

**Yukon Energy Corporation
2017-18 General Rate Application (Application)**

**Yukon Utilities Commission (YUB) Information Request Round 1 to
Yukon Energy Corporation (YEC)**

YUB-YEC-1

Reference: Application, Tab 7 – Financial Schedules. PDF pages 277 to 292
Issue/sub-issue: Actual versus forecast
Preamble: The referenced schedules have the following column headings: “Actual 2016,” “Forecast Existing” for each of 2017 and 2018 and “Forecast Proposed” for each of 2017 and 2018.

Request:

- (a) Please confirm that any column identified as “Actual 2016,” includes 12 months of actual data. If not confirmed, please explain.
- (b) Please clarify the difference between columns identified as “Forecast Existing” and columns identified as “Forecast Proposed.” Do either of these columns contain data on actuals for 2017?
- (c) If the columns referred to in question (b) do not include 2017 actuals, please provide 2017 actuals based on information available to date.
- (d) Please clarify if any information provided in the columns identified as “Forecast Existing” has been previously provided to the Board. If so, under what circumstances was this information provided.
- (e) Please clarify whether YEC is seeking approval for 2017 and 2018 revenue requirement under “Forecast Proposed” columns. If confirmed, please explain why the “Forecast Existing” information was provided.

YUB-YEC-2

Reference: Application. PDF page 25, lines 28 to 29. PDF page 26, lines 1 to 2
Issue/sub-issue: Increased Operating Expenses since 2012-2013 GRA
Quote: “As noted in Section 1.1, material labour operating expense increases occurred in 2013 above the approved forecast and have continued to be a key cost driver since that time. The increase in labour expense reflects negotiated wage increases, changes in capital/non-capital allocations, and other increased costs without a major change in the overall number of Full Time Equivalent [FTE] positions.”

Request:

- (a) Please provide the date(s) at which the negotiation of wages were concluded, the length of the negotiated term and the per cent associated with the increase in wages.
- (b) Please clarify whether there were any non-negotiated wage increases and if so, indicate the per cent associated with the increase in wages and the date on which the increase came into effect.

- (c) Please clarify whether YEC has a vacancy rate with respect to its FTEs and if so, provide the rate for the years 2013 through to 2018. Please also indicate in which operational area¹ the vacancies occurred or are anticipated.
- (d) Please provide a table summarizing approved, actual and forecast key assumptions, escalation (or inflation) factors or any other indices² examined or used by YEC in its application for items such as labour (in scope and/or out of scope), contractors, other labour cost categories, direct operating and maintenance costs, non-direct operating and maintenance costs, and capital costs.

YUB-YEC-3

Reference:

Application, page 2-4, PDF page 33, lines 11 to 13

Issue/sub-issue:

Wholesale Sales to ATCO Electric Yukon, Section 2.2.1

Quote:

“Subsequent to finalizing YEC’s forecast for this Application, Board Order 2017-01 was issued on the AEY GRA and AEY filed its Compliance Filing response for review by the Board and interveners.”

Request:

Given the above quote and the issuance of Board Order 2017-03 wherein the Board accepted “the calculations and revisions to YECL’s 2016 through 2017 revenue requirement as submitted by AEY in its compliance filing”³, please provide an updated forecast for this Application.

YUB-YEC-4

Reference:

Application, PDF page 47, Table 2.2

Issue/sub-issue:

Increase in 2017 forecast for LTA wind generation

Quote:

LTA Wind Generation

2013 Approved	2013 Actual	2014 Actual	2015 Actual	2016 Actual
238	238	238	238	238
Existing Forecast 2017	Proposed Forecast 2017	Existing Forecast 2018		
238	580	238		
Proposed Forecast 2018				
580				

Preamble:

Explanation needed for the increase of LTA wind generation from 238 MWh under the existing forecast column to 580 MWh under the proposed forecast column for the test years.

Request:

Considering that the LTA wind generation has not changed from the years 2013 to 2016 and that the existing forecast for the test years is the same as the actuals for the years 2013 to 2016, please

¹ For example, using the categories identified on YEC 2017-2018 General Rate Application, Table 3.4, PDF page 55

² For example, the Consumer Price Index (CPI) for Whitehorse

³ Board Order 2017-03, PDF page 3.

explain the significant increase in LTA wind generation for the proposed forecast and the assumptions and factors underlying the proposed forecast for the test years is based.

YUB-YEC-5

Reference: Application. PDF page 50, lines 16 to 21 and Schedule 5, line 14, PDF page 286

Issue/sub-issue: Proposed increases to 2017 and 2018 revenue requirement forecasts

Quote: “In general, Yukon Energy’s forecast 2017 and 2018 revenue requirements primarily reflect proposed adjustments to thermal generation requirements and fuel prices, changes to labour and non-labour costs, increases in rate base, as well as changes in the proposed return on equity (ROE) relative to 2013 GRA approved forecast (“2013 approved”) numbers, the last test year reviewed by the Board during Yukon Energy’s 2012/2013 GRA application.”

Preamble: The Board requires summary information for the 2017 and 2018 test years, which identifies the reasons contributing to the proposed revenue requirement increase of \$5.9 million⁴ (13.7 per cent) over the 2016 actual revenue requirement and \$1.3 million⁵ (2.7 per cent) over the 2017 proposed forecast revenue requirement.

Request:

- (a) Please provide a table for each of the test years summarizing the main reasons for the proposed forecast requirement increases over the 2016 actual and 2017 proposed forecast revenue requirement amounts. The tables should provide a high level summary justifying the revenue requirement increase of \$5.9 million and \$1.3 million while at the same time providing a breakdown of the related increase or decrease amount by each major contributing factor, such as inflation, full-time equivalent (FTE) additions, wage increases, capital/non-capital allocations, capital expenditures or those factors identified in the referenced quote.
- (b) Please explain what is meant by “proposed adjustments to thermal generation requirements.”

⁴ Calculated as: 2017 proposed forecast revenue requirement of \$48.544 million less 2016 actual revenue requirement of \$42.686 million equals \$5.678 million.

⁵ Calculated as: 2018 proposed forecast revenue requirement of \$49.864 million less 2017 proposed forecast revenue requirement of \$48.544 million equals \$1.32 million.

YUB-YEC-6

Reference:

Application, Table 3.1. PDF page 50

Issue/sub-issue:

Proposed increases to 2017 and 2018 non-fuel operating and maintenance

Preamble:

With respect to non-fuel operating and maintenance costs, the Board requires summary information for the 2017 and 2018 test years, which identifies the reasons contributing to the proposed increase of \$1.59 million⁶ (7.8 per cent) over the 2016 actual non-fuel operating and maintenance costs and -\$0.044 million⁷ (0.2 per cent) under the 2017 proposed non-fuel operating and maintenance costs.

Request:

Please provide a table for each of the test years summarizing the main reasons for the proposed forecast non-fuel operating and maintenance cost increase or decrease over the 2016 actual and 2017 proposed forecast revenue requirement amounts. The tables should provide a high level summary justifying the revenue requirement increase of \$1.59 million and decrease of \$0.044 million while at the same time providing a breakdown of the related increase or decrease amount by each major contributing factor, such as inflation, full-time equivalent (FTE) additions, wage increases, capital/non-capital allocations, or any other factor identified by YEC.

YUB-YEC-7

Reference:

Application. PDF page 54, lines 19 to 23

Issue/sub-issue:

Capital/maintenance allocation

Quote:

“The 2013 approved revenue requirement forecasts included an allocation set at 23% capital and 77% maintenance. Actual results over the 2013 to 2016 period varied between 20:80 and 16:84. The allocation for the 2017 and 2018 forecasts have been adjusted to align with historical results and are set at 18:82.”

Request:

- (a) Please clarify which years were included in the “historical results” used to determine the 2017 and 2018 forecast capital to maintenance allocation ratio.
- (b) Why does YEC consider that a forecast based on a span of years of historical results would be more representative than a forecast based on the most recent year’s actual results? Please explain.
- (c) In general, to what does YEC attribute the variation in capital to maintenance allocation ratios between the approved (23:77) and the proposed (18:82)?
- (d) Please provide the 2016 actual capital to maintenance allocation ratio. In general, to what does YEC attribute the variation in capital to maintenance allocation ratios of capital to maintenance between the 2016 actual allocation ratio and the proposed (18:82)?

⁶ Calculated as: 2017 proposed non-fuel operating and maintenance costs of \$22.060 million less 2016 actual non-fuel operating and maintenance costs of \$20.470 million equals \$1.59 million.

⁷ Calculated as: 2018 proposed non-fuel operating and maintenance costs of \$22.016 million less 2017 proposed non-fuel operating and maintenance costs of \$22.060 million equals -\$0.044 million.

YUB-YEC-8

Reference: Application. PDF pages 54 to 56 and Table 3.4, PDF page 55
Issue/sub-issue: Allocation of employee complement to YDC
Preamble: YEC discusses labour expense, FTE's and labour complement beginning at PDF pages 54 and ending on 56 of its application.

Further, Table 3.4 indicates that the employee complement history provided therein, is "net of allocation to YDC."

Request:

- (a) Please clarify that, with the exception of Table 3.4, all other information provided by YEC in PDF pages 54 to 56 is similarly, "net of allocation to YDC." If not confirmed, please explain.
- (b) Please prepare a table showing total actual 2016 employee complement history (before allocation to YDC) and actual 2016 allocation of employee complement to YDC and net actual 2016 allocation of employee complement after allocation to YDC.

YUB-YEC-9

Reference: Application, Table 3.5. PDF page 56
Issue/sub-issue: Production costs

Request:

For the line item cost categories of labour, diesel, LNG and hydro, please provide reasons for differences between 2016 actual costs and 2017 proposed forecast costs, and differences between 2017 and 2018 proposed forecast costs.

YUB-YEC-10

Reference: Application, Table 3.8. PDF page 59
Issue/sub-issue: General operating and maintenance costs

Request:

- (a) For the line item cost categories of labour, transportation and maintenance, please provide reasons for differences between 2016 actual costs and 2017 proposed forecast costs.
- (b) For the cost category identified as maintenance of company owned properties, please provide reasons for the differences between 2017 and 2018 proposed forecasts.

YUB-YEC-11

Reference: Application, Table 3.9. PDF page 61
Issue/sub-issue: Administrative costs

Request:

- (a) For the line item cost categories of labour, customer accounting, environmental management, general, information systems, training, recruitment, board of directors, union, regulatory affairs and professional development, please provide reasons for differences between 2016 actual costs and 2017 proposed forecast costs.

- (b) For the line item cost categories of labour, environmental management, general, information systems, recruitment and union, please provide reasons for differences between 2017 and 2018 proposed forecast costs.

YUB-YEC-12

Reference: Application. PDF page 64, lines 6 to 9, PDF page 66, lines 9 to 13, and Schedule 1, lines 6, 8, 9 and 18, PDF page 279

Issue/sub-issue: Deferral and reserve accounts

Quote: “Yukon Energy’s rate base includes all investment providing service to ratepayers, as well as components of necessary working capital. It comprises property, plant and equipment (net of depreciation), deferred study and other costs, reserves set aside for various regulatory purposes and working capital as indicated in Schedule 1 of Tab 7 of this submission.”

