the resulting capital additions, and will also be required to recognize a corresponding amount as revenue in the year of each addition.

...BC Hydro expects the annual incremental revenue and offsetting amortization will be relatively modest amounts...so [intergenerational equity] concerns are quite minor relative to the more complex accounting arrangements that would be required to otherwise deal with the issue.

...BC Hydro seeks an order allowing it to defer to the NHDA the revenue it will be required to recognize from time to time in consequence of Teck's capital additions at Waneta. This order would be applicable until the end of the Lease Period.

- 57.5 Please confirm, or explain otherwise, that if BC Hydro's request to defer to the NHDA the revenue required to be recognized resulting from Teck's capital additions at Waneta is approved by the Commission, there would be an intergenerational equity concern or timing difference between the amortization period of the capital additions, the NHDA, the Amortization of Capital Additions Regulatory Account and the Total Finance Charges Regulatory Account.
- 57.5.1 Please provide the amortization period of Teck's capital additions at Waneta, the NHDA, the Amortization of Capital Additions Regulatory Account and the Total Finance Charges Regulatory Account.
- 57.5.2 If BC Hydro's request was not approved, please describe the "alternative accounting arrangement" that would be required to deal with this issue and the incremental administrative costs associated with this arrangement.

57.6 Please clarify if each of the proposed adjustments to the NHDA would reduce the NHDA balance thereby reducing the amount that may need to be recovered from ratepayers.

E. REGULATORY MATTERS

58.0 Reference: BCUC Site C Inquiry proceeding

On October 30, 2017 BC Hydro filed this Application. On November 1, 2017 the Commission issued its Final Report on the Site C Inquiry.

58.1 Please incorporate into this proceeding any relevant BC Hydro responses to information requests that BC Hydro provided in the Site C Inquiry proceeding. In addition, if any changes to this Application are required as a result of the Site C Inquiry Final Report findings, please update the information in this Application accordingly.

59.0 Reference: Waneta Transmission Agreement, Teck Wheeling Agreement, Waneta Interconnection Agreement, risk register Exhibit B-1, cover letter, p. 5

On page 5 of the Application's covering letter BC Hydro explains: "All the agreements contemplated by the Transmission Agreement Term Sheet (Transmission Agreements) will be filed with the Commission as soon as they are complete. BC Hydro expects to be able to file the Transmission Agreements before the anticipated second round of information requests arising from the Application, likely in late 2017."

In addition BC Hydro states: "Similar to the application regarding the Waneta 2010 Transaction, BC Hydro will also prepare and file a "risk register" with the Commission for the Waneta 2017 Transaction. BC Hydro expects to be able to file the risk register with its filing of the Transmission Agreements, before the anticipated second round of information requests."

59.1 If BC Hydro is not able to file the Transmission Agreements or the risk register before the response to IR 1, please provide an update on the progress of filing these documents.

60.0 Reference: Public utility Exhibit B-1, p. 3-3; Appendix E, p. 6.

From the *Utilities Commission Act* definitions:

"public utility" means a person, or the person's lessee, trustee, receiver or liquidator, who owns or operates in British Columbia, equipment or facilities for

- (a) the production, generation, storage, transmission, sale, delivery or provision of electricity, natural gas, steam or any other agent for the production of light, heat, cold or power to or for the public or a corporation for compensation, or
- (b) the conveyance or transmission of information, messages or communications by guided or unguided electromagnetic waves, including systems of cable, microwave, optical fibre or radio communications if that service is offered to the public for compensation, but does not include
- (c) a municipality or regional district in respect of services provided by the municipality or regional district within its own boundaries,
- (d) a person not otherwise a public utility who provides the service or commodity only to the person or the person's employees or tenants, if the service or commodity is not resold to or used by others,

- (e) a person not otherwise a public utility who is engaged in the petroleum industry or in the wellhead production of oil, natural gas or other natural petroleum substances,
- (f) a person not otherwise a public utility who is engaged in the production of a geothermal resource, as defined in the *Geothermal Resources Act*, or
- (g) a person, other than the authority, who enters into or is created by, under or in furtherance of an agreement designated under section 12 (9) of the *Hydro and Power Authority Act*, in respect of anything done, owned or operated under or in relation to that agreement;

In footnote 76 on page 3-3 of the Application, BC Hydro notes “The Fortis Transaction contemplates a transaction with a non-Crown corporation that is not a regulated utility.”

- 60.1 In the situation where BC Hydro completes the Transaction, would the purchase and lease back, and/or the future transmission purchase, be considered regulated activities of a public utility? Please elaborate.
- 60.2 In the situation where FortisBC completed a similar transaction, would the purchase and lease back be considered regulated activities of a public utility? Please elaborate.
- 60.3 If Fortis Inc. completed the Fortis Transaction, does BC Hydro believe that Fortis Inc. would be considered a regulated public utility? Please elaborate.

On page 6 of the Waneta Purchase Agreement it refers to: “‘Exemption Order’ means the exemption order dated March 29, 1996 and made pursuant to then section 27 (now section 22) of the Utilities Commission Act, which exempts TML from most of the provisions of Part 3 of the *Utilities Commission Act*;”

- 60.4 Please provide a copy of the “Exemption Order” and elaborate on its relevance to this Application.

