Yukon Energy Corporation
2021 General Rate Application

Yukon Utilities Board (YUB) Information Requests Round 2 to Yukon Energy Corporation (YEC)

YUB-YEC-2-01

Reference: **YUB-YEC-1-5(a), PDF page 9**
Issue: **Diesel rentals**
Quote: "The firm capacity provided by the 15 diesel rental units for 2021 is 27 MW (1.8 MW per unit). Note the contract price includes two additional 1.8 MW units for reliability."

Request:

(a) Please clarify whether YEC is renting 15 or 17 diesel units.

(b) Of the base rentals (i.e., not including the additional two units for reliability), how many of the units are for previously retired diesel units? How many are to meet increased capacity needs (i.e., to satisfy YEC's N-1 capacity criterion)? Please explain.

(c) What are the costs for the two additional units required for reliability?

(d) When YEC discusses reliability in the context of this question, does YEC refer to other rental units not being operational when required? Please explain.

YUB-YEC-2-02

Reference: **YUB-YEC-1-10(a), PDF page 16**
Issue: **Independent Power Production (IPP)**
Quote: "YEC has considerable uncertainty as to timing for forecast IPP amounts for 2021. The first project that was to be operational in November 2020 has been delayed into spring 2021."

Request:

(a) Please provide an update on IP production in terms of expected projects.

(b) Does YEC have an updated forecast for IP production for 2021? If so, please provide that forecast.

YUB-YEC-2-03

Reference: **YUB-YEC-1-31(a), PDF page 49**
Issue: **Diesel rental units**
Quote: "The rental of 15 diesel generator units plus two spare units is required to address the N-1 dependable capacity shortfall, as explained in Section 2.4 of the Application (the specific measurement of the shortfall is addressed at pages 2-14 and 2-15). This requirement is related to the factors noted regarding the N-1 capacity shortfall, and is not related to forecast thermal generation."

Request:

(a) If the rental of the 15 diesel units is to address an N-1 dependable capacity shortfall, in the absence of such an event, are those units expected to be idle? Please explain.

(b) If the primary function of the 15 diesel rental units is to provide N-1 dependable capacity, why are 17, rather than 15, diesel rental units necessary to provide N-1 dependable capacity?

YUB-YEC-2-04

Reference: **YUB-YEC-1-32(b), PDF page 51**
Issue: **Thermal fuel mix**

Request:

(a) Please provide the statistics or any other numerical analysis that supports the 90:10 LNG/diesel fuel mix.

(b) Please explain how the proposed thermal fuel mix in this application addresses all the concerns expressed by the Board in Appendix A to Board Order 2019-08.

YUB-YEC-2-05

Reference: **YUB-YEC-1-45(a), PDF page 94**
Issue: **VGC and Alexco Fixed Charge**
Quote: "The Transmission Facilities Development Operation Date has been delayed to March 2021. YEC therefore now expects to file the amended Transmission Facilities Fixed Cost application in March 2021, requesting an interim Fixed Charge adjustment effective May 1, 2021 in order to establish a necessary rate adjustment for VGC Group and Alexco as soon as feasible. This filing will be based on the 2020-2021 to date forecast costs of the new facilities and YEC's approved 2018 GRA cost of capital at 4.82%, i.e., these initial adjustments do not include any changes related to YEC's 2021 GRA proposed cost of capital."

Request:

(a) What is the expected life of the VGC mine?

(b) Although the response above notes cost of capital, can depreciation rates affect the fixed charge to VGC and Alexco? Please explain.

(c) If the forecast capital cost related to the new facilities for VGC are approved in this GRA, does that imply that the fixed charge can be finalized for 2021? Please explain.

YUB-YEC-2-06

Reference:	**Low Water Reserve Fund (LWRF) Term Sheet, (April 8, 2021 submission), PDF page 1**
Issue:	**Applicable years**
Quote:	"Attachment 1 includes the Updated LWRF Term Sheet applicable for fiscal years after 2018, in conformance with OIC 2021/16…"

Request:

(a) Please explain the applicability of a LWRF term sheet for years after 2018 when it is based on an OIC dated 2021.

(b) OIC 2021/16 is dated February 11, 2021. Please confirm that OIC 2021/16 applies on a prospective basis from February 11, 2021. If not, please explain why not.

(c) Is it YEC's view that the Board has the authority to apply OIC 2021/16 to YEC's tariff for years before 2021? Please explain.

YUB-YEC-2-07

Reference:	**Low Water Reserve Fund (LWRF) Term Sheet, (April 8, 2021 submission), PDF page 7**
Issue:	**LWRF cap**
Quote:	"In compliance with OIC 2021/16 (Sections 9(6) and 9(8)), the updated LWRF Term Sheet increases the LWRF cap from +/- $8 million to +/ $16 million. This change reflects the material increase in YEC's forecast generation load for the 2021 test year compared to the last GRA 2018 test year forecast. The objective is to reduce Rider E impact frequency and enable the LWRF to be more robust in dealing with severe drought."

Request:

(a) Does OIC 2021/16 dictate the cap level for the LWRF? Please explain.

(b) Is the change in the cap level for the LWRF from $8 million to $16 million a request from YEC to this Board for approval?

(c) Please provide further explanation as to why YEC requires the LWRF cap to be increased by $8 million.

(d) Is it YEC's position that any change from the renewable generation forecast is now charged to the LWRF? Please explain.

YUB-YEC-2-08

Reference:	**YEC Rate Schedule 39 (March 23, 2021 submission)**
Issue:	**Outstanding issues**

Request:

(a) The Board approved YEC's interim rate request for Rate Schedule 39 in Board Order 2021-09. In YEC's view, are there any other outstanding determinations required from the Board regarding this issue for this GRA? Please explain.