“The largest component of deferred charges relates to planning and study costs, regulatory hearing costs and licensing costs related to maintaining licenses of YEC’s hydro facilities and air emission permits.

“The amortization of planning costs is the largest component of deferred costs, which is primarily studies of the existing system and options for expanding the quantity of renewable generation, as well as studies related to the safety and reliability of the system, and other small projects.”

Preamble: The Board has examined Schedule 1 (lines 6, 8, 9 and 18) of Tab 7 and requires information with respect to the sub-categories of costs that comprise all deferral and reserve accounts included in YEC’s rate base calculations.

Request:

- (a) Please prepare a continuity schedule for each sub-category of costs comprising YEC’s deferral and reserve accounts for the years 2013 to 2018. The schedules should detail the transactions for each individual sub-category of deferral account or provision for reserve and should correspond, when totalled, to the amounts shown on the lines referenced in the preamble. For each sub-category of costs, please also provide a brief explanation of any approval YEC is seeking with respect to the costs identified (for example, elimination of the deferred balance) and the basis for any annual amortization calculation.
- (b) Please clarify whether any other Tab 7 schedules contain amounts for deferral or reserve accounts, and if so, please provide on a sub-category basis, the same information as requested in part (a).

YUB-YEC-13

Reference:

Application. PDF pages 63 and 67

Issue/sub-issue:

Two-part solution to reserve account balances

Preamble:

For each of the hearing cost reserve account and RFID account, YEC is seeking approval of a “two-part solution” to the growing account balances.

For the RFID account, YEC proposes to:

“1. Amortize the 2016 negative balance of \$1.059 million over a 5-year period (\$0.212 million per year).

“2. Increase the annual appropriation to the RFID, starting in 2017, to \$0.267 million per year. This is based on the 10-year average of actual expenses as shown in Table 3.11 below.”

**Table 3.11.1:
RFID Continuity Schedule
(\$000)**

	Actual 2013	Actual 2014	Actual 2015	Actual 2016	Forecast		Forecast	
					Existing 2017	Proposed 2017	Existing 2018	Proposed 2018
Opening Balance	-\$152	-\$330	-\$300	-\$267	-\$1,059	-\$1,059	-\$1,136	-\$847
Annual Appropriation	226	226	226	226	190	479	190	479
Annual Costs	-404	-196	-193	-1,018	-267	-267	-267	-267
Closing Balance	-\$330	-\$300	-\$267	-\$1,059	-\$1,136	-\$847	-\$1,213	-\$635

For the hearing cost reserve account, YEC proposes to:

“1. Amortize the forecast 2016 credit balance of \$0.973 million over a 5-year period (\$0.195 million per year).

“2. Decrease the annual provision to the hearing cost reserve account, starting 2017, to \$0.250 million per year.”

**Table 3.14.1:
Hearing Cost Reserve Account Continuity Schedule
(\$000)**

	Actual 2013	Actual 2014	Actual 2015	Actual 2016	Forecast		Forecast	
					Existing 2017	Proposed 2017	Existing 2018	Proposed 2018
Opening Balance	\$0	-\$106	-\$224	-\$561	-\$973	-\$973	-\$1,523	-\$1,028
Annual Appropriation	-550	-550	-550	-550	-550	-55	-550	-55
Annual Costs	444	432	213	138	0	0	818	818
Closing Balance	-\$106	-\$224	-\$561	-\$973	-\$1,523	-\$1,028	-\$1,255	-\$266

Request:

- (a) Table 3.11.1 and Table 3.14.1 show that each of the accounts have negative closing balances in the year 2016 in the amounts of -\$1.059 million for the RFID account and -\$0.973 million for the hearing cost reserve account, yet are referred to in the referenced quotes as “2016 negative balance of \$1.059 million” and “2016 credit balance of \$0.973 million.” Please provide an explanation for this discrepancy.
- (b) Please explain why the annual costs shown in the two tables are in opposing directions. For example, the annual costs in the RFID account are shown as negative amounts, whereas the annual costs in the hearing cost reserve account are shown as positive amounts.

- (c) Please confirm the calculation of the annual appropriation for each of the accounts given that the amortization of the -\$1.059 million RFID appears to increase the total annual amortization amount by \$0.212 million and the amortization of the -\$0.973 million hearing cost reserve appears to decrease the annual amortization amount by \$0.195 million.
- (d) Has YEC requested in past applications, this same two-part solution, for any other deferral or reserve account balances? If so, please explain.

YUB-YEC-14

Reference: Application. PDF page 63, lines 20 to 21 and Table 3.12. PDF page 64
Issue/sub-issue: Property tax increases

Request:

Please confirm whether the increases in property taxes between the years 2014-2015 and 2015-2016 is “due primarily to the additional property for the LNG plant.” If not confirmed, please explain.

YUB-YEC-15

Reference: Application, Schedule 3. PDF page 282, line 3
Issue/sub-issue: Increases in rate base

Request:

For each of the years 2013-2018, please identify the three largest projects contributing to the increases in rate base for that year. As part of the response, please provide the dollar value of the project capitalized to rate base.

YUB-YEC-16

Reference: Application. PDF page 19, lines 25 to 26
Issue/sub-issue: Amortization and retirements of contributions
Quote: “These contributions continue to reduce ongoing annual depreciation/amortization and return costs for the affected projects.”

Request:

- (a) Please provide a high level explanation describing the basis for YEC’s amortization of contributions.
- (b) Please explain if and how YEC retires contributions, once the associated capital asset has been retired.

YUB-YEC-17

Reference: Application, Schedule 6 (lines 7 and 8). PDF page 287
Issue/sub-issue: Depreciation and amortization of contributions expense – proposed forecasts

Request:

- (a) Please provide detailed calculations supporting each depreciation and amortization expense as shown on lines 7 and 8 of Schedule 6 of Tab 7 for the years 2017 and 2018 – proposed forecasts. Please ensure that the calculation for the amortization of fire insurance recoveries is disclosed separately from the amortization of contributions.
- (b) As part of the response to (a) above, please include in separate columns, the currently approved depreciation parameters (and resultant depreciation rates) on an account by account basis.
- (c) Please provide reason(s) for the difference in depreciation expense for the years 2017 and 2018 between the “Existing Forecast” versus “Proposed Forecast” columns.
- (d) Please provide reason(s) for the difference in amortization of contributions for the years 2017 and 2018 between the “Existing Forecast” versus “Proposed Forecast” columns.
- (e) Please provide reason(s) for the difference in amortization of fire insurance recoveries for the years 2017 and 2018 between the “Existing Forecast” versus “Proposed Forecast” columns.

YUB-YEC-18

Reference: Application. PDF page 65, lines 1 to 4
Issue/sub-issue: Approved depreciation parameters (and resultant depreciation rates)
Preamble: YEC describes increases to 2017 mid-year net plant in service as reflecting the “LNG plant” and “Aishihik elevator” in the year 2017.

Request:

- (a) Please clarify if, in any Tab 7 calculations, YEC has used depreciation parameters (and resultant depreciation rates) that have not been presented in a depreciation study or tested in a general tariff application, or specifically approved by the Board.
- (b) If (a) is confirmed, please identify the specific asset accounts impacted by the described action and provide an explanation of YEC’s rationale for using those specific depreciation parameters (and resultant depreciation rates), for the purposes of its forecast 2017 and 2018 depreciation expense calculations.

YUB-YEC-19

Reference: Application, Appendix 3.1 – Yukon Energy Vegetation Management Policy, PDF pages 75 to 79
Issue/sub-issue: Yukon Energy vegetation management policy

Request:

- (a) From whom will YEC receive approval when it states “If approved for use, the following herbicide methods will be considered for use by YEC...?”
- (b) Under what circumstances might a herbicide application method be considered for use by YEC.
- (c) Please describe YEC’s process for studying the use of herbicides for transmission vegetation management in the Yukon.

(d) Has YEC contemplated a ranking of the assessment criteria in order to select a specific brushing method for a given area?

YUB-YEC-20

Reference: Application, Appendix 3.2 – Reserve for Injuries and Damages (RFID) Policy. PDF pages 80 to 82

Issue/sub-issue: Reserve for injuries and damages (RFID) policy

Request:

Given that the policy was issued in March 2012 and reviewed in February 2015, please clarify whether it is YEC's intention that this policy be updated each time YEC proposes to adjust its annual appropriation amount.

YUB-YEC-21

Reference: Application, page 2. PDF page 3

Issue/sub-issue: Measures to defer the requirement for the application

Quote: "... and adjusted thermal fuel costs related to Diesel Contingency Fund operation ..."

Request:

Please explain in greater detail how adjusted thermal fuel costs related to the Diesel Contingency Fund operation have helped defer the requirement for a GRA. Please quantify this impact for each of the non-test years 2014-2016 inclusive.

YUB-YEC-22

Reference: Application, page 7. PDF page 8

Issue/sub-issue: Energy Reconciliation Adjustment (ERA)

Quote: "No proposal regarding the Rate Schedule 42 Energy Reconciliation Adjustment (ERA) is provided at this time in the Application as the ERA is currently the subject of an appeal to the Court (the Appeal) from the Board's Order 2015-06 of August 18, 2015. At such time as the Court's decision is provided, Yukon Energy will review the ERA and provide the Board with a filing as required on this matter."

Request:

- (a) Does the exclusion of the ERA from this application indicate that the DCF and ERA are separate and discernible entities?
- (b) Can the DCF operate without any finding in regards to the ERA? Please explain.

YUB-YEC-23

Reference:

Application, page 1-4. PDF page 20, lines 7 to 9

Issue/sub-issue:

Secondary Sales

Quote:

“... and annual secondary sales from 2013 to 2016 have ranged between 3.9 GW.h and 7.0 GW.h with revenues as follows: \$0.275 million in 2013; \$0.410 million in 2014; \$0.544 million in 2015; \$0.371 million in 2016.”

Request:

Please provide the corresponding volumes for secondary sales for each of the years 2013-2016 inclusive.

YUB-YEC-24

Reference:

Application, page 1-7. PDF page 23, lines 11 to 13

Issue/sub-issue:

Mine closure and capacity

Quote:

“Looking beyond the test years, updated load forecasts and the anticipated end of Minto mine operations within a few years highlight ongoing pressure for added dependable capacity notwithstanding limited growth opportunities for new energy requirements unless new mine connections occur.”

Request:

Please explain how the closure of a mine (reduced load and capacity) relates to the requirement for additional dependable capacity.

YUB-YEC-25

Reference:

Application, page 3-3. PDF page 51, lines 30 to 31

Issue/sub-issue:

Thermal fuel mix

Quote:

“... and forecast long-term average thermal requirements for the test years are assumed to be supplied with a combination of 90% LNG and 10% diesel generation.”

Request:

- (a) Please provide details as to how the 90:10 LNG: Diesel proportion was established. Is this ratio statistically based? If so, please provide the statistical calculation.
- (b) Please show separately the actual and proposed maintenance fuel costs for each of the years 2015-2018 inclusive (include both dollars and forecast litres of fuel).
- (c) Please provide actual diesel/LNG ratios for 2015 and 2016.

