

REQUESTOR NAME: **Clean Energy Association of B.C. (CEBC)**

INFORMATION REQUEST ROUND NO: **1**

TO: **BRITISH COLUMBIA HYDRO & POWER AUTHORITY**

DATE: January 5, 2018

PROJECT NO: 1598933

APPLICATION NAME: **Waneta 2017 Transaction Application (“Waneta 2017” or “Application”)**

1.0 Reference: Exhibit B-1, Application, Section 1.2, page 1-3, Summary Project Description

1.1 Does the following statement correctly summarize the core elements of this transaction?

The transaction consists of the purchase and lease-back of a 2/3 interest in a 64 year old run-of-river hydro dam and its accompanying 490 MW generating station and 25 km transmission line. More particularly, it is a \$1.203 billion purchase, by BC Hydro from Teck, with Teck having a 20 year lease-back and an option to extend that lease-back to 30 years. After the Lease Period BC Hydro will have unencumbered ownership of 100% of the facility (when combined with the BC Hydro’s existing 1/3 ownership). However, during the Lease Period, Teck will have the rights to all of the energy and capacity associated with the 2/3 share, which it can use to serve its smelter load or sell on the wholesale market.

1.2 As the lessee, what will be Teck’s obligations to fund ongoing capital expenditures to sustain or extend the life of the facilities? Please explain how the appropriate maintenance expenditures and sustaining or extending capital expenditures will be determined, and how they will be shared between BC Hydro and Teck.

1.3 Since sustaining or extending capital expenditures will have benefits that extend well beyond the 20 year lease period, how will Teck’s payment obligations be adjusted for these extended benefits?

1.4 As the lessee, what will be Teck’s responsibilities for any environmental liabilities related to the facility, financial or otherwise, whether existing or determined in the future, whether local or downstream?

1.5 As the owner, what will be BC Hydro’s responsibilities for any such environmental liabilities, existing or future, local or downstream?

1.6 If the dam or generating station is damaged, destroyed, or curtailed for any reason, what are BC Hydro’s obligations to continue to supply Teck with a 2/3 share of 490 MW of energy and capacity, on a continuous basis for up to 30 years? What would be Teck’s ongoing payment obligations in this event?

2.0 Reference: Exhibit B-1, Application, Section 1.2, page 1-3, Summary Project Description

On page 1-3, regarding the “Waneta 2017 Transaction”, BC Hydro states:

“During the Lease Period, Teck will receive energy and capacity consistent with its two-thirds leasehold interest in the facility... to serve its smelter load or to sell on wholesale markets to the extent it is currently able to do so.”

And, on page 1-4, BC Hydro states:

“During the Lease Period there will be no difference in the operation of Waneta, as a result of the sale of the Waneta Assets, relative to the current arrangements.”

- 2.1 If the Waneta 2017 Transaction is viewed from Teck’s point of view, is it fair to conclude that, during the Lease Period, Teck will enjoy exactly the same benefits and obligations as it currently enjoys as the owner of the assets – with the only exception being that it will receive \$1.203 billion from the sale, in 2018, and it will have to make the prescribed lease payments for the next 20 to 30 years? Are there any other differences, from Teck’s point of view, during the Lease Period?
- 2.2 Will Teck, as the lessee during the Lease Period, have the same exposure to environmental liabilities, as compared to its current position as the owner of the Waneta Assets?
- 2.3 After the Lease Period, will Teck have the same exposure to environmental liabilities, as compared to its current position as the owner of the Waneta Assets?

3.0 **Reference: Exhibit B-1, Application, Section 1.2, page 1-3, Summary Project Description**

Regarding the Teck lease-back, BC Hydro states:

“Teck’s annual lease payments will start at approximately \$74 million, escalating at 2 per cent per year, for the first 20 years. If Teck exercises its option to extend the Lease Period to thirty years, annual lease payments will commence in year 21 at approximately \$144 million, again escalating at 2 per cent per year;...”