YUB-YEC-2-09

Reference: **YUB-YEC-1-37(g), PDF page 64**

Issue: **Reserve for Injuries and Damages (RFID) costs**

Quote: Information request (IR):
"Please identify any additional costs or savings experienced by or actively sought by YEC during 2020 as a result of the current economic conditions surrounding the COVID-19 pandemic."

IR Response:
"Significant additional costs as a result of the current economic conditions surrounding the COVID-19 pandemic are included as RFID. Savings as a result of the current economic conditions surrounding the COVID-19 pandemic include significantly reduced travel costs for YEC employees."

Preamble: YEC has forecast 2020 RFID costs in the amount of $1.598 million as noted in its Tab 3 workbook on Table 3.11.1.

Request:

(a) Please clarify the amount of "significant additional costs" resulting from the current economic conditions surrounding the COVID-19 pandemic that have been included in YEC's 2020 RFID forecast of $1.598 million.

(b) Please explain why the additional costs referred to in part (a) should be recoverable through YEC's 2020 RFID account and associated policy. As part of this IR response, please include a copy of YEC's RFID policy and a reference to the applicable section.

(c) Please clarify the amount of the "significantly reduced travel costs" for YEC employees and confirm whether those cost reductions have similarly been reflected in YEC's 2020 RFID forecast. Please explain fully regardless of whether the response to part (c) is confirmed or denied.

(d) Please provide the "significant additional costs" and, separately, the "significantly reduced travel costs" on an actual basis for 2020. If YEC is not able to provide these costs on an actual basis, then please provide updated 2020 forecast information.

(e) Please provide a breakdown of YEC's actual 2020 RFID costs by each constituent component. If YEC is not able to provide these costs on an actual basis, then please respond by providing updated 2020 forecast information.

(f) Of the $0.411 million of RFID costs forecast for 2021, how much is related to costs (or cost reductions) associated with the COVID-19 pandemic?

YUB-YEC-2-10

Reference: **YUB-YEC-1-118(b) and YUB-YEC-139(a), PDF pages 541, 631**
Issue: **Depreciation expense under straight-line amortization**

Preamble: In response to YUB-YEC-118(b) asking for the directional impact to depreciation expense related to the proposed change to a 50-R2 life and curve from the approved 50-R3 life and curve for Account 1625-305 Distribution System – Survey Costs, YEC responded that "There is no change to depreciation as the life has not changed and YEC uses straight-line amortization."

However, in response to YUB-YEC-139(a), YEC implies that, for Account 1665-500 LNG Plant – Generators, using a 40-R2 life and curve in lieu of using the proposed 40-SQ life and curve would "slightly increase the depreciation expense for the 1665-500 account."

Request:

(a) Given that YEC uses straight-line depreciation, please explain why no change in depreciation expense would be anticipated for Account 1625-305 (notwithstanding a change in the Iowa curve dispersion from R3 to R2), whereas for Account 1665-500, depreciation expense would increase slightly (as resulting from a change in the Iowa curve dispersion from SQ to R2).

YUB-YEC-2-11

Reference: **YUB-YEC-1-9(a), PDF page 15**
Issue: **2019 total firm generation load**
Quote: "(a) The 2017-18 GRA proceeding did not provide any forecast for 2019 load on the YIS. Aside from YEC internal business plan forecasts, the only public forecast was provided in YEC's 2016 Resource Plan where the forecast total firm generation load on the Yukon Integrated System for 2019 was 443 GW.h, which compared relatively well with the actual 440.7 GW.h."

Request:

(a) Please confirm that there was no 2019 forecast because there was no GRA proceeding for 2019.
(b) Is it YEC's practice to make "internal business plan forecasts" for business planning purposes for the years in which there is no GRA proceeding? If so, please provide the forecast for YEC's internal business plan. If not, please explain why not.

YUB-YEC-2-12

Reference: **YUB-YEC-1-10(a), (b), PDF page 16**
Issue: **Independent Power Production (IPP)**
Quote: "(a) YEC has considerable uncertainty as to timing for forecast IPP amounts for 2021. The first project that was to be operational in November 2020 has been delayed into spring 2021.

(b) We do not know how IPP projects have been affected to date by the COVID-19 pandemic. The IPP did not commence in 2020 as scheduled."

Request:

(a) Please explain why YEC did not look into how IPP projects have been affected to date by the COVID-19 pandemic, given the fact that "YEC has considerable uncertainty as to timing for forecast IPP amounts for 2021".

YUB-YEC-2-13

Reference: **YUB-YEC-1-17(a), PDF page 26**
Issue: **Sales for lighting**
Quote: "(a) YEC does not have the level of detail requested. Available information on sales for lighting is below. From project records, YEC notes 429 streetlights were retrofitted from High Pressure Sodium to LED between 2016 and 2018."

	Street Lights		Sentinel Lights		Total	
Year	Sales (MWh)	Number of Lights	Sales (MWh)	Number of Lights	Sales (MWh)	Number of Lights
2010	282.8	576	14.3	25	297	601
2011	283.0	577	13.9	25	297	602
2012	283.1	577	14.0	25	297	602
2013	283.2	578	14.1	25	297	603
2014	286.7	584	14.1	25	301	609
2015	291.8	594	14.3	25	306	619
2016	263.3	604	14.3	27	278	631
2017	228.2	614	11.6	26	240	640
2018	227.0	623	11.2	25	238	648
2019	167.8	632	10.1	23	178	655
2020	167.6	632	9.8	24	177	656

Request:

(a) Please confirm that, based on the quote above, including the information in the table, there were still 194 high pressure sodium street lights by the end of 2018. If not confirmed, please explain.