YUB-YEC-26

Reference: Application, page 3-4 and footnote 1. PDF page 52

Issue/sub-issue: LNG prices and energy content

Quote: Footnote 1: “Reflects the September to December 2016 average delivered LNG cost from the Ferus facility in Elmworth, Alberta, and the forecast that test year LNG requirements will be supplied from facilities at no greater distance from Whitehorse than Elmworth. Assumed energy content (HHV) per litre of LNG approximates 0.02369GJ.”

Request:

- (a) Please provide the average actual delivered cost of LNG for the period January 1 to July 31, 2017. Please provide in tabular format indicating volumes acquired, commodity price, delivery price and supply location.
- (b) Please provide the actual or realized heat content per litre of LNG for 2015, 2016 and January 1 to July 31, 2017. Please show all calculations.

YUB-YEC-27

Reference: Application, pages 3-4 to 3-5. PDF pages 52 to 53

Issue/sub-issue: Diesel prices

Request:

Please provide actual diesel prices for the period January 1, 2017 to July 31, 2017 for each of Whitehorse, Faro, Dawson and Mayo. Please include purchase volumes with the prices for each location.

YUB-YEC-28

Reference: Application, page 3-6. PDF page 54

Issue/sub-issue: Labour rates

Quote: “The average annual negotiated increase in wages approximates 1.9% from 2013 approved to 2016, and is forecast to increase at approximately this same annual rate to 2018.”

Request:

- (a) Please provide the latest edition of the Yukon Economic Outlook.
- (b) How does the YEC forecast labour escalation compare to the latest forecast from the Yukon Economic Outlook?

YUB-YEC-29

Reference: Application, pages 3-8 to 3-13. PDF 56 to 61

Issue/sub-issue: Non-labour costs

Request:

- (a) Was any escalator applied to non-labour costs in section 3 of the Application? Please explain.

- (b) If an escalator (s) was/were applied, please quantify the escalator(s), where it/they were applied and the base numbers it was applied to.

YUB-YEC-30

Reference: Application, page 3-15, PDF page 63, lines 1-6

Issue/sub-issue: Reserves for Injuries and Damages (RFID)

Quote: "... Yukon Energy is seeking approval of a two-part solution to the RFID [reserve for injuries and damages] account:

...

2. Increase the annual appropriation to the RFID, starting in 2017, to \$0.267 million per year. This is based on the 10-year average of actual expenses ..."

Request:

Please provide the 10-year average of actual expenses in relation to the RFID for the years 2007 to 2016.

YUB-YEC-31

Reference: Application, page 3-22. PDF 70, lines 1 to 2

Issue/sub-issue: YDC Mayo B Promissory Note

Quote: "... which forgives the interest expense if the Integrated Grid is lower than the Minimum Grid Load as set in Schedule 1 of the Mayo B Promissory Note..."

Request:

- (a) Please provide a copy of the referenced Schedule 1 with respect to the Mayo B Promissory Note.
- (b) Please provide a continuity schedule of interest payments with respect to the Mayo B Promissory Note for the period 2013-2016 inclusive

YUB-YEC-32

Reference: Application, page 3-22. PDF page 70

Issue/sub-issue: Formula for calculating interest expense, debt instruments

Request:

- (a) Please provide a full explanation of the term "Range for the year" included in the formula for calculating interest expense for the Mayo B Promissory Note.
- (b) Please provide a continuity table, listing each debt instrument separately, of all actual and forecast debt instruments for the years 2013 to 2018 inclusive.
- (c) For forecast borrowings, please provide the inputs used to determine the forecast debt interest rate of 2.15%.

YUB-YEC-33

Reference:

Application, page 3-25. PDF page 73

Issue/sub-issue:

DCF – LNG Costs

Quote:

“It in principle addresses all YEC thermal generation requirements (i.e., includes LNG as well as diesel generation).”

Request:

Please provide the direct quotes in Board Order 2015-01 (Appendix A: Reasons for Decision) that specifically make reference to LNG costs.

YUB-YEC-34

Reference:

Application, Appendix 3.4, page 3.4-3. PDF page 102

Issue/sub-issue:

DCF

Quote:

“YEC’s LTA hydro generation continues to be based on the power benefits system simulation model as used in the last GRA (i.e., the YECSIM model), updated to reflect the load shape for the test years (with basically the same Minto mine loads being forecast in each of these years) and the following information related to Yukon Integrated System hydro operations:” [Footnote omitted]

Request:

- (a) Two subsequent bullets to the above-noted quote refer to additional water year records and updated reservoir and generation station water flow requirement changes. Please confirm that there were no other changes in the base assumptions or parameters used in the YECSIM model.
- (b) If Part (a) cannot be confirmed, please provided a side by side detailed listing of all changes by listing the assumption or input parameter used in the 2012/2013 GRA, the similar assumption or input parameter in the 2017/2018 GRA and the reason for the difference.

YUB-YEC-35

Reference:

Application, Appendix 3.4, page 3.4-3, Footnote 3. PDF page 102

Issue/sub-issue:

Vista model

Quote:

“Yukon Energy continues at this time to use the YECSIM model for the LTA assessments for this Application and the 2016 Resource Plan (see Attachment 3.4.3 for information on the YECSIM model). YEC is currently examining another system planning model (VISTA) for potential future use in assessing LTA hydro and thermal requirements.”

Request:

- (a) Please explain why YEC is reviewing another system planning model.
- (b) What are the potential benefits of the VISTA model?
- (c) What are the current shortfalls of the YECSIM model?
- (d) If YEC were to convert to the VISTA model, in what timeframe would such a conversion take place?

YUB-YEC-36

Reference: Application, Appendix 3.4, page 3.4-4. PDF page 103

Issue/sub-issue: DCF – Thermal generation requirements

Quote: “Other thermal generation requirements (i.e., expected generation not addressed by the LTA assessments) that may occur under higher-than-median water conditions will be assessed as required in future GRAs.”

Request:

Please provide a detailed explanation of the above-noted statement.

YUB-YEC-37

Reference: Application, Appendix 3.4, page 3.4-5. PDF page 104

Issue/sub-issue: LNG cost per kW.h

Quote: “3. The LNG fuel cost per kW.h to be assumed for DCF cost assessments (equivalent to the 28.7 c/kW.h diesel generation fuel cost used to date for the DCF based on the last approved GRA fuel price and average diesel generation efficiency for the 2012/13 GRA).”

Request:

Please show the derivation of the 28.7 c/kW.h diesel generation fuel cost.

YUB-YEC-38

Reference: Application, Appendix 3.4, page 3.4-7. PDF page 106

Issue/sub-issue: Capability to supply LTA thermal generation

Quote: “Emergency thermal loads, which typically require quick response and may continue for only a short duration, are excluded from LTA assessments; and

“Other small or short duration loads of the type affecting actual current LNG use are not important factors affecting LNG unit ability to supply overall LTA thermal generation at the grid loads relevant for this review.”

Request:

For each of the constraints listed in the last paragraph of page 3.4-7 and the above-noted considerations, please explain why LNG is not the preferred generation method.

YUB-YEC-39

Reference: Application, Appendix 3.4, page 3.4-7. PDF page 106

Issue/sub-issue: Limitations on LNG unit operation

Request:

(a) Please provide a detailed explanation and an illustrative example of how DCF Annual Reporting and GRA Test Year Revenue Requirement determinations limit LNG unit operation.

(b) What was the actual 12 month performance of LNG generation to diesel generation for the period July 1, 2016 to June 30, 2017?

YUB-YEC-40

Reference:

Application, Appendix 3.4, page 3.4-7. PDF page 106

Issue/sub-issue:

Actual LNG use and year-end DCF determinations

Quote:

“The 2016 DCF Annual Report (Appendix 3.5) shows the actual LNG generation in 2015 and 2016, net of capital and RFID generation (based on this Application, future DCF Annual Filing years will also exclude maintenance run-up generation). In each of these years, expected thermal generation exceeded actual thermal generation, and the balance (approximately 7.2 GW.h in 2015 and 5.1 GW.h in 2016) was thermal generation for which YEC transferred fuel cost into the DCF. Due to limits in LNG unit availability, only 15% of the 2015 thermal generation included in the DCF transfer by YEC was assumed to be supplied by LNG - however, in 2016, 100% of the thermal generation included in the DCF transfer by YEC was assumed to be supplied by LNG.” [underlining added]

Request:

Why were the amounts of thermal generation referred to above for 2015 and 2016 assumed?
Why can't YEC calculate actual amounts?

YUB-YEC-41

Reference:

Application, Appendix 3.4, page 3.4-7. PDF page 106

Issue/sub-issue:

Actual LNG use and year-end DCF determinations

Quote:

“The 2016 DCF Annual Report (Appendix 3.5) shows the actual LNG generation in 2015 and 2016, net of capital and RFID generation (based on this Application, future DCF Annual Filing years will also exclude maintenance run-up generation). In each of these years, expected thermal generation exceeded actual thermal generation, and the balance (approximately 7.2 GW.h in 2015 and 5.1 GW.h in 2016) was thermal generation for which YEC transferred fuel cost into the DCF. Due to limits in LNG unit availability, only 15% of the 2015 thermal generation included in the DCF transfer by YEC was assumed to be supplied by LNG - however, in 2016, 100% of the thermal generation included in the DCF transfer by YEC was assumed to be supplied by LNG.”

Request:

Please explain the significance of the above-quoted paragraph.

YUB-YEC-42

Reference:

Application, Appendix 3.4, page 3.4-8. PDF page 107

Issue/sub-issue:

Actual LNG use and year-end DCF determinations

Quote:

“YEC’s final fuel expense for annual expected thermal generation after DCF transfers is affected by the LNG/diesel mix for actual thermal generation as well as by the LNG/diesel mix adopted for transfers into or out of the DCF. In 2016, due to the actual generation mix being 45% diesel, YEC’s final expense for all expected (LTA) thermal generation showed 21.8% being supplied by diesel (2.293 GW.h out of 10.536 GW.h), notwithstanding that 100% of the thermal generation included in the DCF transfer by YEC (to address the difference between LTA thermal generation and actual thermal generation) was assumed to be supplied by LNG.”

Request:

- (a) Has the Board previously approved any LNG/diesel fuel mix for expected thermal generation?
- (b) Has the Board previously approved any LNG/diesel fuel mix for transfers into or out of the DCF?
- (c) How can the assumption for 2016 be made that 100% of the thermal generation included in the DCF transfer by YEC was supplied by LNG?

YUB-YEC-43

Reference:

Application, Appendix 3.4, page 3.4-8. PDF page 107

Issue/sub-issue:

Actual LNG use and year-end DCF determinations

Quote:

“As noted under item #1 above, this Application proposes that test year thermal generation be assumed to be supplied 90% by LNG generation and 10% by diesel generation. In order to enable final year-end YEC LTA fuel expense to reflect this same LNG/diesel mix to the extent possible, it is proposed in this Application that subsequent DCF Annual Filings (for 2017 and 2018, and subsequent years until changed by approval of the Board) adjust YEC’s year-end DCF payment into (or receipt from) the DCF as required so that YEC’s final fiscal year expense for the total expected thermal generation (i.e., YEC expense after all transfers) is 90% LNG and 10% diesel, subject to the constraint that the LNG share of any transfer into or out of the DCF cannot exceed 100%. This proposed approach is reflected in the DCF example in Appendix 3.4-1 (Table 3.4-3).”