- 3.1 Is the 2% escalation a simple or compound rate? Assuming it’s a compound rate of increase, the annual payment should only reach a level of \$110 million by year 21. Please explain why it jumps to \$144 million at that time.
- 3.2 If we consider the purchase and lease-back as an isolated financial transaction, what is the present value of this transaction to BC Hydro, if: a) it is terminated after 20 years, or if b) it is extended, at Teck’s option, to 30 years.
- 3.3 If we isolate the purchase and lease-back as a financial transaction, what is the implicit interest rate of the lease payments versus the \$1.203 billion principal sum (i.e. what is the interest rate that equates the present value of the payments to the present value of the principal sum?):
 - a) if the lease payments run for the initial period of 20 years, or
 - b) if the lease payments are extended for the full 30 years?
- 3.4 Please provide a spreadsheet analysis (in a working Excel model), showing BC Hydro’s calculation of the present values of this sale and lease-back transaction, and also demonstrating the implied interest rates as given in the responses to the previous two questions.
- 3.5 Under what conditions would BC Hydro expect Teck to exercise its option to extend the lease from 20 to 30 years? What would be the benefits to Teck of such an extension, and what would be its costs? Under what circumstances would Teck’s benefits, by extending the lease, exceed its costs?
- 3.6 Does Teck have the option to extend the lease for any period less than an additional 10 years?

4.0 **Reference: Exhibit B-1, Application, Cover letter, page 3 of 7, and Section 1.4.2, page 1-13 (28 of 639), Events Leading to Waneta 2017 Transaction**

In its cover letter, BC Hydro states:

"Because it arises through the exercise by BC Hydro of its ROFO following upon a competitive sale process undertaken by Teck, ratepayers and the Commission can be assured that the transaction price reflects market value. In all respects, the Waneta 2017 Transaction is cost-effective and in the public interest."

And in Section 1.4.2, BC Hydro states:

"Six parties were invited into the second phase of the process in which bidders were provided access to an extensive confidential data room, meetings with management and site visits. After review of a number of binding proposals, and following weeks of negotiations with bidders, Teck ultimately accepted an arm's length negotiated bid from Fortis Inc. which was publicly announced in May 2017."

- 4.1 Does Teck or its parent company, Teck Resources, or any affiliated companies, still have any ownership position in Fortis Inc.? If so, please give the details of any and all such ownership.
- 4.2 Please give the names of the final six parties that reached the 'second phase of the process', and also give a description of these six parties, including their location, financial size, nature of their business, and customer base, in so far as the information is already public knowledge, or is not prohibited by any confidentiality agreements.
- 4.3 Did any of these final six parties have operations or customers in the vicinity of the Waneta facilities that are comparable to those that Fortis has? Did any of these final six parties have operational experience with the Waneta facilities in the same way that Fortis does?
- 4.4 How many of the final six parties made binding proposals?

5.0 **Reference: Exhibit B-1, Application, Section 1.5, page 1-15, the positive NPV of the 2017 Waneta Transaction**

BC Hydro states that, *"Even if the \$50 million transaction costs are incurred, the transaction still has a positive NPV."*

- 5.1 Please provide the working Excel model that calculates the NPV to support this statement.

6.0 **Reference: Exhibit B-1, Application, Section 1.5.3.2, page 1-15, Additional Consideration (OMA and Capex)**

BC Hydro states, *"Under the terms of COPOA, Teck is required to pay operating and sustaining capital cost to BC Hydro associated with its two-thirds (lease hold) interest in Waneta."*

- 6.1 During the lease period, if Teck reduces the amount of energy it takes from the project below the two-thirds share, will its payments of either operating or capital costs be reduced proportionately?
- 6.2 After the end of the lease period (either 20 years or 30 years, or earlier if terminated), please describe what obligations Teck will have, if any, to pay operating or capital costs, decommissioning costs, or any incurred environmental liabilities.
- 6.3 After the end of the lease period (either 20 years or 30 years, or earlier if terminated), can Teck continue to take energy or capacity from the Waneta facilities? If so, what payments would Teck

be obligated to make for the energy or capacity it receives?

7.0 Reference: Exhibit B-1, Application, Section 4.11, page 4-30-31, Due Diligence

On page 4-30, in referring to the 2010 Waneta Transaction, BC Hydro states that, “*Studies and reviews were done in regard to the condition of the plant, environmental and public safety issues, as well as legal and financial due diligence. Outside experts were retained on a number of topics.*”

And, on page 4-31, BC Hydro concludes that, “*No new material environmental risks were identified, although it was recognized that BC Hydro’s 100 per cent ownership of Waneta and the evolving focus of environmental regulators could result in increased environmental-regulatory risks over time, consistent with risks of the same nature BC Hydro has with its current facilities.*”

- 7.1 Among the expert reports provided for the 2010 Waneta Transaction Application, there were two of particular interest and continuing relevance,
- one by Klohn Crippen Berger, entitled Technical Due Diligence, Condition Assessment and Capital Plan Review, and
 - one by Golder Associates, entitled Environment and Public Safety Issues.