(b) Does YEC have an updated number of retrofitted streetlights for 2019-20? If confirmed, please provide the number for each year. If not, please explain.

YUB-YEC-2-14

Reference: **YUB-YEC-1-19(b), PDF page 29**
Issue: **Thermal generation forecast and weather**
Quote: "Mechanical issues include premature wear of valves, failures of exhaust valves, failures of heat exchangers and premature wear of engine block. There was 2.6 GWh of added diesel generation due to LNG outages. The net increase in fuel cost due to burning diesel was $303,160 based on the 2018 approved GRA forecast average fuel costs per kWh for diesel ($0.2633/kWh) and LNG ($0.1467/kWh)." (footnote removed)

Request:

(a) Please explain what caused the "premature" wear of valves and engine block.

(b) Please explain what caused the failures of exhaust valves and heat exchangers.

YUB-YEC-2-15

Reference: **YUB-YEC-1-21(a), PDF page 33**
Issue: **Dependable capacity requirements**
Quote: "(a) The loss of load expectation and emergency N-1 standards were first developed as part of the 2006 Resource Plan, and were reconfirmed with the 2016 Resource Plan. YEC is not aware of any basis to seek revisions to these standards at this time. The N-1 dependable capacity standard continues to be very relevant for non-industrial load reliability during winter months on this isolated Yukon grid. Consideration of an N-1 contingency is standard in the industry."

Request:

(a) How often does YEC review the loss of load expectation and emergency N-1 standards? Please explain.

YUB-YEC-2-16

Reference: **Application, Tab 5 tables**
Issue: **Construction work in progress (CWIP) continuity schedules for capital projects**

Preamble: As part of its application, YEC provided an Excel spreadsheet that outlined the costs for capital projects. There was a total of eight tables in the spreadsheet:

- Table 5.1: Expenditures on Property, Plant and Equipment – Summary
- Table 5.2-1: Expenditures on Property, Plant and Equipment – Projects Included in 2021 Rate Base
- Table 5.2-2: Expenditures on Property, Plant and Equipment – Major Projects Forecast to Remain in WIP by end of 2021
- Table 5.3: Continuity Schedule of Deferred Costs (2018)
- Table 5.4: Continuity Schedule of Deferred Costs (2019)
- Table 5.5: Continuity Schedule of Deferred Costs (2020)

- Table 5.6: Continuity Schedule of Deferred Costs (2021)
- Table 5.7: Continuity Schedule of Intangible Assets

While these tables are associated with all of the capital projects presented in YEC's application, the Board requires consistency in how costs for capital projects are presented. For example, continuity schedules as presented in Tables 5.3 to 5.7 should be consistently applied to all capital projects.

Request:

(a) Please provide schedules for all capital projects in this application in the following CWIP continuity format:

	[YEAR] Actual or Forecast or Approved (please complete as applicable for each of 2018, 2019, 2020, and 2021)			
Category of capital project	**Opening CWIP**	**Capital Expenditures**	**Capital Additions**	**Closing CWIP**
Capital Works – Major projects > $1 million – Rate Base Additions *Include each applicable project*				
Capital Works – Projects $100,000 to $1 million *Include each applicable project*				
Deferred Costs – Major projects > $1 million – Rate Base Additions *Include each applicable project*				
Deferred Costs – Projects $100,000 to $1 million *Include each applicable project*				
Intangible Assets – Major projects > $1 million – Rate Base Additions *Include each applicable project*				
Capital Projects > $1 million not impacting rate base *Include each applicable project*				
Capital Projects > $100,000 and < $1 million added to rate base *Include each applicable project*				
Deferred Projects > $1 million not impacting rate base *Include each applicable project*				
Deferred Studies > $100,000 and < $1 million added to rate base				

Include each applicable project				
Deferred Studies > $100,000 and < $1 million not impacting rate base *Include each applicable project*				
Intangible Assets > $100,000 and < $1 million added to rate base *Include each applicable project*				

Please ensure that the detail requested is provided in an Excel spreadsheet format with subtotals for each category of project and that it includes all working formulas. As noted in the heading for the requested tables, please provide the actual, forecast, and approved costs. For example, actual and approved for the years 2017 and 2018; actuals for 2019; forecast and actuals for 2020, and forecast for 2021.

YUB-YEC-2-17

Reference: **YUB-YEC-1-49(a), PDF pages 111, 113; YUB-YEC-1-59(a), (b), PDF pages 274, 275; YUB-YEC-1-63(a), (b), PDF pages 286, 287; YUB-YEC-1-64(c), PDF page 290; YUB-YEC-1-70(c), PDF page 337; YUB-YEC-1-72(a), PDF page 345; YUB-YEC-1-73(a), PDF page 348; YUB-YEC-1-74(a), PDF page 349; YUB-YEC-1-75(a), PDF page 351; YUB-YEC-1-80(a), PDF page 360; YUB-YEC-1-90(a), PDF page 433; YUB-YEC-1-91(a), PDF page 445; YUB-YEC-1-92(b), PDF page 448; YUB-YEC-1-93(b), PDF page 452; YUB-YEC-1-94(b), PDF page 456; YUB-YEC-1-95(d), PDF page 460; YUB-YEC-1-96(a), PDF page 463; and YUB-YEC-1-102(b), PDF page 473.**

Issue: **Consistent capital cost breakdowns for capital projects**

Quotes: From response to YUB-YEC-1-49(a), PDF page 111:

Table 1: LNG Third Engine Project Cost Breakdown, $000

	Total Cost
Engineering & Construction Management	473.9
Engine Package & Transportation	5,710.2
Balance of Plant Installation	1,453.1
Commissioning	10.7
Owner Costs	265.2
Spare parts	347.5
Total	**8,261**