Request:

- (a) Please explain why the fuel mix ratio for the DCF needs to be fixed. What is the impact if the actual fuel mix is used versus the assumed fuel mix?
- (b) Please explain the situation where the LNG share of any transfer into or out of the DCF could exceed 100%. Provide an example where this is demonstrated.

YUB-YEC-44

Reference:

Application, Appendix 3.4, page 3.4-8. PDF page 107

Issue/sub-issue:

Diesel and LNG fuel cost per kW.h

Quote:

“2015 average delivered LNG fuel cost of 18.83 cents/kW.h assumed 40% energy conversion efficiency as per the LNG Part 3 Application.”

Request:

- (a) Please provide the actual energy conversion for LNG for each of 2015, 2016 and January 1 to June 30, 2017.
- (b) Please show how the energy conversion costs were calculated for each of the years 2015, 2016 and 2017 inclusive.

YUB-YEC-45

Reference:

Application, Appendix 3.4, page 3.4-9. PDF page 108

Issue/sub-issue:

LNG haul units

Quote:

“This has included continuing to pursue licencing and development of larger configurations of LNG haul units that would materially reduce the per unit costs for delivery, as well as opportunities to secure LNG from potential new or enhanced LNG facilities that are much closer to Whitehorse.”

Request:

- (a) Please provide a status update on the licensing and development of larger configurations of LNG haul units. When does YEC expect that these larger units will be operational?
- (b) Please provide total to date costs by year for the licensing and development of the larger configurations of LNG haul units.

YUB-YEC-46

Reference:

Application, Appendix 3.4, page 3.4-9. PDF page 108

Issue/sub-issue:

LNG assumptions

Quote:

“This Application assumes a forecast delivered fuel cost of LNG for the 2017 and 2018 test years of \$0.1467 per kW.h, based on a delivered average fuel cost of \$0.3767 per litre and average efficiency for LNG generation of 2.57 kW.h/litre (assumes 0.02369 GJ/litre of LNG [HHV]). This LNG fuel cost reflects the average delivered LNG cost from September to December 2016 from the Ferus facility in Elmworth, and the forecast that test year LNG requirements will be generally supplied from facilities at no greater distance from Whitehorse than Elmworth.”

Request:

- (a) Please provide the following for the January 1 to June 30, 2017 period:
 - i) Actual delivered litres of LNG and delivery costs of that LNG and the conversion of those costs to \$/kW.h
 - ii) The delivered fuel cost in \$/litre
 - iii) The actual efficiency for LNG generation in kW.h/litre

- iv) Actual fuel purchases in litres and \$/litre
 - v) LNG fuel costs in \$/kW.h.
- (b) Please provide the basis of 0.02369 GJ/litre of LNG [HHV].
- (c) Please explain the acronym “LNG [HHV]”.

YUB-YEC-47

Reference: Application, Appendix 3.4, Section 1.4, page 3.4-9. PDF page 108
Issue/sub-issue: DCF Cap Update
Quote: “No specific option to modify this cap is proposed in the Application.”

Request:

Please explain why YEC is not making any recommendation to modify the DCF cap in this application.

YUB-YEC-48

Reference: Application, Appendix 3.4, Table 3.4-1, page 3.4-17. PDF page 116
Issue/sub-issue: YEC expected thermal generation

Request:

- (a) Please recreate Table 3.4-1 removing the 35-year water history, using the previous 28-year water history, and removing the restrictions for Mayo that were not included in the 2012-2013 filing of the table. Keep all other assumptions the same.
- (b) Please recreate Table 3.4-1 showing only the 35-year water history change (the change from the previous 28-year water history). Keep all other assumptions the same.
- (c) Please recreate Table 3.4-1 showing only the change with respect to the Mayo restrictions. Keep all other assumptions the same.

YUB-YEC-49

Reference: Application, Appendix 3.4, page 3.4-26. PDF page 125
Issue/sub-issue: YECSIM model
Quote:

“Being a planning model, YECSIM is not structured in a way that lends itself to retrospective verification per se. Detailed test year verifications are not typically undertaken as such a verification or “test” would not normally be seen as a verification that is required or appropriate for this type of a planning model. If the model was to be reviewed for an historic test year it would be necessary to use the actual loads and inflows as input, and consider as well any special conditions that could have occurred during the test year.” [footnote omitted]

Request:

- (a) Has YEC ever retrospectively tested the YECSIM model? If not, please explain why not? If it has, what were the results?

- (b) If YECSIM is not structured in a way that lends itself to retrospective verification, how can YEC have confidence in its output? Please explain.
- (c) How does YEC test the veracity of the YECSIM model?

YUB-YEC-50

Reference:

Application, Appendix 3.4, page 3.4-26. PDF page 125

Issue/sub-issue:

YECSIM model

Quote:

“Expected thermal generation as provided by YECSIM based on LTA hydro and wind generation for specified grid loads assumes that thermal generation is dispatched only as required to meet energy load requirements, i.e., it does not include or assess options for thermal generation to enhance hydro storage for wintertime use. The LNG Part 3 Application (Appendix D) stipulated specific scenarios for LNG operation in order to assess such potential storage opportunities and impacts.”

Request:

- (a) Operationally, does YEC avail itself of opportunities to enhance hydro storage for wintertime use? Please explain.
- (b) If yes to (a), how often does YEC avail itself of opportunities to enhance hydro storage for wintertime use?
- (c) Do opportunities such as hydro storage enhancement affect DCF calculations?

YUB-YEC-51

Reference:

Application, Appendix 3.4, pages 3.4-27 to 3.4-28. PDF pages 126 to 127

Issue/sub-issue:

YECSIM model

Quote:

“The historical operation of the system was revised at the developing stages to obtain a general understanding of YEC’s operation. At those stages, simulations were carried out to verify in general that the model results properly corresponded to the operation of the WAF system. Model results were discussed with YEC at that stage. However, the YECSIM model is not set to replicate the past; but to simulate the system operation within the conditions imposed by physics, regulation and operational priorities, in order to supply the estimated loads with the available hydrologic inputs.”

Request:

Does YECSIM mirror day-to-day operational decisions of the YEC system? If yes, please explain. If no, please explain.

YUB-YEC-52

Reference: Application, page 8-3, footnote 9. PDF page 296

Issue/sub-issue: BCUC Decisions and Orders

Quote: “BCUC Generic Cost of Capital (GCOC) benchmark rate as set in BCUC Decision and Order G-129-16.”

Request:

Please provide copies of the BCUC decisions and Orders G-158-09, G-75-13, G-47-14 and G-129-16 for the record of this proceeding.

YUB-YEC-53

Reference: Application, Tab 8. PDF pages 294 to 302

Issue/sub-issue: Return on Equity

Request:

- (a) What makes YEC comparable to FortisBC Electric? Please explain.
- (b) What makes YEC comparable to PNG West? Please explain.
- (c) Since the benchmark utility for the BCUC is FortisBC Energy, how does YEC compare to the BCUC benchmark utility?

YUB-YEC-54

Reference: Application, Tab 8. PDF pages 294 to 302

Issue/sub-issue: Return on Equity, Risk premium

Request:

- (a) Has YEC’s risk profile materially changed since its last GRA in 2012/2013? Please explain.
- (b) Please rank the types of risks faced by YEC in order from the greatest risk to the least risk.
- (c) For any of the risks listed in (b), what has YEC done to mitigate those risks?

YUB-YEC-55

Reference: Application, page 8-7. PDF page 300

Issue/sub-issue: Generation risk

Quote: “YEC continues to have a greater business risk than the relevant BC utilities based on its reliance on its own generation (far higher than for FortisBC Electric), and its lack of any interconnection with external electricity markets. These material differences have not changed from the assessments provided in 2005 and 2009.”

Request:

- (a) What is the level of generation of FortisBC Electric versus YEC in terms of absolute level of generation (nameplate capacity) and as a percentage of load?
- (b) Is there a linear relationship between level of generation risk and the level of generation (capacity)? Please explain.

YUB-YEC-56

Reference: Application, page 8-4. PDF page 297; Appendix A to Board Order 2017-01: Reasons for Decision, page 43.

Issue/sub-issue: ROE risk premium

Quote: “As described above, the Board in Order 2005-12 approved Yukon Energy’s proposal to set its fair return at 52 basis points (0.52%) above the BCUC low-risk benchmark utility ROE being the mid-point between FortisBC Electric (40 basis points) and PNG-West (65 basis points).”

Request:

- (a) What factors did the BCUC consider in determining the equity premium for PNG-West?
- (b) In Board Order 2017-01(paragraph 211- Appendix A) the Board concluded that in determining relative risk for AEY, the Board should look at size and generation risk. Please comment on the applicability of this finding to determining YEC’s risk premium.

YUB-YEC-57

Reference: Application, page 2-2. PDF page 31, lines 2 to 7

Issue/sub-issue: System Sales and Generation

Quote: “Industrial sales under Primary Industrial Rate Schedule 39 currently include only sales to the Capstone Mining Corp (Minto mine). No other industrial customer sales are forecast for the test years. Since 2013, firm grid load supplied by Yukon Energy to industrial customers has fallen below the actual and approved forecast load for 2013, except 2016, reflecting early shut down of the Alexco Resources Bellekeno mine the last half of 2013. The Whitehorse Copper Tailings industrial load that was forecast to be supplied by AEY in the 2013 YEC Compliance Filing has not to date materialized.”

Request:

- (a) Please provide an explanation for why the firm grid load supplied to industrial customers was above the actual and approved forecast load for 2016, while all other years it was below the actual and approved forecast.
- (b) Provide a status update regarding the Whitehorse Copper Tailings industrial load that was forecast to be supplied by AEY in the 2013 YEC compliance filing.

YUB-YEC-58

Reference:

Application, page 2-16. PDF page 45, lines 1 to 6

Issue/sub-issue:

Installed dependable grid capacity

Quote:

“Installed YEC and AEY 1 dependable grid capacity for the winter peak in both 2017 and 2018, based on existing capacity today and any planned retirements and excluding Fish Lake hydro, is approximately 115.0 MW (70.5 MW of YEC hydro, 39.1 MW of YEC diesel, and 5.4 MW of AEY diesel).

For the single contingency (N-1) criterion assessment of the dependable capacity, excluding Fish Lake hydro, to meet the YEC load...”

Request:

Please explain why the dependable grid capacity shortfall calculation does not include Fish Lake hydro.

YUB-YEC-59

Reference:

Application, Table 2-2, page 2-18, PDF page 47

Issue/sub-issue:

Energy sales

Request:

- (a) Please explain the significant increase in total energy sales from 2016 actuals to 2017 forecast sales when compared to increases in previous years.
- (b) Please provide 2017 actual total energy sales to date.

YUB-YEC-60

Reference:

Application, page 2-10. PDF page 39, lines 21 to 22

Issue/sub-issue:

Power Generation

Quote:

“Total generation is based on the sum of total sales plus losses. Losses are forecast at 8.8% for each of the test years.”