Please provide copies of these two reports for the record of this proceeding.

- 7.2 If there have been updates to those reports or any new reports on dam or powerhouse condition or environmental and public safety issues, available since 2010, please provide them also. Please include the *Waneta Dam Condition Report* prepared by Hatch for Teck, dated March 15, 2017.

- 7.3 On pages 39-40 of the KCB report, it states that the Probable Maximum Flood (PMF) for the Waneta dam is 10,860 cms, whereas the spillway capacity is only 7,960 cms and, therefore:

“Under PMF flood conditions, the dam crest would be overtopped by 3.1 m.... this implies that the dam is not adequately stable under PMF conditions. If Waneta Dam were to be rated as a Very High or Extreme Consequence dam, additional anchoring would be required to satisfy stability requirements.”

What would be the consequences of this degree of overtopping, for the dam, the powerhouse, the Waneta Expansion powerhouse, or any downstream populations? What would be BC Hydro’s liability to the owners of the Waneta Expansion powerhouse in this event?

- 7.4 What others, of BC Hydro’s existing facilities, have a similar amount of overtopping risk? And what is BC Hydro doing to deal with the situation at those facilities?

- 7.5 What, if any, provisions are included in the Waneta capital plan to improve the dam’s stability or its ability to withstand PMF conditions?

- 7.6 On pages 40-42 of the Golder report, it states:

“Metals contamination of sediment at concentrations exceeding the Contaminated Sites Regulations’s (CSR) numeric sediment criteria was identified in the sediments of the forebay located immediately upstream of the northern dam abutment.

... Ion sediments exceed CSR standards or guidelines with respect to arsenic, cadmium, lead, mercury, and zinc.

... There is future potential liability associated with any structural change to Waneta Dam, including eventual decommissioning.

... Risk of re-suspension of sediments potential exists during future high flow events... There is a potential that this may become an issue with increased scrutiny of Trans-boundary contaminant

issues.”

Have any steps been taken, since the 2009 Golder report was issued, to lessen the risks of this heavy metal contamination reaching downstream residents in the event of future high flow events, or as a result of construction or other activities at the dam?

- 7.7 What others, of BC Hydro’s existing facilities, have a similar amount of heavy metals contamination? And what is BC Hydro doing to deal with the situation at those facilities?
- 7.8 Have any concerns been expressed by any downstream residents, particularly by any U.S. residents, about the potential for this heavy metal contamination being released on them? Please provide the details of these concerns or complaints, including any media coverage.
- 7.9 In the event that the dam is decommissioned, what would be the added costs to excavate the contaminated sediments and remove them to a safe storage location?

8.0 Reference: Exhibit B-1, Application, Appendix N, page 2 of 90 (Executive Summary) and Sub-Appendix B (Review of Waneta Capital Expenditure Forecasts)

In the Executive Summary on page 2, BC Hydro states:

“During the term of this lease:

- *Teck will receive the full entitlement energy and capacity from the facility*
- *Teck will be responsible for all the operating costs (including water rentals) and most capital costs (some major capital costs may be the responsibility of BC Hydro or shared)” [emphasis added]*

Sub-Appendix B (beginning on Appendix N page 58 of 90), contains some itemized forecasts of the ‘Estimated Capital Requirements’ in various categories such as ‘Dam Safety and Water Passage’. There is a comparison between BC Hydro’s estimates and Teck’s estimates, but almost all of the substantive information is redacted, except for a few summary statements, such as:

With regard to Dam Safety and Water Passage: *“The remaining gap between BC Hydro and the Seller’s forecasts is approximately \$170 million... over the initial 20 years...”*

And with regard to Powerhouse and Generating Units: *“The gap between BC Hydro and the Seller’s forecasts is approximately \$240 million... over the initial 20 years...”*

Section 4 of Sub-Appendix B includes the following charts, which give a summary comparison between BC Hydro’s and the Seller’s capital forecasts for three scenarios: 1) 70 year Life Extension; 2) 40-year Asset Harvesting using Leading Utility Practice; and 3) 40-year Asset Harvesting using Good Utility Practice.