Table 2: N-1 Capacity Shortage Whitehorse Thermal Rental Site, $000

	Total Cost
Internal Labour	288.8
Other Internal Costs	18.2
Engineering	30.7
Materials	745.4
Contractors	214.7
Total	**1,298**

Table 3: Transmission Line Refurbishment Project, $000

	Total Cost
Materials	719.0
L170 Installation Contractor	1,006.1
L171 Installatoin Contractor	1,622.7
Construction Support	923.7
Total	**4,272**

From response to YUB-YEC-1-49(a), PDF page 113:

Table 7: Mayo – McQuesten Transmission Line Upgrade Project, $000

	2019	2020	2021	Total Cost
Mayo-McQuesten Transmission Line				
Project Mgmt & Owner's Engineer	34	960	63	1,058
Surveying	13	157	43	212
Brushing & Access	0	2,674	0	2,674
Line Construction	87	8,239	2,324	10,650
Internal Costs	20	215	265	500
Subtotal	**154**	**12,245**	**2,695**	**15,094**
STATCOM				
Equipment	73	671	5,718	6,462
Project Mgmt & Owner's Engineer	45	597	709	1,351
Substation Construction	13	2,848	1,642	4,503
Internal Costs	10	226	14	250
First Nations Benefits	205	400	0	605
Subtotal	**347**	**4,741**	**8,083**	**13,171**
Total	**501**	**16,986**	**10,778**	**28,265**
Per 2021 GRA Application	501	20,000	11,200	**31,701**
Variance	0	-3,014	-422	-3,436

From response to YUB-YEC-1-59(a), PDF page 274:

Table 1: Aishihik Generating Station Three-Year Licence Renewal Project Costs

Year	Description	Cost
2019	Compensation-related activities including negotiating compensation with claimants pursuant to the Waters Act and legal support for negotiations	$127,325
2019	Project Management	$125,631
2019	Conducting impact assessment for YESAA Project Proposal	$21,607
2019	Conducting baseline studies and early monitoring in support of development of YESAA Project Proposal and MAMP	$62,144
2019	Assessment and review process activities, including: Development of YESAA Project Proposal, submission of Project Proposal to Designated Office and all activities supporting path through assessment process (e.g. interrogatories), Preparation of Yukon Water Board Application and DFO Fisheries Act Authorizations.	$368,061
2019	Stakeholder Engagement activities, including capacity funding of CAFN for technical review and participation in project activities	$99,704
2019	Accrual of AFUDC	$122
	Total 2019:	**$804,593**
2020	Project Management	$11,445
2020	Assessment and review process activities, including: Yukon Water Board hearing and DFO Fisheries Act Authorizations, activities to complete these processes.	$89,819
2020	Compensation payments under the Yukon Waters Act for the 3-year License Period	$8,700
2020	Accrual of AFUDC	$2,314
	Total 2020:	**$ 112,278**

From response to YUB-YEC-1-59(b), PDF pages 274, 275:
"Breakdown of $832,906 costs spent in 2019:

- $385,009 DSM Program Design.
- $433,612 Residential Demand Response Pilot (gross cost; contributions of $365,315 received and separately noted in Table 5.4).
- $14,285 inCharge maintenance.

… The actual 2020 DSM costs are broken out as follows:

- $571,901 Residential Demand Response Pilot (gross cost; contributions of $488,932 received and recorded as offset to project costs).
- $8,576 HPS light disposal and inCharge admin.
- Total Net Project Cost $91,545.

… The table below provides breakdown for the updated cost for 2021.

Demand Side Management		
DSM Administration	$	25,000
New Program Design Completion	$	300,000
New Program Implementation	$	240,000
Energy Management Tracking	$	-
Peak Smart Pilot (Gross Costs)	$	250,000
Total Gross Project Cost	**$**	**815,000**
Contributions (PeakSmart funding)	*$*	*(215,000)*
Total Net Project Cost	**$**	**600,000**

"

Preamble: In the following IRs related to capital projects, the Board requested YEC to provide a cost breakdown of each applicable project:

- YUB-YEC-1-49(a)
- YUB-YEC-1-59(a), (b)
- YUB-YEC-1-63(a), (b)
- YUB-YEC-1-64(c)
- YUB-YEC-1-70(c)
- YUB-YEC-1-72(a)
- YUB-YEC-1-73(a)
- YUB-YEC-1-74(a)
- YUB-YEC-1-75(a)
- YUB-YEC-1-80(a)
- YUB-YEC-1-90(a)
- YUB-YEC-1-91(a)
- YUB-YEC-1-92(b)
- YUB-YEC-1-93(b)
- YUB-YEC-1-94(b)

- YUB-YEC-1-95(d)
- YUB-YEC-1-96(a), (b)
- YUB-YEC-1-102(b)

The format of these cost breakdowns was not consistent throughout the IR responses, as seen from the quotes above which illustrate the various ways YEC presented the cost breakdown for projects. Additionally, some projects had updated costs that varied from the costs presented in the application. For example, updated costs were provided for the following projects (as seen in the response to YUB-YEC-1-49 on PDF page 110):

- N-1 Capacity Shortage Faro Thermal Rental Site Infrastructure
- Mayo-McQuesten Transmission Line Upgrade Project
- Replacement of the P125 Head Gate Project
- WH2 Uprate Project
- WH4 Uprate – Servomotor Replacement Project

Another example can be found in the response to YUB-YEC-1-59(b) for the DSM programs on PDF page 275.