Request:

Please explain how the forecast level of losses (8.8%) was determined. Please provide actual levels of losses for the years 2012 to 2016 inclusive.

YUB-YEC-61

Reference:

Application, pages 5-6 to 5-7. PDF pages 177 to 178

Issue/sub-issue:

Aishihik AH3, Section 5.2.1.1

Quote:

“The Aishihik hydro facility 7 MW third turbine (AH3) came into service in December 2011. Yukon Energy has incurred \$2.715 million of costs after 2012 for wrap up activities related to this project, including \$2.574 million of costs from a dispute with a contractor on this project. Total spending in 2016 was \$2.117 million, the majority being legal costs required to be expensed during the year for accounting purposes.”

“A decision on the dispute was provided in August 2016 by the Yukon Supreme Court, awarding the contractor a net amount of \$1,623,565 plus interest and costs. The amount awarded by the Court included \$1,308,462 that consisted of holdbacks and extra works done where the price had been agreed upon, but not yet paid due to YEC’s claims for set-off rights. The final cost of the claim dispute includes YEC legal fees of \$0.962 million. Based on the advice of legal counsel, YEC has filed the necessary documentation to appeal the court decision.”

Request:

- (a) Please explain why the amount of \$1,308,462 which consisted of holdbacks and extra works done is being expensed during the 2016 year for accounting purposes, rather than being capitalized to the project.
- (b) Please provide any cost-benefit analysis YEC undertook regarding legal fees before proceeding with litigation.
- (c) YEC indicates it had a claim for setoff against the contractor of at least \$1,623,565, which was denied by the Yukon Supreme Court. Are the costs that YEC attempted to set-off included in the \$0.665 million capital costs already expensed, or are they in addition to those costs?

YUB-YEC-62

Reference:

Application, pages 5-7 and 5-8. PDF pages 178 to 179

Issue/sub-issue:

Aishihik Elevator Shaft Structural Steel Rehabilitation, Section 5.2.1.2

Quote:

“Following the addition in 2011 of a second feeder cable in the Aishihik elevator shaft, the Yukon Workers Compensation Health and Safety Board required YEC to have an independent engineer conduct a comprehensive evaluation of the installation to ensure the elevator meets all applicable codes, acts, and regulations. The engineering firm reviewed the elevator structural frames and support system in 2013 and observed degradation of the steel integrity. The report recommended permanent rehabilitation of the structure and a list of conditions imposed on the use of the elevator to provide a reasonable margin of safety until the work is completed. Since regular elevator access to the underground generator floor is required for continued operation of the plant, and the plant is critical to the operation of the Yukon Integrated System, there was no reasonable alternative to completing this project.”

“The project is forecast to be completed in 2017 with a forecast cost of \$10.116 million.”

Request:

- (a) Has this project been completed?
- (b) Please confirm that YEC is not asking for approval to put the costs of this project into rate base for the test period.
- (c) With respect to the report, were other alternatives provided in the report? If so, please discuss the other alternatives.
- (d) Please provide the original forecast cost of this project, and explain any variances between the original forecast cost, and the current forecasted cost of \$10.116 million.
- (e) When was the elevator installed?

YUB-YEC-63

Reference:

Application, pages 5-8 to 5-11. PDF pages 179 to 182

Issue/sub-issue:

Aishihik Electrical and Control Upgrades, Section 5.2.1.3

Quote:

“The Aishihik Control Systems and Electrical Upgrades project includes a number of specific control systems and electrical upgrades that are being undertaken to ensure ongoing safe and reliable operation of the Aishihik Generating Station. Approximately \$2.511 million of upgrades are planned to be completed before the end of 2018.

“In 2014, a formal asset assessment was completed by KGS.”

“A project to replace equipment and complete a number of specific associated plant control system upgrades and electrical upgrades was developed for execution over multiple years, with most of the upgrades planned to be completed in 2017 and 2018. The need for each planned upgrade (based on currently available upgrade options) was addressed versus the do-nothing alternative.”

Request:

- (a) Please provide a copy of the assessment that was completed by KGS respecting this project.
- (b) For each of the control system upgrades, as well as each of the electrical upgrades, please provide:
 - i.) the report that outlines the upgrade options available at the time.
 - ii.) the original forecasted cost of each alternative that was chosen, and explain any variances between the costs that were originally forecast and the current forecast cost total of \$2.511 million.
- (c) Does YEC review control system drawings and operator interfaces on a regular basis? If so, when was the last time that drawings and interfaces were updated?

YUB-YEC-64

Reference:

Application, page 5-11. PDF page 182, lines 10 to 17

Issue/sub-issue:

AH Reactor Cable Replacement

Quote:

“During the AH3 project in 2011 the cables between the breakers and reactors within the S-167 (AH0) substation were replaced. However, the new cables are undersized and need to be replaced. There is a risk that constant heavy load between the reactors and breakers will eventually result in a cable failure which could damage equipment and cause an unscheduled outage of the Aishihik hydro plant.”

Request:

- (a) Please provide the average life expectancy of cable installed and used by a utility for AH reactor cables.
- (b) Please explain why customers should be paying for undersized cables that were installed in 2011.

- (c) Please explain the process used during the AH3 project in 2011 that was used to determine what size was needed for the new cables.
- (d) Please explain why the process described in (c) resulted in cables that were undersized, and are in need of replacement six years later.
- (e) Notwithstanding the answer to (c) above, please explain the process used to verify that the cables that will be installed in 2017 are now of the correct size.

YUB-YEC-65

Reference:

Application, page 5-11. PDF page 182, lines 18 to 26

Issue/sub-issue:

AH3 Lube Oil Pump Battery Installation

Quote:

“Isolating this pump onto its own backup power supply would enable AH3 to operate independently from the main AH0 backup battery bank, reduce the drawdown and extend the life of the main AH0 backup battery bank during a station service outage. Failure to install this backup increases the risk of the AH0 backup battery bank being drawn down too quickly, which could compromise the ability to recover the AH plant following an extended outage.”

Request:

Please discuss if the situation described in the quote above (AH0 backup battery bank being drawn down too quickly) has occurred in the past. What is the likelihood of this occurring in the future if a new battery for AH3 is not installed?

YUB-YEC-66

Reference:

Application, page 5-11. PDF page 182, lines 27 to 33

Issue/sub-issue:

Aishihik Black Start Modifications

Quote:

“The black start generator of the Aishihik plant can be improved in order to take on additional loading to run more efficiently when it is called into service. It would also be beneficial to increase the number of Aishihik station services served by the black start generator. This project will involve first determining the optimal underground station services that could be shifted to the black start diesel, then performing the work to physically relocate them to the centralized underground station service points supported by the black start diesel.”

Request:

- (a) Please provide the genesis for this project.
- (b) Please explain how the number of optimal underground services that can be shifted to the black start diesel will be determined.
- (c) Please discuss the impact on black start services if these modifications were not completed.

YUB-YEC-67

Reference:

Application, pages 5-12 to 5-14. PDF pages 183 to 185

Issue/sub-issue:

Communications Upgrades, Section 5.2.1.4

Quote:

“The Communications upgrades project includes a number of specific communications network upgrades that will replace end of life communication network infrastructure with new technology and implement a simplified network infrastructure which will increase performance and improve reliability of the network. The new network environment will also support other modernization projects that may be undertaken in the future (e.g., Smart Grid Technology). Approximately \$1.003 million of upgrades are planned to be completed by the end of 2018.”

“In 2016, an independent consultant completed a Communications Needs Assessment and made recommendations to improve critical elements such as Supervisory Control and Data Acquisition (SCADA) system features, and improve network performance, reliability, redundancy and security. A proposed system design was provided with recommendations for staged implementation focusing on the most critical assets or initiatives first, and progressing towards the less critical ones, with the eventual goal of covering the whole YEC communications system.

“A project to replace communication network infrastructure and complete a number of specific communications upgrades was developed for execution over multiple years, with some of the upgrades planned to be completed in 2017 and 2018. The need for each planned upgrade (based on currently available upgrade options) was addressed versus the do-nothing alternative. Each specific upgrade comes into service (and into rate base) when it is completed.”

Request:

- (a) Please indicate whether YEC is not asking for approval to put communication upgrade costs into rate base in the test years.
- (b) Please explain what precipitated the need for the above noted Communications Needs Assessment. How often has YEC undertaken such an assessment in the past?
- (c) For each of the Communications upgrades, please provide the original forecasted cost of each project, and explain any variances between the original forecasted costs, and the current forecasted costs that total \$1.003 million.

YUB-YEC-68

Reference:

Application, pages 5-15 to 5-16. PDF pages 186 to 187

Issue/sub-issue:

Hydro Unit #WH4 Overhaul, Section 5.2.1.5

Quote:

“The Whitehorse #4 (WH4) hydro unit (20 MW installed capacity commissioned in 1984) is a critical hydro generation asset to YEC. As part of YEC’s on-going preventative maintenance program for hydro units, a 10 Year Major Overhaul of the WH4 hydro unit is scheduled for spring 2017 (from April to June) at a forecast total cost of approximately \$4.3 million (\$3.7 million forecast in 2017).”

“The forecast cost in 2017 for the 10-Year Major Overhaul is approximately \$1.9 million, including \$0.978 million intended to cover a variety of potential contingency events ranging from overruns on key contracts, significant additional “discovery” work and/or thermal generation costs due to extension of schedule.

“During the 10-Year Major Overhaul process the following two additional replacement activities related to the WH4 hydro unit will also be undertaken as part of this project.

- “WH4 Rotor Spider Replacement – (\$1.439 million) – Stress cracks, which required immediate and extensive repair, were observed on the rotor spider during overhauls and inspections performed in 2007, 2012 and 2016. The original equipment manufacturer (OEM), Andritz Hydro, has confirmed that the original rotor design is flawed and recommended that during the next overhaul YEC install a new replacement rotor spider of more durable design in order to improve the long term reliability of this unit.”
- “WH4 Excitation Replacement – (\$0.977 million) – Technical support and parts to maintain the existing excitation system are becoming more difficult to procure. In 2014, two outages of WH4 occurred. The post-event analysis of these outages resulted in a recommendation to replace the WH4 excitation system. Subsequently, another outage occurred on February 18, 2017 that was a direct result of a failure of a component of the MH4 exciter.

“YEC has awarded a contract to Andritz Hydro (the original equipment manufacturer) to install the new rotor spider and to perform the 10-Year Major Overhaul. Andritz will be responsible for providing technical advisory services and for overseeing the mechanical services contractor performing the work.” [footnotes omitted]

Request:

- (a) Assuming that this project has been completed, please provide the final costs and explain any variances from the above-noted \$4.3 million forecast. If the project is not complete, please indicate the new completion date and the reasons this project was not completed as indicated in the above-noted quote.

- (b) Please explain what the 2016 actual costs (\$0.581 million)⁸ relate to.
- (c) Given that the original rotor design was flawed, was any compensation from Andritz Hydro pursued?
- (d) Please discuss the process used to award the contract to Andritz Hydro to install the new rotor spider. Were other equipment manufacturers considered? What factors were evaluated prior to awarding the contract?