Figure 1 – Life Extension Scenario with Leading Utility Practice

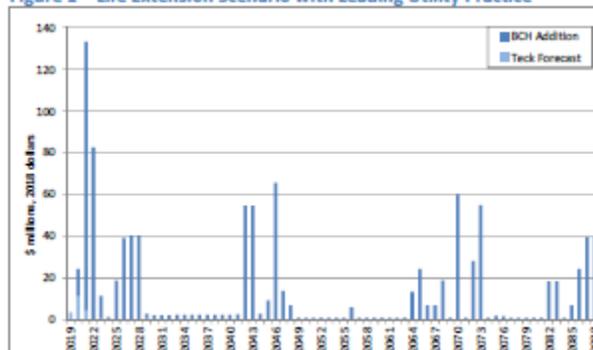


Figure 2 – Harvest Scenario with Leading Utility Practice

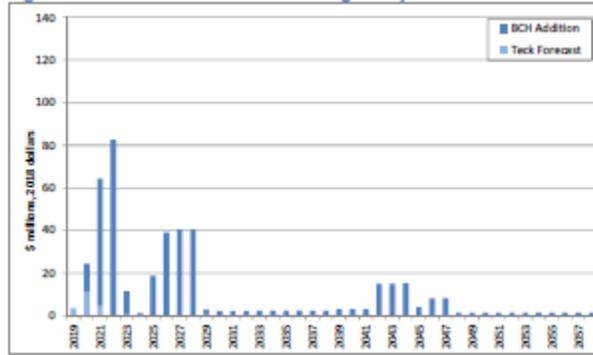
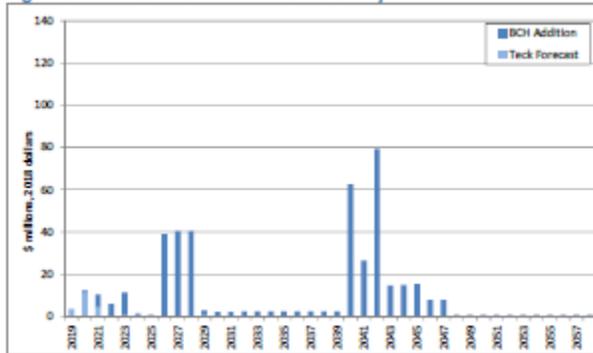


Figure 3 – Harvest Scenario with Good Utility Practice



- 8.1 Why is it deemed necessary to have such an incredible amount of redaction? Since all the terms of this deal have already been worked out, and these are only forecasts of possible future needs, what sensitive negotiations would be compromised by revealing these forecasts? Can BC Hydro please be less sweeping and more discriminatory in its use of redaction, confining it to only those specific items that could be commercially sensitive?
- 8.2 The charts reveal the total estimates and the differences between BC Hydro and the Seller, but it is extremely difficult, and potentially inaccurate to try to estimate the numbers from the charts. What is the total amount of the difference in each scenario: a) over the first 20 years; b) over the first 40 years; and c) over 70 years, in the case of the Live Extend scenario?
- 8.3 Please provide a working Excel model that contains the numbers that produced these charts.
- 8.4 Why is there such an enormous difference between Teck’s estimates and BC Hydro’s estimates? In view of the fact that Teck will have a 2/3 majority of the votes on the Operating Committee, will BC Hydro likely have to bear this difference in cost on its own account? How much of these differences does BC Hydro expect to be responsible for?
- 8.5 What amounts has BC Hydro included in its NPV analyses for these future capital expenditures?
- 8.6 Presumably in each Harvesting scenario, and even in the Extended Life scenario, there must be a decommissioning at the end of the asset life. What is BC Hydro’s estimate for the cost of this decommissioning? Are there different options for how the decommissioning would be performed? Please provide some degree of detail in these estimates.
- 8.7 Please compare the decommissioning estimates in the previous answer to the estimates for the decommissioning of the John Hart dam as presented in the John Hart CPCN Application, noting that the John Hart dam had several options, but none involved dealing with the cleanup of a mass of contaminated sediments, or a Trans-border situation involving another sovereign nation.