The Board requires YEC to present its cost breakdown for the IR responses referenced above in a consistent manner and, if applicable, provide variances where costs now differ from those costs seen in the original application.

Request:

(a) Using Table 7: Mayo – McQuesten Transmission Line Upgrade Project as a reference example (for presentation purposes), please provide a cost breakdown for the projects in the IR responses referenced above, identifying the years and the capital amounts for each of those years. If applicable, please ensure that a variance row is included in your updated tables and provide an explanation of the variance. Please use the response to CW-YEC-1-26(b) as a reference for variance explanations.

(b) Please explain if there are variances in the costs for any other capital project presented in Tab 5 – Capital Project of the 2021 General Rate Application. If so, please identify and provide explanations of those variances, using the response to CW-YEC-1-26(b) as a reference for variance explanations.

YUB-YEC-2-18

Reference:	**YUB-YEC-1-51(b), (c), and (e); (d); (f), (g), and (h); (i); PDF pages 121 - 128**
Issue:	**Mayo-McQuesten Transmission Line Upgrade Project**
Quotes:	From response to YUB-YEC-1-51(b), (c), and (e), PDF pages 121, 122: "[A] new line from Mayo to the Keno City region is required at this time to replace the end of life existing 69 kV line constructed in the 1950's. This line is in poor condition and there has been a significant degradation in reliability. This was reviewed previously during the 2017 VGC Group PPA proceeding and the 2017/18 GRA, and is also supported by data collected from inspections." (footnote removed)

From the response to YUB-YEC-1-51(b), (c), and (e), PDF page 122:
"In the early 1990s, Yukon Energy noted that the line was significantly deteriorated and needed to be rebuilt or abandoned due to safety and reliability concerns; however, at the time a rebuild could not be justified due to the closure of UKHM. As an alternative, minimal capital improvements were undertaken at that time to maintain the line and ensure continued service to existing non-industrial customers; and over the past 15+ years transmission line repairs have been required on an ongoing basis to address reliability concerns." (footnotes removed)

From the response to YUB-YEC-1-51(b), (c), and (e), PDF page 122:
"Further, in 2011, 35% (or 188 of 535) of the structures on L250 failed the test…"

From the response to YUB-YEC-1-51 (b), (c), and (e), PDF page 123:
"See Table 1 for a summary of the outages from 2011 to 2020 mid-year. Total cost to respond to outages (planned and unplanned) are about $320,900 (2012 to date) with an average annual cost of roughly $35,655. Additionally, capital investment in this line over the same period totaled $963,700."

From the response to YUB-YEC-1-51(d), PDF page 124:
"YEC explored three alternatives: the STATCOM (Static synchronous compensator); SVC (static VAR compensator); and the synchronous condenser.

The synchronous condenser was proposed as the best solution as it provided reactive power support while also being able to recover the system frequency with excursions below 64Hz in a large load loss such as Eagle Gold Mine. However, due to the associated costs the STATCOM was chosen as a compromise as its more responsive than the SVC solution."

From the response to YUB-YEC-1-51(d), Table 2 - Stewart Crossing Potential FACTS Solutions, PDF page 124:
"[SVC] is fading in popularity. A STATCOM would be the preferred solution for reactive power support."

From the response to YUB-YEC-1-51(f), (g) and (h), PDF pages 125, 126: "The decision to complete the design of the project using a 138 kV standard was made in March 2017 as a result of completion of the detailed design of the powerlines and substations and comparative pricing using 138 and 69 kV design standards. Table 3 below provides a cost comparison. Cost reductions shown in Table 3 are in comparison with the 138 kV H-frame design. For L180 line the cost reduction to use a 69 kV design compared to 138 k [sic] was less than 10% (between 3.8% and 9.4%)

The decision to utilize a 138 H-frame design was based on the following factors…"

From the response to YUB-YEC-1-51(f), (g) and (h), PDF page 127:
"Once the line is in service, reliability will be tracked."

From the response to YUB-YEC-1-51(i), PDF page 128:
"Contractors were selected through a competitive RFP process. Each of the contacts were evaluated based on technical ability, price and the ability to provide FN opportunities. Once the evaluation process was completed and successful bidder selected based on total score, contract negotiations began, were finalized and signed

The L180 Transmission line will be completed and fully energized in March 2021. Upon energization of the new line, the old 69kV line will be decommissioned /removed with an anticipated end date of April 2021."

Request:

(a) Please provide a summary of the relief requested, reasons for the request, and the relief granted in the VGC Group PPA proceeding and the 2017/18 GRA around the existing line between Mayo and Keno City.

(b) Please explain further why a rebuild could not be justified due to the closure of UKHM. How did the closure of UKHM impact the line rebuild?

(c) Please describe the minimal capital improvements undertaken to maintain the line between Mayo and Keno City when a rebuild could not be undertaken.

(d) In its responses to the Board's IRs referenced above, YEC quoted a passage from the Steward-Keno Transmission Line Project Proposal filed with YESAB in 2015. The passage mentioned 35 per cent of the structures on L250 failing a test. Please clarify which test was performed on L250.

(e) YEC provided the number and duration of outages from 2011 to 2020 on the line between Mayo and Keno City. In 2014 and 2015, the total number of outage hours was 126.24 and 105.1 hours respectively. Please provide further details on the outages that occurred in these two years and the reasons for the outage hours.

(f) Please indicate whether any portion of the costs incurred due to outages and capital investments on the line have been approved by the Board in previous GRAs. If confirmed, please identify the applicable Board decisions and paragraph numbers of those decisions.

(g) YEC provided the alternatives for reactive power support and the associated budgetary costs in Table 2: Stewart Crossing Potential FACTS Solutions. Please explain why the costs associated with the synchronous condenser are higher compared to the other two alternatives.