YUB-YEC-69

Reference:

Application, pages 5-16 to 5-17. PDF pages 187 to 188

Issue/sub-issue:

Hydro Unit #MH2 Overhaul, Section 5.2.1.6

Quote:

“The Mayo #2 (MH2) hydro unit (2.55 MW installed capacity commissioned in 1952 at the Mayo A facility) was fitted with new runners in 2002 and is currently rated at 2.9 MW. A 10 Year Major Overhaul of the MH2 hydro unit and general facility upgrades is scheduled in 2018 at a forecast total cost of \$1.655 million.”

“As reviewed in the 2016 Resource Plan (Chapter 5), a study of four options for the future of the Mayo A facility was completed for Yukon Energy by KGS Group in 2016 to address the fact that many components in this facility were coming to end of life. A conceptual, high level cost estimate and economic analysis was prepared for each option (i.e., replacement, refurbishment, removal of the facility with return of site to near greenfield condition, and decommissioning of the facility with abandonment insitu). This study found that the optimal solution in terms of the cost and energy generation would be to replace the existing two units with a new single 2.3 MW unit. The 2016 Resource Plan action plan assumes that this Mayo Hydro Refurbishment project will proceed for in-service in 2022.”

Request:

- (a) Please explain what is meant by the “Mayo A” and “Mayo B” facility.
- (b) Do the planned MH2 unit upgrades have continuing value for the future planned refurbishment of the Mayo A facility?
- (c) Please explain the operation of MH1 and MH2. Can either of the units, each with an installed capacity of 2.5 MW, be operated at any one time when Mayo B is in operation? Has YEC considered operation of the plan with only one of the existing units, rather than replacement of both units with a 2.3 MW unit?
- (d) Respecting the 2016 Resource Plan action plan assumption that the Mayo Hydro Refurbishment project will proceed for in-service in 2022, please provide the expected completion date and associated costs.

⁸ Application, Table 5.2. PDF page 224

YUB-YEC-70

Reference:

Application, pages 5-22 to 5-26. PDF pages 193 to 197

Issue/sub-issue:

LNG Plant, Section 5.2.1.11

Quote:

“The LNG Plant project at the Whitehorse Thermal Generating Station (WTGS) came into service July 1, 2015 with two new natural gas engines (8.8 MW), provision for a third natural gas engine, and liquefied natural gas (LNG) offloading, storage, vapourization and other related infrastructure.”

- “The two natural gas-fired units (8.8 MW total capacity) were anticipated to be in service before the end of Q4 2014 to provide capacity and fuel cost savings during the winter of 2014/2015, with an estimated capital cost (2013\$) of \$36.5 million.”

“The final completion costs for the project were approximately \$41.933 million. However, the net impact of the project on ratebase is considerably lower due to YDC contributions of \$18.3 million that were applied to the LNG project in 2015. This reduces the total project costs funded by ratepayers to \$23.63 million.”

Request:

Please provide a summary table highlighting the \$5.45-million increase in the final project capital costs. Please ensure that the table shows YEC’s assertions related to construction costs, engineering and management costs, owners’ costs, planning and permitting, demolition and other activities on pages 5-24 to 5-26.

YUB-YEC-71

Reference:

Application, pages 5-26 to 5-27. PDF pages 197 to 198

Issue/sub-issue:

LNG Third Engine, Section 5.2.1.12

Quote:

“The LNG Third Engine project will provide a third natural gas-fired generation unit at the Whitehorse thermal plant of approximately 4.4 MW to assist in reducing the current capacity shortfall in a cost effective manner by early 2019.

“The forecast capital cost for this project is approximately \$6.2 million, with \$3.04 million forecast in 2017 and \$2.7 million forecast in 2018 (approximately \$0.2 million was spent prior to 2017 for foundation work completed in the first stage of development, and the balance of approximately \$0.5 million is forecast in Q1 of 2019).

“The 2016 Resource Plan identified a dependable capacity shortfall for the Yukon Integrated System under its single contingency (N-1) capacity reliability criterion that approximates 6 MW in 2017, increasing to 10-11 MW by 2019. Yukon Energy is required to provide sufficient dependable winter capacity to meet the single contingency capacity reliability criterion, i.e., there is no acceptable "do nothing" option...”

“The 2016 Resource Plan identifies construction of the LNG Third Engine as one of the preferred options for addressing a portion of the dependable capacity gap in a cost-effective manner in the near term, i.e., for use by 2019.”

“YEC commissioned a small study in late 2016 to review options for commercially available gas-fired engines to meet desired performance requirements with the third LNG engine at the current LNG facility. The results of the assessment will support YEC’s decision with respect to the selection of the single engine or multiple engines with total installed capacity of 4.4 megawatts, and confirm current costs and schedule for commercially available options.

“The project to design, procure and install a third LNG engine will be completed mainly during 2017 and 2018, with the engine currently planned to be in service in Q1 2019. Other activities to be completed in 2017 include preliminary engineering, development of equipment specification documents, grid impact study, detailed engineering and procurement of long-lead equipment.”

Request:

Please provide updated costs to design, procure and install the third LNG engine and provide a variance analysis compared to initial forecast costs for this engine.

YUB-YEC-72

Reference:

Application, page 5-28. PDF page 199, lines 4 to 7

Issue/sub-issue:

Projects \$100,000 to \$1 million, Section 5.2.2

Quote:

“Growth in net rate base reflects ongoing need to refurbish old assets and improve grid reliability. Significant re-investment in existing infrastructure has been undertaken since 2013 to ensure that the Yukon integrated grid can continue to meet the unprecedented level of growth on the system in a safe and reliable manner.”

Request:

Please explain and provide examples of what YEC means when it refers to an “unprecedented level of growth on the system” in the above quote.

YUB-YEC-73

Reference:

Application, Appendix 5.3, page 5.3-6. PDF page 249

Issue/sub-issue:

L170 Line Access

Quote:

“YEC requires access to transmission lines for maintenance, inspection, and brushing activities. Currently a number of temporary access points are used that lack the necessary permitting and may not be constructed to an acceptable standard. This project will complete the required assessment process in order to obtain the necessary permits for both new and existing accesses. It also includes the construction of new accesses and upgrades to existing ones, resulting in faster response times for emergency line work and reliable access to key YEC assets.”

Preamble:

The Board notes that \$350,000 is to be spent in each of the test years. Further information is required.

Request:

- (a) Please explain who issues the permits respecting the access points. Please provide a copy of a sample permit.
- (b) What does YEC mean when it states that this project “will complete the required assessment process in order to obtain the necessary permits”?
- (c) Is YEC completing the assessment? Why has this not been done previously?
- (d) Can YEC provide examples where responses times were slow? What is the comparator when YEC says “faster response times”? How long has this been a problem?
- (e) How has YEC been able to operate in the past without the necessary permits?

YUB-YEC-74

Reference:

Application, Appendix 5.3, page 5.3-7. PDF page 250

Issue/sub-issue:

Whitehorse-Aishihik-Faro (WAF) Transmission Upgrades

Quote:

“The WAF transmission system allows low cost hydro generation supplied from Aishihik, Whitehorse, or Faro to be transmitted to other locations on the grid. A failure of a transmission line structure would interrupt this supply, potentially resulting in a wider grid collapse. The structures on this transmission line were built in the 1960s through 1970s and are in various stages of deterioration. A recently performed test and treat program has identified the structures that are at the highest risk of failure. This project replaces the identified structures, along with any end-of-life cross arms and insulators that are discovered.”

Preamble:

The Board notes that \$3.068 million was spent in the period 2013 to 2016 (approximately \$750,000 per year). Moreover \$850,000 is to be spent in each of the test years on this project.

Request:

Considering that YEC’s test and treat program has recently identified structures that are at the highest risk of failure, please indicate and explain when YEC expects this project to be completed.

YUB-YEC-75

Reference:

Application, page 5-30. PDF page 201

Issue/sub-issue:

Deferred costs, Section 5.3

Quote:

“Deferred costs include feasibility studies for a wide range of projects (focused mainly on potential new generation or transmission options and includes the 2016 Resource Plan Update), continued relicensing work (for this Application, this grouping includes water licence renewal activities as well as water licence amendment projects, e.g., Mayo Lake Storage Enhancement Project), regulatory work (includes DSM), and dam safety review work. Overhauls, which in prior GRAs were included as a separate deferred cost, are now included under PP&E capital works (see Table 5.2) as per new accounting regulations.”

“The Application includes, as appendices to this section for approval by the YUB, Yukon Energy’s Planning Cost Accounting Policy (Appendix 5.1) and DSM Accounting Policy (Appendix 5.2) to address amortization of these cost for regulated revenue requirement purposes.” [footnote omitted]

Request:

- (a) With respect to YEC Planning Cost Accounting Policy and DSM Accounting Policy, has YEC previously submitted these policies for approval?
- (b) If the answer to (a) is yes, please list the changes and the reasons for the change.

YUB-YEC-76

Reference:

Application, pages 5-32 to 5-33. PDF pages 203 to 204

Issue/sub-issue:

Stewart Keno City Transmission Line Project, Section 5.3.1.2

Quote:

“The Stewart Keno Transmission Line (SKTL) project will improve the electrical transmission infrastructure in central Yukon between Stewart Crossing and Keno City; reinforce and strengthen the grid between Stewart Crossing and Mayo; and replace and remove deteriorated and ‘end of life’ transmission infrastructure between Mayo and Keno City. The project is being planned to ensure continued safe and reliable service and to facilitate future economic development within the territory.

“An initial \$5.3 million tranche of funding was provide by the Yukon Government for the costs required to advance the project to a shovel ready stage by Q4 2016.”

...

“... a material component of the Project costing cannot be confirmed with reasonable certainty until the Project is tendered.

“Detailed line design and detailed substation design contracts were competitively tendered and awarded in 2016, with this work to be completed in Q1 2017.

“A decision to advance the project will be undertaken once Yukon Energy has confirmed the project costs and potential funding availability. Yukon Energy is considering options for a staged project development, with the initial stage to remove and replace deteriorated and 'end of life' transmission infrastructure between Mayo and Keno City, in the event that third party funding is not available.”

Request:

- (a) Has YEC made any decision with respect to advancing this project? Please explain any issues, problems or constraints that YEC faces in relation to the above-noted project.
- (b) YEC states that staged development may take place and refers to an initial stage. Please describe and explain further stages related to this project.
- (c) Is YEC looking for 100% funding outside of the revenue requirement? Please explain.
- (d) Will this project require a Part 3 certificate?
- (e) Please confirm that no costs for the Stewart Keno City Transmission Line Project are forecast to be included in rates for the 2017 to 2018 test period. If not confirmed, please provide a detailed breakdown and explanation of the past actual costs and forecast costs from 2017 onwards for the Stewart Keno City Transmission Line Project.

YUB-YEC-77

Reference:

Application, pages 5-33 to 5-34. PDF pages 204 to 205

Issue/sub-issue:

Aishihik Generating Station Water Use Licence Renewal, Section 5.3.1.2

Quote:

“A licence renewal is required for the continued operation of the 37 MW hydro facility, which provides the only multi-year hydro storage and the largest winter peak hydro generation capability on the Yukon Integrated System. Yukon Energy plans to seek a 25-year licence renewal (the maximum allowed term).