9.0 **Reference: Exhibit B-1, Application (p. 586/639), Appendix N (p. 71 of 90), Sub-Appendix C, Analysis of Waneta Transmission Options (p. 6 of 10), Table 2**

Table 2 summarizes the NPVs for the 3 considered options for acquiring the Line 71 Transmission assets or rights. Footnote 4 gives a link an Excel model which is located on a BC Hydro “extranet” site.

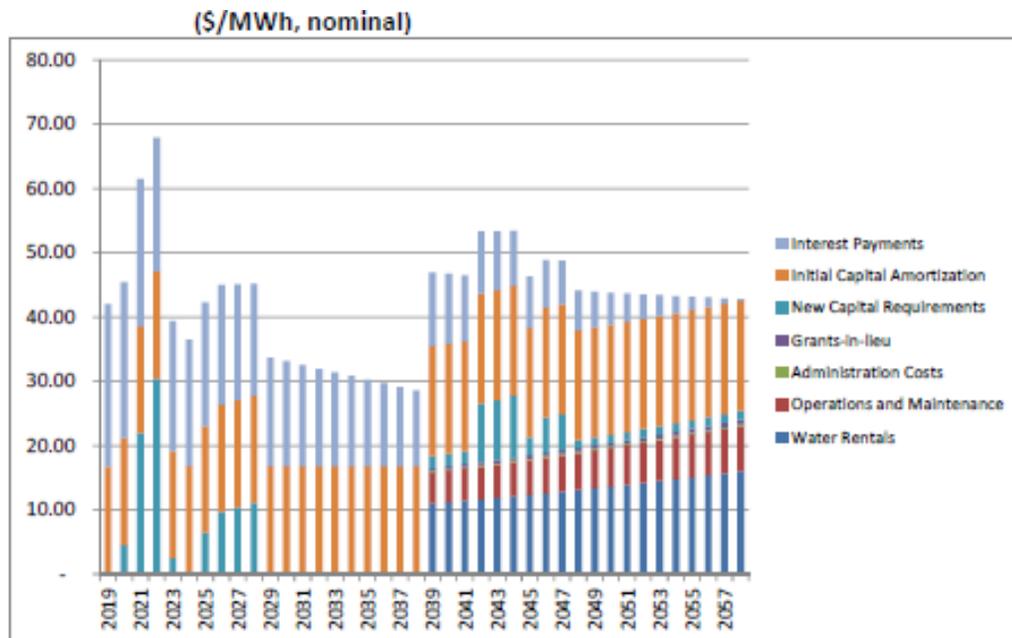
- 9.1 What confidentiality or other reasons are there for withholding access to the footnoted analysis model on the extranet site? If none, please provide access to it on the existing site, or on some other unrestricted site.
- 9.2 Otherwise, please provide a copy of the specific working Excel model used to calculate the NPVs in Table 2.

10.0 **Reference: Exhibit B-1, Application (page 529 of 639), Appendix N, Section 2.5 (Cost of Service) (page 14-15 of 90)**

Under Cost of Service, BC Hydro states:

“... 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. Note that, in reality, BC Hydro finances on a portfolio basis and this there would be no debt directly attributable to the purchase of the 2/3 interest.”

The chart on page 15 of 90 shows the components of the Cost of Service for the 40 year period:



- 10.1 Please provide a working Excel model that produces this chart.
- 10.2 What is the assumed interest rate being used for the calculation of the interest payments?
- 10.3 If BC Hydro calculates its Weighted Average Cost of Capital (WACC) at 6%, then why is that WACC not being used for this interest calculation? Is BC Hydro assuming the purchase price will be 100% financed by debt, even though it has a target debt to equity ratio of 60/40?

11.0 **Reference: Exhibit B-1, Application (page 534 of 639), Appendix N, Section 3.2.3 (Long-Run Marginal Cost) (page 19-20 of 90)**

BC Hydro states that, “The 20-year blended levelized Long Run Marginal Cost from F2038 to F2057 is approximately \$122/MWh (\$2018) for a Clean + Gas portfolio.

... 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”

And Table 3 gives the following summary:

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

11.1 Please provide the analyses used to calculate the LRMC values in Table 3, including a working Excel model and a list of the assumptions.