(h) Please explain how much more responsive the STATCOM solution is compared to the SVC solution (i.e., how many seconds faster is STATCOM compared to SVC?) Additionally, please explain why SVC is fading in popularity and identify any other benefits of STATCOM compared to SVC. How much more effectively will STATCOM provide reactive power support on the Yukon Integrated System compared to SVC?

(i) As seen on Table 3: Preliminary Cost Estimates SKTP (or PDF page 125 of the response), for the L180 line, the estimated cost of the 138-kV Mono Pole option was $11,392,153.10, whereas the estimated cost of the 138-kV H-Frame option was $12,117,969.81. In its responses to the Board's IRs, YEC indicated that the H-Frame option was preferred. Please explain why this option, which appears more expensive, was preferred over the Mono Pole option.

(j) YEC mentioned that once the new line is in service, reliability will be tracked. Please explain how often YEC plans to track the reliability of this new line.

(k) YEC advised that it followed a competitive RFP process. Regarding costs for contractors for the project:

i. Does YEC have a policy for competitive RFP processes? If confirmed, please provide a copy of the policy.

ii. Please confirm that the competitive RFP process used was compliant with YEC procurement policies.

iii. How many contractors bid in the competitive RFP process?

iv. Can YEC confirm that the contractor chosen was the lowest cost bid? If not confirmed, please explain.

v. Please indicate where the contractors' costs are located in the cost breakdown of this project, as presented in Table 7 on PDF page 113 of YEC's response to YUB-YEC-1-49. For example, are the costs for contractors located under the "Project Mgmt & Owner's Engineer" line item?

(l) Please confirm that the L180 transmission line is now completed and fully energized and that the old 69kV transmission line has been decommissioned and salvaged.

YUB-YEC-2-19

Reference: **YUB-YEC-1-53(c), PDF pages 211, 212**

Issue: **Transmission Line Refurbishment Project**

Quotes: From the response to YUB-YEC-1-53(c), PDF pages 211, 212:
"… Outage data is not available for L172…"

From the response to YUB-YEC-1-53(c), PDF pages 211, 212:
"L170 total cost to respond to outages (planned and unplanned) are $313,500, with an average annual cost (2012-2020) of $34,800; additionally, capital investment in this line over the same period totaled $7,064,600.

L171 total cost to respond to outages (planned and unplanned) are $100,500, with an average annual cost (2012-2020) of $11,200; additionally, capital investment in this line over the same period totaled $3,718,600.

L172 total cost to respond to outages (planned and unplanned) are $25,400, with an average annual cost (2012-2020) of $2,800; additionally, capital investment in this line over the same period totaled $321,000."

Request:
(a) Please explain why outage data was not available for L172.

(b) Please indicate whether any portion of the costs incurred due to outages and capital investments for lines L170, L171, and L172 have been approved by the Board in previous GRAs.

YUB-YEC-2-20

Reference:	**YUB-YEC-1-54(a), PDF page 243**
Issue:	**Transmission Line Refurbishment – L178 Project**
Quotes:	"The total costs incurred from 2014-2020 due to outages on L178 is $1,213,581 ($782,723 O&M and $430,858 capital). The average annual cost over the period is $173,368. Cost estimate amounts are available for the period from Jan 2014-Dec 2020."

Request:
(a) Please indicate whether any portion of the costs incurred due to outages for this line have been approved by the Board in previous GRAs. If confirmed, please provide the amounts approved by year.

YUB-YEC-2-21

Reference:	**YUB-YEC-1-56(d), (e), PDF page 249**
Issue:	**Replacement of the P125 Head Gate Project**
Quotes:	From the response to YUB-YEC-1-56(d), PDF page 249: "The WH2 Headgate Project was completed in 2020. The work was carried out by a prime contractor selected through an RFP process. The RFP was issued and posted publicly through MERX. Two bids were received and were evaluated. A best value approach was taken with points awarded based on the following criteria: technical, cost and FN content. The Proponent with the highest total score was recommended." From the response to YUB-YEC-1-56(e), PDF page 249 "YEC will complete the preliminary design and tendering of the WH1 and WH3 headgate in 2021 for project completion in 2022. YEC will engage an engineering firm for assistance with this process."

Request:
(a) Please explain the "FN content" criteria and how much weight is assigned to this criteria.

(b) Please advise if the lowest cost bid was approved during YEC's RFP process. If not confirmed, please explain.

(c) Please provide an update on the preliminary design and tendering of the WH1 and WH3 headgates and specifically if YEC has found an engineering firm to handle this initial step.

YUB-YEC-2-22

Reference: **YUB-YEC-1-57(c), PDF page 267**
Issue: **WH2 Uprate Project**
Quotes: "Hatch was awarded the work to undertake the study noted through a competitive RFP process. Proposals were evaluated based on technical and organizational competence and price; and demonstrated the best value for price submitted."

Request:

(a) Please confirm that the competitive RFP process used was compliant with YEC procurement policies.

(b) Please provide further details on the RFP process, including names and bids of all the contractors for this project.

YUB-YEC-2-23

Reference: **YUB-YEC-1-58(c), (e), (f), PDF page 272**
Issue: **WH4 Uprate – Servomotor Replacement Project**
Quotes: "The current servo motors were not meeting IEEE code in terms of operation and reliability…

Hatch was selected through an RFP process…

Final design and manufacturing are complete and the project is expected to be completed by June 2021."

Request:

(a) Please provide further details on how the current servo motors were not meeting IEEE code. For example, were there specific codes the servo motors failed to comply with?

(b) Please confirm that the competitive RFP process used was compliant with YEC procurement policies.