“The total budget for the project is forecast at \$3.569 million spread over five years (2015 – 2019). Total deferred costs to the end of 2018 are forecast at \$2.899 million. The last Aishihik licence renewal project cost approximately \$8.791 million.

“The licence renewal process will include undertaking environmental and socio-economic studies required to support a YESAA Project Proposal (currently targeted for a Designated Office filing in mid-2018), followed by the development and securing of a Yukon Water Board Application and an application for a Fisheries Act Authorization.”

Request:

- (a) Please provide a detailed breakdown and explanation of the actual costs from 2015 and 2016 and forecast costs from 2017 onwards for the Aishihik licence renewal project.
- (b) Considering that the above is a five-year project, please describe and explain what has been accomplished from 2015 to date, with respect to this project.
- (c) Please explain what is meant by a “Designated Office filing”.
- (d) Have issues arisen as a result of working with the Champagne and Aishihik First Nations (CAFN) towards a water license use renewal? If so please explain.
- (e) Considering that YEC is almost three years into the project, are there updates to the total forecast cost of \$3.569 million for this project?

YUB-YEC-78

Reference:

Application, pages 5-34 to 5-36. PDF pages 205 to 207

Issue/sub-issue:

Battery Project – Energy Storage System, Section 5.3.1.3

Quote:

“The Battery project will provide a Battery Energy Storage System (BESS) to assist in addressing the current dependable capacity shortfall in a cost-effective manner by 2020.”

“Depending on the option selected, the TGS [TransGrid Solutions Inc.] study indicates forecast costs for the Battery project between \$21.7 and \$27.4 million (including costs for planning, permitting and construction) for an initial 15 to 20 year life, after which a replacement battery is estimated to cost between \$17.4 and \$22.1 million (2016\$).”

Preamble:

The Board notes that “Completion of environmental and socio-economic base line studies, stakeholder engagement and consultation, preliminary engineering, grid impact study followed by a Stagegate 3 project review in the 4th quarter of 2017”⁹ were to be undertaken in 2017.

Request:

- (a) Please provide a copy of the TransGrid Solutions Inc. Study.
- (b) Can YEC provide examples of utilities, in particular northern utilities, which have employed battery energy storage systems to address dependable capacity shortfall?
- (c) Are there limitations, such as limitations related to charging of the batteries, with respect to the use of the battery storage systems? Please explain.
- (d) Please provide a detailed year-by-year breakdown, with explanations, of the forecast costs for the battery project.
- (e) Please indicate what has been undertaken to date in relation to the steps identified in the preamble of this question.
- (f) Please explain what is meant by a “Stagegate 3 project review.”

⁹ Application, page 5-36, PDF page 207, lines 10-13.

YUB-YEC-79

Reference:

Application, pages 5-36 to 5-39. PDF pages 207 to 210

Issue/sub-issue:

Thermal Plant, Section 5.3.1.4

Quote:

“The Thermal Plant project will provide up to 20 MW of new diesel or natural gas thermal generation capacity to assist in addressing the current dependable capacity shortfall in a cost-effective manner by 2021. Forecast spending during 2017 and 2018 is on planning, preliminary engineering, environmental permitting, and the start of detailed design for this project.”

- “Planning for the 20 MW Diesel Plant option for in-service by 2021 involves the following schedule and budget:
 - “2017: Completion of environmental and socio-economic baseline studies, stakeholder engagement and consultation, preliminary engineering and grid impact study (\$0.75 million).
 - “2018: Stagegate 3 project review in the first quarter of 2018; subject to the project successfully passing the Stagegate 3 review, followed by the submission of a YESAB proposal, start of detailed design and procurement of long-lead equipment near end of year (\$3.46 million).
 - “2019: Permitting, procurement and start of construction (\$38 million).
 - “2020: Construction and commissioning (\$20.1 million).

“In addition, the 2017 work plan for the Thermal Plant project will include a final review of all new fossil fuel thermal generation options as required for proceeding on a timely basis ... One of the options to be considered will be a greenfield LNG option with third party gas supply; with LNG storage managed by others, it is possible this option could result in low enough CAPEX to enable use of natural gas in a greenfield facility.

“Specifically, the 2017 work will review options to refurbish the existing Whitehorse thermal plant as discussed in YEC's 2013/14 Part 3 Application and YUB hearing for the Diesel to Natural Gas Conversion Project (initial LNG Project).”

Request:

- (a) Please confirm that no costs for the thermal plant project are forecast to be included in rates for the 2017 to 2018 test period. If not confirmed, please provide a detailed breakdown and explanation of the past actual costs and forecast costs from 2017 onwards for the thermal plant project.
- (b) With respect to the above, has YEC determined whether it will proceed with diesel or natural gas thermal generation capacity to address the current dependable capacity shortfall.
- (c) Please explain what YEC has learned from its review of the options to refurbish the existing Whitehorse thermal plant that informs its answer to (b).

YUB-YEC-80

Reference:

Application, pages 5-39 to 5-41. PDF pages 210 to 212

Issue/sub-issue:

Demand Side Management, Section 5.3.1.5

Quote:

“inCharge Program Development and Delivery

“Beginning in 2010, Yukon Energy, in partnership with AEY and in consultation with stakeholders, developed a Five Year Demand Side Management Plan for the Yukon (the Plan).”

“The programs ... are very beneficial to the participants of the program and the utilities, who are the administrators of the programs.”

“Yukon Energy plans to continue the delivery of the approved inCharge program for the test years. Funding as proposed for 2017 and 2018 reflects that AEY has chosen to discontinue partnership in program delivery resulting in YEC carrying the full cost of these programs.

“The net cost of conducting initial research into potential for electricity conservation programming, designing the DSM Plan, in consultation with stakeholders and delivering the inCharge program until the end of 2016 was \$1.291 million. The costs for continuing delivery of the inCharge program in 2017 and 2018 are \$0.190 million and \$0.290 million for 2018.

“New Program Development

“The 2016 Resource Plan recommends that additional DSM programs are a cost effective way to meet energy and capacity demands and should be included in the proposed future portfolio of energy supply projects. These additional DSM programs must be designed prior to submission to the YUB for approval. To have sufficient Yukon-specific data to use in program design, YEC plans to develop residential and commercial customer end use surveys to be conducted by Yukon Bureau of Statistics.”

“Using the End-Use Survey data, Capacity DSM Feasibility Study and updated CPR model, the next step will be to design a suite of new DSM programs to complement the existing inCharge program.”

“The cost of new program development will be \$0.190 million in 2018.

“Pilot DSM Projects

“The learnings from these pilots helped to lay the groundwork for the launch of the inCharge program and build capacity within Yukon Energy to administer DSM programs ... Yukon Energy plans to continue to [contribute] to the Yukon Government’s commercial lighting program in 2018.”

Request:

- (a) Please explain what subsidies are provided through YEC’s DSM program and those provided by the Yukon Government DSM program. Is there an overlap between the two subsidy programs?

- (b) Please explain YEC's statement that "DSM programs are a cost effective way to meet energy and capacity demands." Does this statement apply to all YEC customers or to participants of the program?
- (c) Please provide YEC's rationale for its submission that DSM programs are beneficial to the participants of the program and the participating utilities.
- (d) Please explain how the benefit/cost ratios provided in figure 5.1 are calculated.
- (e) Please provide figure 5.1 in Excel format with all formulas intact.
- (f) Please provide a table outlining the annual expenditures (i.e. conducting initial research into potential for electricity conservation programming, designing the DSM Plan, in consultation with stakeholders and delivering the inCharge program) until the end of 2016. In the same table outline the costs included in the continuing delivery of the inCharge program for the test years.
- (g) With respect to new program development and considering YEC's experience, does YEC have any preliminary thoughts as to new programs that may be developed?
- (h) Please confirm that the cost of new program development is a deferred costs, which YEC will bring before the Board for approval in its next GRA. Is YEC willing to take the risk that expenses may be denied?
- (i) Please explain what YEC means when it states that it "plans to continue to contribute to the Yukon Government's commercial lighting program in 2018."

YUB-YEC-81

Reference:

Application, page 5-42. PDF page 213, lines 10 to 16

Issue/sub-issue:

LED Streetlight Retrofits

Quote:

“In 2015, Yukon Energy decided to move forward with the retrofit of their streetlight assets with LEDs [light-emitting diodes]. A consultant was retained to develop a technical specification that was used in a competitive bidding process. Streetlights in downtown Dawson and Mayo were retrofit in 2016 with plans to retrofit the remaining streetlights in Faro, Mendenhall and Champagne in 2018.

“The net cost of piloting LED streetlights to 2016 is \$0.142 million and the cost for retrofitting the streetlights in Dawson and Mayo with LEDs in 2016 was \$0.168 million. The cost of completing the retrofits will be \$0.080 million in 2018.”

Preamble:

The Board in Board Order 2017-01 (page 57) set out the following:

... the initial light asset cost was contributed by the customer when the light was originally installed in accordance with the approved Terms and Conditions of Service at the time. At the end of useful life when the asset needs replacement the customer is not required to contribute again and the cost becomes a system cost.

292. Accordingly, the Board directs that all capital costs associated with the end-of-life streetlight conversions be treated as a system cost.

293. With respect to LED streetlight installations that are not end-of-life conversions, the Board directs AEY to treat the costs related to new installations or requested conversions as capital costs that attract a full customer contribution in aid of construction. [footnotes omitted]

Request:

- (a) With respect to the retrofit of streetlight assets with LED assets prior to their end-of-life, in consideration of the Board’s findings in Board Order 2017-01, who should be bearing the costs of retrofitting the streetlights in Dawson and Mayo with LEDs? Please explain fully.
- (b) If assets are removed before their end-of-life, who should bear the costs of premature removal?

YUB-YEC-82

Reference:

Application, page 5-43. PDF page 214, lines 16 to 17

Issue/sub-issue:

Administration

Quote:

“Pursuant to the DSM [demand side management] Accounting Policy provided in Appendix 5.2, project related DSM costs are proposed to be closed out and amortized each year over a ten year period.”

Preamble:

Per YEC’s DSM Policy (Appendix 5.2), the Board notes YEC’s assertion that the following DSM-related costs shall be expensed as incurred:

- a. Administrative and other general overhead expenditures are expensed unless the expenditure can be directly attributed to a specific DSM program.
- b. Expenditures related to information programs and advertising unless directly attributed to a specific DSM program.
- c. Expenditures on training staff shall be expensed.

Request:

- (a) Please explain YEC’s rationale underpinning its proposal related to expensing DSM-related costs as they are incurred.
- (b) With respect to its proposal, please explain what opportunity is there for the Board and interveners to review these expenses and how will Board approval of these expenses be sought?

YUB-YEC-83

Reference:

Application, pages 5-43 to 5-44. PDF pages 214 to 215

Issue/sub-issue:

Resource Plan Update, Section 5.3.1.6

Quote:

“In late 2005, Yukon Energy completed a 20-year Resource Plan for the years 2006-2025 and the Yukon Utilities Board recommended that YEC file an update to its resource plan within five years.

- “An update was undertaken in 2011 covering the period from 2011 to 2030.”
- “A second update to the 20-Year Resource Plan was undertaken starting in 2015 and 2016 to address planning requirements for the period from 2016 to 2035.”