**61.0 Reference: Fortis Inc. / FortisBC Inc.
Exhibit B-1, p. 3-3; Appendix B, p. 1**

On page 3-3 it states: “The Sale Notice sets out Teck’s offer to sell its two-thirds interest in Waneta to BC Hydro on substantially the same terms as provided for in the Fortis Transaction (with the exception of the Transmission Assets).”

In footnote 75 it reads: “As noted in the previous section, under the terms of the COA, BC Hydro does not have the right to significantly vary the terms of the offered transaction and as a result, the key agreements forming the Waneta 2017 Transaction are substantially similar to the Fortis Transaction.”

On page 1 of Appendix B to the Application the Sale Notice refers to the Fortis Inc. / Teck Waneta Purchase Agreement being attached to the Sale Notice.

- 61.1 Please provide a copy of the Fortis Inc. / Teck Waneta Purchase Agreement and compare it to the Transaction Waneta Purchase Agreement in a similar manner as the comparison provided in Appendix G to the Application.
- 61.2 Please evaluate the risk of litigation by Fortis Inc. in the event the Waneta 2017 Transaction completes.
- 61.3 If available, please provide a copy of the Fortis Transaction.

61.4 If the Transaction is approved, could BC Hydro sell a portion of its 2/3 interest (or existing 1/3 interest) to another entity (e.g. Fortis Inc. or FortisBC Inc.) or does the CEA prevent this disposition? Please elaborate.

**62.0 Reference: *Water Sustainability Act*
Exhibit B-1, pp. 3-6-3-7**

On pages 3-6 and 3-7 BC Hydro submits: “the Lease effectively maintains the status quo for 20 years (renewable to 30 years) and allows Teck to continue to be an ‘owner’ of Waneta for the purposes of the *Water Sustainability Act*.”

And in footnote 84, “SBC 2014 c 15, see section 1 of the *Water Sustainability Act* which provides that an ‘owner’ in relation to land, a mine or undertaking in B.C., means a person who is entitled to possession of the land, mine or undertaking, or, has a substantial interest in the land, mine or undertaking.”

On page 3-12 BC Hydro also explains: “The provisions dealing with water rental fees in the COPOA are essentially the same as were provided for in the COA. The COPOA maintains that each party is responsible for its own water rental fees based on its participation percentage (i.e., Teck pays two-thirds and BC Hydro pays one-third). Should the water rental fee structure change for Teck during the term of the Lease, the COPOA provides that Teck will continue to be responsible for any changed water rental fees. Section 11 of the COPOA provides further details with respect to water rental fees.”

62.1 Please elaborate on BC Hydro’s interpretation of the *Water Sustainability Act* and the purpose of allowing Teck to continue to be “owner” of Waneta.

62.2 Please confirm, otherwise explain, that BC Hydro’s interpretation of the *Water Sustainability Act* and the structure of the Transaction would result in lower water rental fees being paid to the government than would otherwise be required had BC Hydro made a straight forward fee simple purchase followed by sale of energy back to Teck under RS 1823.

**63.0 Reference: *Obligation to serve / service territory*
Exhibit B-1, p. 4-19**

On page 4-19 of the Application, BC Hydro explains:

... a decision to not issue the Reply Notice would have resulted in the Waneta Assets being purchased by Fortis Inc., an unregulated affiliate of FortisBC with no obligation to serve domestic load in BC. For its part, FortisBC has its own generation, load-serving obligations and, importantly, is a customer of BC Hydro under Rate Schedule 3808 - Power Purchase Agreement (3808 PPA), which is due to expire in 2033. Finally, BC Hydro also considered that as a Crown corporation and an agent of the government, load-serving obligations could be imposed on it in the future that it does not currently have and that would not necessarily be imposed upon non-Crown utilities.

63.1 Assuming today Teck’s smelter was not self-supplied and it requested service, would BC Hydro have an obligation to provide service? If so, why? If not, why not? Similarly, if Teck requested FortisBC Inc. (FBC) to provide service, would FBC have an obligation to serve Teck? Please elaborate.

63.2 Assuming the Lease Period has ended and Teck’s smelter requested service, would BC Hydro have an obligation to provide service? If so, why? If not, why not? Similarly, if Teck requested FBC to provide service, would FBC have an obligation to serve Teck? Please elaborate.

63.3 Is Teck considered to be in the service territory of FBC, BC Hydro, or neither? Please elaborate.

- 63.4 Presently, could FBC serve Teck from line 62? Please elaborate.
- 63.5 If Fortis Inc. completed the transaction and purchased the Transmission Assets, would this improve FortisBC's access to international markets? If BC Hydro completed the transaction and purchased the Transmission Assets, would this improve BC Hydro's access to international markets? Please elaborate.

**64.0 Reference: Requested rate freeze
BC Hydro F2017-F2019 RRA, Exhibit B-23**

On November 8, 2017, BC Hydro wrote to the Commission:

...pursuant to sections 58-60 of the Utilities Commission Act, to amend our requests as they relate to fiscal 2019 as follows:

(i) Change the requested rate increase for fiscal 2019 from 3 per cent to 0 per cent, and

(ii) Request that Open Access Transmission Tariff (OATT) rates for fiscal 2019 remain unchanged from fiscal 2018.

- 64.1 Does the above request, approved or not, in any way affect the potential value, risk or benefits of the Transaction? Or vice versa, would the Transaction, if approved, support the rate freeze request? Please elaborate.