(c) Please confirm that the referenced project is now complete.

YUB-YEC-2-24

Reference: **YUB-YEC-1-64(a), (d), PDF pages 292, 293, and 296**
Issue: **Enterprise Asset Management (EAM) System Purchase and Implementation Project**
Quotes: From the response to YUB-YEC-1-64(a), Table 1: Anticipated Tangible Benefits Summary, PDF page 292:

Benefits Description	Annual Expenditure	Low % Improvement	High % Improvement	Low Estimated Annual Benefit	High Estimated Annual Benefit
Productivity Gains	$3,055,143[2]	12%	25%	$366,617	$763,786
Inventory Management - Reduced Cost of Procured Parts	$1,153,181	0.5%	3%	$5,766	$34,595
Improved Reliability – Extended Asset Life	$11,770,068[3]	2%	3%	$235,401	$353,102
Improved Reliability - Reduced Diesel Consumption	$156,724	20%	30%	$31,345	$47,017
Improved Reliability - Revenue Recovery	$8,000	20%	30%	$1,600	$2,400
Warranty Claims Improvements	$10,000	100%	200%	$10,000	$20,000
TOTAL ESTIMATED BENEFITS:				**$650,729**	**$1,220,900**

From the response to YUB-YEC-1-64(a), PDF page 292:
"Implementation of an EAM solution is expected to improve YEC's overall maintenance performance and increase efficiency of execution of maintenance works. A study conducted for the power industry [footnote removed] has shown that wrench time can increase between 10 – 40% as a result of improvement in maintenance capabilities that are enabled by EAM…

… Other electric utilities have estimated savings of 0.5 – 3% as a result of better contract management for purchases."

From the response to YUB-YEC-1-64(a), PDF page 293:
"Organizations that have implemented EAM have reported reductions in long term asset costs of up to 5% by extending asset life."

From the response to YUB-YEC-1-64(d), PDF page 296:
"YEC moved to a formal public tender in 2018. The process was divided into a two-part process including an RFSQ and an invitational request for proposal (iRFP) to be referred to as (RFP) in this report. A total of 9 vendors participated in the RFSQ, and 4 moved on to the detailed RFP. Submissions were scored and ranked based on their submissions, results of demos as well as their respective costs. At the RFP evaluation, vendor submissions for implementation cost ranged from $967k to $1,400k…

… YEC is expecting to go live with the EAM project on March 15, 2021. YEC is currently on schedule with this project."

Request:

(a) Please explain how the percentages presented in Table 1: Anticipated Tangible Benefits Summary were determined. For example, how did YEC determine that the EAM System Purchase and Implementation Project would provide a productivity gains improvement between 12 – 25 per cent?

(b) In its response to YUB-YEC-1-64(a), YEC provided the following reference for a study showing that wrench time could increase between 10 – 40 per cent (Source: Booz &

Company). Please provide the exact study conducted to show increased wrench time as a result of improvement in maintenance capabilities.

(c) Please specify the other electric utilities that have estimated savings of 0.5 – 3 per cent as a result of better contract management for purchases.

(d) Please identify the other organizations that have reported reductions in long-term asset costs.

(e) Please confirm that the competitive RFP process used was compliant with YEC procurement policies.

(f) Please explain whether the lowest cost bidder was successful in the RFP process.

(g) Please provide further details on the RFP process, including names and bids of all the contractors for this project and the vendor selected for the project.

(h) Please confirm that the EAM project is now active.

YUB-YEC-2-25

Reference:	**Application, Continuity schedule of deferred costs, tables 5.3 through 5.6: Enterprise Risk Management and Enterprise Risk Management Report, PDF pages 148, 150, 152 and 154;** **Asset Management Framework, page 5.1-4, PDF page 161;** **Application, TAB 10 - 2019 AUDITED FINANCIAL STATEMENTS, page 10-28, PDF page 369**
Issue:	**Feasibility Study, completed projects: Enterprise Risk Management and Enterprise Risk Management Report**
Quote:	"**Risk Management** Yukon Energy is exposed to numerous risks in providing service to our customers. Risk impacts include staff and public safety, financial, reputation, long-term and short-term load/resource balance, stakeholder relationships and funding. These risks can range in scale from minor to catastrophic. Yukon Energy endeavors to manage all the risks we face on a cost-effective basis, taking into account the potential reward to be gained in return for the acceptance of the risk. We have an enterprise risk management framework that provides the basis for consistently applying risk management practices."
Preamble:	The Board requires further clarification of the nature of the two feasibility studies referenced in YEC's deferred costs schedules during the years 2018-2021.

Request:

(a) Please explain the relationship that the two referenced studies identified by the term "enterprise" or "risk" or "management" have with any capital project currently being requested by YEC that are similarly identified by those terms. Examples include the Enterprise Asset Management (EAM) System, the Asset Management Framework Project and the Physical Asset Management Managed System.

(b) Referring to the response to part (a), please prepare a table summarizing the differences and similarities between each of the studies and capital projects such that the table will comprise the total quantum of all related projects.

(c) Please provide a copy of the report identified as the "Enterprise Risk Management Report" which appears to have been prepared during the 2017 or 2018 timeframe and any other similar report that has been prepared subsequent to that timeframe.
(d) Please clarify whether "Enterprise Risk Management" is the same "enterprise risk management framework" referenced in YEC's 2019 Audited Financial Statements.
(e) If part (d) is not confirmed, please identify the "enterprise risk management framework" being referred to and provide a reference to all applicable capital projects (past and current) comprising the framework and a reference to where the business case for each project can be found.