“The 2016 Resource Plan update is forecast to cost \$2.004 million and will be completed in 2017.”

...

“The 2016 Resource Plan document is provided for references as Volume 2 of this filing (absent the Appendices). The 2016 Resource Plan Appendices are available on Yukon Energy’s website at the following link: <http://resourceplan.yukonenergy.ca/more/>.”

Request:

- (a) Please indicate if the 2016 Resource Plan update filed in this application is the complete update referred to in the above quote. If not, when does YEC expect to complete the update?

- (b) What was the final cost of YEC's first update to the 20-Year Resource Plan?
- (c) Please compare final costs of the second update with the first update and explain variances.
- (d) Please summarize and explain significant findings of the second update which have arisen since YEC filed its first update, and explain the reasons for any variances which may have arisen in respect to the following:
- i.) Assessment of available resource options for analysis by assigning technical, financial, environmental and socio-economic attributes;
 - ii.) Development of a preferred resource portfolio for the short and long term as well as some contingency portfolio options;
 - iii.) Documentation of external risks and uncertainties and how they could impact preferred options;
 - iv.) Generation of a short-term (five-year), long-term (20-year) and contingency action plan for YEC to act upon in its resource planning activities.
- (e) Please provide the 2016 Resource Plan Appendices which YEC refers to in the above quote.

YUB-YEC-84

Reference:

Application, pages 5-46 to 5-47. PDF pages 217 to 218

Issue/sub-issue:

Marsh Lake Storage, Section 5.3.1.8

Quote:

“The Marsh Lake Storage Project (recently renamed the Southern Lakes Enhanced Storage Project, or SLESP) is a means of enhancing winter energy at the Whitehorse Rapids generating station to displace higher cost thermal generation that would otherwise be required. As reviewed in the 2012/13 GRA ...”

“In Order 2013-01, the Board found that Marsh Lake Storage was currently a viable project, and as such, all Marsh Lake-related project costs were to be held in WIP, until the project was completed. The Board noted that YEC was to cease work on the project if and when YEC concludes that there is no net economic benefit of the project to ratepayers.

“Work completed since the 2012/2013 GRA includes technical studies and assessments, engagement and consultation with various stakeholders, and extensive meetings with property owners that will be directly impacted by the project... The next major milestone is obtaining First Nations support for the project in order to progress to the YESAB assessment stage. Without such support the project will be cancelled ... It is expected that a decision to proceed to the YESAB assessment phase will be made at a Stagegate 3 project review planned for the 4th quarter of 2017.

“The deferred cost forecasts in the Application assume that the project continues, with spending in WIP increasing from \$6.517 million at the end of 2015 to \$8.156 million by the end of 2018. Potential in-service for this project in 2022 is provided in the 2016 Resource Plan.”

Request:

- (a) Please provide a detailed breakdown and explanation of the actual costs to date and forecast costs for the Marsh Lake Storage project (renamed Southern Lakes Enhanced Storage Project). Please provide variance explanations for costs that have diverged from forecast.
- (b) With respect to (a), please indicate at what stage of the project are First Nations' approvals sought? Please provide a detailed explanation.
- (c) From an economics perspective, does YEC have a stop point for this project? Please explain.

YUB-YEC-85

Reference:

Application, pages 5-47 to 5-49. PDF pages 218 to 220

Issue/sub-issue:

Mayo Lake Storage, Section 5.3.1.9

Quote:

“The Mayo Lake Enhanced Storage Project (MLESP) will amend the Mayo Generation Station Water Use Licence to provide for up to one metre of additional draw down of Mayo Lake...”

“... a recent study by external engineers ha[s] shown that sediment in the Mayo Lake outlet channel is constraining water flow through the channel ... and preventing any benefit from being realized by the MLESP ...”

“The MLESP proposal was submitted to the YESAA [Yukon Environmental and Socio-economic Assessment Act] Designated Office in August 2015 (noting that a Mayo Outlet Dredging Project would be pursued separately in the future), with provision for the full one metre of added drawdown after an initial 0.5 metre drawdown and subject to adaptive management provisions that was co-developed, and would be implemented, with the First Nation of Na-Cho Nyak Dun. The YESAA Designated Office suggested that review of the MLESP be grouped with an unrelated YG project proposed for the lower Mayo River, and also required that the Mayo Lake Outlet Dredging Project be included in the MLESP review as an accessory project. In order to let the YG proposal move forward in a timely way the Yukon Energy MLESP proposal was withdrawn, on the understanding that it would be resubmitted at a later time with additional information regarding the Mayo Lake Outlet Dredging Project.

“Project spending during 2016 includes environmental monitoring and phase 1 of the dredging work, a desktop analysis. Environmental monitoring makes up the majority of the 2017 costs and will continue through 2018. Phase 2 of the dredging work, detailed modelling and design, will take place during 2018. Once phase 2 of the dredging work is complete, YEC will have a much better estimate of the total costs to complete the project.”

“The deferred cost forecasts spending in WIP increasing from \$2.406 million at the end of 2016 to \$3.356 million by the end of 2018. Potential in-service for this project in 2022 is provided in the 2016 Resource Plan.”
[footnote omitted]

Request:

- (a) Has YEC resubmitted the Mayo Lake storage project (renamed Mayo Lake Enhanced Storage Project), including the Mayo Lake Outlet Dredging Project to YESAA Designated Office?
- (b) Please explain what environmental monitoring spending includes and how this might influence project costs.
- (c) Please explain what phase 1 and phase 2 of the dredging work include and the related costs.
- (d) Has YEC commenced discussions with the First Nation of Na-Cho Nyak Dun with respect to the full one metre of added drawdown? Please explain.

(e) For each of the years 2016 to 2018, please provide a table that includes a breakdown and explanation of the cost totals for each year.

YUB-YEC-86

Reference: Application, Tab 5, page 5-49. PDF page 220
Issue/sub-issue: Projects between \$100,000 and \$1 Million, Section 5.3.2, Appendix 5.3
Quote: “The projected total 2017 and 2018 spending in deferred cost activities

excluding major projects over \$1 million (as described in Section 5.3.1) totals approximately \$2.2 million in 2017 (\$0.7 million in closed projects), as set out in detail in Table 5.7, and a total of approximately \$2.9 million for 2018 (\$1.5 million in closed projects for 2018 spending and \$0.7 million in closed projects from 2017 spending) as set out in detail in Table 5.8. Total increase to rate base from deferred cost activities excluding major projects over \$1 million, but including transfers from WIP spending prior to 2017, is \$4.9 million in 2017 and \$3.3 million in 2018.”

Preamble: The Board requires further information regarding the following projects:

Project	Prior to 2017	Forecast 2017	Forecast 2018
Development of Asset Management Program ¹⁰		\$200,000	\$150,000
Time of Use Rate Structure and Smart Grid ¹¹		\$100,000	
Mt Sumanik Wind Feasibility Study ¹²	\$540,280	\$50,000	\$250,000
Northern Diesel Plant ¹³			\$100,000
Whitehorse Hydro Uprate ¹⁴			\$450,000
Small Hydro ¹⁵			\$625,000

Source: Application, Appendix 5.4. PDF pages 257 to 259

Request:

(a) With respect to YEC’s proposed asset management program, please explain what does YEC mean when it states that an “asset management methodology or plan ...” will “... systematically assess major asset groups ... and manage the planning of investments to meet overall corporate goals.”¹⁶

i.) Please explain what YEC is doing presently to manage its assets. Will customers see offsetting operating and management savings? Please provide a detailed explanation.

¹⁰ Application, Appendix 5.4 PDF page 257
¹¹ Application, Appendix 5.4 PDF page 258
¹² Application, Appendix 5.4 PDF page 258
¹³ Application, Appendix 5.4 PDF page 258
¹⁴ Application, Appendix 5.4 PDF page 259
¹⁵ Application, Appendix 5.4 PDF page 259
¹⁶ Application, Appendix 5.4, page 5.4-2. PDF page 257

- ii.) Please explain whether or not the asset management program is a one-time project or if it will be ongoing.
 - iii.) If the asset management program is intended to be an ongoing project, please explain why YEC has included it in capital costs instead of as an operating cost.
- (b) Do customers throughout the Yukon have the necessary infrastructure in place (i.e. meters, etc.) to allow for a time of use rate structure? Please explain.
- (c) Please provide the results of the planning studies for potential wind farm sites throughout the Yukon. Please provide the capacity factor(s) of current wind facilities in the Yukon. Please fully explain what the test year expenditures relate to.
- (d) Respecting YEC's northern diesel plant initiative, has YEC investigated any alternatives other than relocation to mitigate issues related to plant noise and flood risk at the current locations? If not, please explain why it has not done so. If yes, please provide the results of the investigations.
- (e) Please provide further details regarding the \$450,000 that is to be spent in 2018 related for the Whitehorse Hydro uprate project. Is an outside agency/consultant performing the investigation? For this project, please explain why is it necessary to select an owner's engineer to represent YEC throughout the project. Please explain the financial benefits realized on previous uprate projects.
- (f) Relative to the small hydro project, please provide a breakdown of the \$625,000 total cost forecast. Please provide a full explanation of what geotechnical investigations are and how they might influence the project. Considering that the small hydro resource option is at a pre-feasibility stage, will a third party consultant be undertaking further studies to confirm site selection and project need? Please explain.

YUB-YEC-87

Reference:

Application, Tab 5, Appendix 5.3

Preamble:

The Board requires further information in respect to the following projects:

Project	Prior to 2017	Forecast 2017	Forecast 2018
Aishihik Generator Fire Protection ¹⁷			\$125,000
Whitehorse Local HMI/Historian Upgrade ¹⁸		\$180,000	
Dawson P158 T1/T2 Transformer ¹⁹			\$200,000
Transmission System Protection Upgrades ²⁰		\$100,000	
Critical Spares – System Requirement ²¹	\$200,000	\$100,000	\$100,000
Mayo Transient Trailer Unit ²²			\$250,000
Stewart-Minto Local SCADA ²³			\$165,000

Request:

- (a) Is there a link between the “Aishihik Generator Fire Protection” project and the previous “AHO Deluge System” project?
- (b) Please explain the benefits accruing to customers from the “Whitehorse Local HMI/Historian Upgrade” project.
- (c) Is the Dawson P158 T1/T2 transformer connected to the Mayo to Dawson project?
- (d) Please explain how a tripping scheme for L178 will eliminate grid separation by faults on L178.
- (e) Please provide the prioritized list of the components (generation, transmission, and communications equipment) that are to be purchased during the test period.
- (f) Are there any carrying costs associated with the “Mayo Transient Trailer Unit” project? Please explain.
- (g) With respect to the Stewart-Minto Local SCADA project, please provide the key performance indicator improvements and an explanation of the benefits will accrue to YEC’s customers from this project?

¹⁷ Application, Appendix 5.3, PDF page 245

¹⁸ Application, Appendix 5.3, PDF page 247

¹⁹ Application, Appendix 5.3, PDF page 249

²⁰ Application, Appendix 5.3, PDF page 250

²¹ Application, Appendix 5.3, PDF page 252

²² Application, Appendix 5.3, PDF page 253

²³ Application, Appendix 5.3, PDF page 253