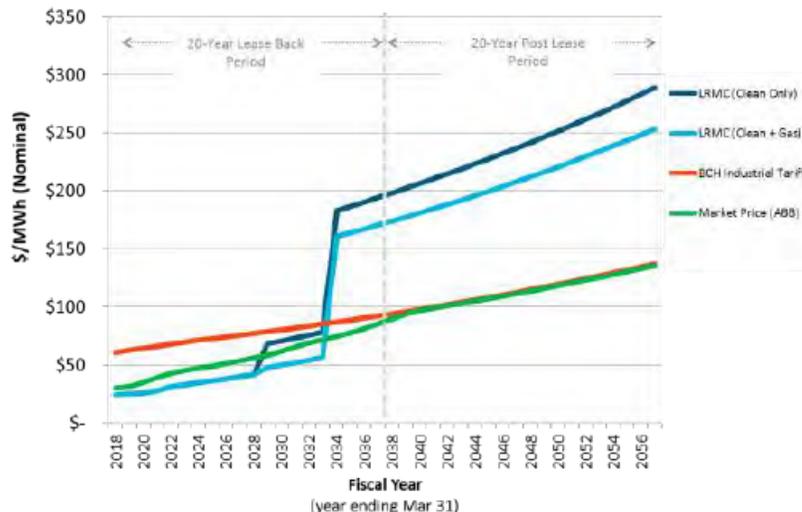
11.2 Do the quoted amounts of \$92 and \$88 for a combined cycle gas turbine refer to \$/MWh, as quoted, or \$/kW-yr, as shown in Table 3?

12.0 **Reference: Exhibit B-1, Application (page 535 of 639), Appendix N, Section 3.2.4 (Price Forecast Comparison) (page 20 of 90), and Appendix N-1 (pages 607-610 of 639)**

Figure 3 is intended to show the Capacity-Adjusted Energy Price Forecast Comparison, but it is entirely redacted. The same chart appears in Appendix N-1, with only the “Extrapolated” Market Price redacted.

**Figure 3 from Waneta 2017 Business Case:
Capacity-Adjusted Energy Price Forecast Comparison**

Without "Extrapolated" Market Price Curve



- 12.1 Why is any redaction deemed necessary and, in particular, why is the “Extrapolated” Market Price considered such a sensitive forecast that it needs to be redacted? What sensitive negotiations could possibly be compromised by revealing this forecast?
- 12.2 Please provide a working Excel model that produces the chart in Figure 3, and also all of the other charts included in Appendix N-1 (i.e. Figures 3, 4, 5, 6, and 8), with the “Extrapolated” Market Price Curve included, if possible.

13.0 Reference: Exhibit B-1, Application (page 537 of 639), Appendix N, Section 4.2.1 (Unit Energy Cost Assessment) (page 22-23 of 90)

On page 23, 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 the 20-year lease is \$792 million

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

... the effective UEC for the period following the initial 20-year term of the Lease Agreement, as this represents a measure of the ‘at risk’ component of the purchase. This is calculated by subtracting the Lease Agreement PV (~\$792 million as above) from the purchase price and calculating a UEC for the final 20 years based on the remaining purchase price. This provides an effective UEC for the value of the 2/3 Interest following the Lease Agreement.

Table 4 shows the effective UEC for both the full 40-year evaluation period and the 20-year period following the Lease Term.”

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

(Above numbers rounded to the nearest 0.25)

- 13.1 Please provide a working Excel model that calculates the quoted figures of \$792 million and \$1,118 million, including all the assumptions being used
- 13.2 Please also provide a model that calculates the values shown in Table 4.

14.0 Reference: Exhibit B-1, Application (page 539 of 639), Appendix N, Section 4.2.2 (Core NPV Analysis) (page 24-29 of 90)

This section on core NPV Analysis displays a series of Tables (Table 5 through Table 8) showing various aspects of the calculated NPVs.

- 14.1 Please provide the working Excel models that calculate all of these Tables (Table 5 through Table 8), complete with all the assumptions being used for the calculations.

15.0 Reference: Exhibit B-1, Application (page 544 of 639), Appendix N, Section 4.2.3 (Sensitivity Analysis) (page 29-33 of 90)

This section on core NPV Analysis displays a series of Tables (Table 9 through Table 13) showing the

results of the various sensitivity analyses.

- 15.1 Please provide the working Excel models that calculate all of these Tables (Table 9 through Table 13), complete with all the assumptions being used for the calculations.