YUB-YEC-2-26

Reference: **YUB-YEC-1-68(b), PDF page 335**
Issue: **Replacement of Mayo A Surge Chamber Project**
Quotes: "Maintenance was performed twice (2019/2020)

- The 2019 cost was $142; and
- The 2020 cost was $21,212."

Request:
(a) Please describe the maintenance work conducted in these two years and explain why the 2020 cost was significantly higher compared to the 2019 cost.

YUB-YEC-2-27

Reference: **YUB-YEC-1-70(d), PDF page 340**
Issue: **Asset Management Framework Project**
Quotes: "Utilities that have implemented Asset Management programs based on the ISO 55000 standard have achieved operational savings in the range of 15-25 [footnote removed]…"

From the response to YUB-YEC-1-70(d), footnote 1, PDF page 340: "From presentation 'Strategic Asset Management Delivering Value across the Organization', presented by the Institute of Asset Management CEATI Strategic Asset Management Planning conference, Vancouver 2017."

Request:
(a) Please provide the presentation referred to in footnote 1 of the response to YUB-YEC-1-40(d) and specify the utilities that have achieved operational savings after implementing asset management programs.

YUB-YEC-2-28

Reference: **YUB-YEC-1-74(d), PDF page 350**
Issue: **Dam Safety Program Project**
Quotes: "A competitive RFP process was initiated. Eight proposals were received evaluated and awarded based on total score based on best overall proposal which included evaluating technical ability and price. Ecora Engineering was selected as the successful proponent."

Request:

(a) Please confirm that the competitive RFP process used was compliant with YEC procurement policies.

(b) Was the lowest cost bid selected? Please explain.

YUB-YEC-2-29

Reference: **YUB-YEC-1-75(c), PDF pages 352 and 353**
Issue: **Dam Safety Recommendation 2017-18**
Quotes: "Mayo Lake Planking not completed due to high water levels. Currently YEC is waiting for lower water levels to drop such that the planking can be replaced safely.

Wareham Dam Seismic Upgrades were also not completed due to high water levels. This work will now be completed as part of other Wareham Dam projects currently being planned.

Public Safety Plan was not completed due to the fact that YEC is waiting for results from the 2020 Dam Safety Review for inclusion into the Public Safety Plan."

Request:

(a) Please provide an update on the Mayo Lake Planking construction, Wareham Dam Seismic Upgrades construction, and the Public Safety Plan projects. In the response, please indicate whether anything has changed for the projects since the time that the first round of IR responses was provided that could result in material cost implications.

YUB-YEC-2-30

Reference: **YUB-YEC-1-81(d), PDF page 365**
Issue: **Compact Digger Truck**
Quotes: "YEC will release a public RFP in 2021 to ensure optimal pricing and fit for service."

Request:

(a) Please provide an update on the status of the public RFP.

YUB-YEC-2-31

Reference: **YUB-YEC-1-46(a) through (f), PDF page 97; Our Clean Future: A Yukon strategy for climate change, energy and a green economy, last updated on September 14, 2020**, **Order-in-Council (OIC) 2021/16, Section 10(3), page 5**

Issue: **Demand Side Management**

Quote: From the response to YUB-YEC-1-46(a) through (f), PDF page 97:
(1) "Since the last rate application, the Yukon Government released a climate change strategy – "Our Clean Future: A Yukon strategy for climate change, energy and a green economy". More specifically, YG drafted the action below in the policy:

53. Direct the Yukon Utilities Board to allow Yukon's public utilities to pursue cost-effective capacity demand-side management measures.

This is a material change to how YEC approached DSM. The YG has clearly stated that DSM is a valid supply option for Yukon utilities and that they expect YEC to actively consider and implement prudent DSM programs. They also indicated their intention to direct the YUB to support cost-effective programs administered by YEC and AEY."

…

(2) "Based on YG's DSM policy and also considering growth in electrical load on the system, Yukon Energy DSM planning was undertaken; this planning includes coordination with the Yukon government's DSM programs to meet the overall policy objectives in a cost effective manner."

OIC 2021/16, Section 10(3), page 5:
"In determining whether costs are reasonably incurred by a public utility to provide or participate in a demand-side management program, the Board must consider the extent of any duplication between the program for which costs are incurred and a demand-side management program provided by the Government of Yukon or in which the Government of Yukon is a participant."

Request:

(a) Please define a "material change" in the context of quote (1) above. In your response, please explain why YEC considered the Yukon Government's direction to be "a material change to how YEC approached DSM".

(b) Please confirm that the "action number 53" referenced in quote (1) above was not taken from the climate change strategy document, Our Clean Future: A Yukon strategy for climate change, energy and a green economy, dated September 14, 2020 (the last updated climate change strategy document, as identified in the reference line above). If confirmed, please provide reference(s) to the other version of the climate change strategy document and explain why YEC referenced the older version of the climate change strategy document in quote (1) above. If not confirmed, please provide reference(s) to the last updated climate change strategy document.

(c) Please confirm whether the statements in the last two sentences of quote (1) above are relying on the last updated climate change strategy document. If confirmed, please provide reference(s) for each sentence, including page numbers of the document. If not confirmed, please provide reference(s) to such statements and in what context they were made.

(d) Please elaborate on what was involved in the "coordination with the Yukon government's DSM programs" as part of YEC's DSM planning, as stated in quote (2) above. Please provide a complete and detailed response.

(e) Given the statement in the OIC 2021/16 in quote (2) above regarding the DSM programs duplication, please confirm that there are no duplications between any of the DSM programs and costs applied for in the current application and any DSM programs "provided by the Government of Yukon or in which the Government of Yukon is a participant". If not confirmed, please provide a complete and detailed response, including name(s) of the duplicative project(s) and why such duplication is reasonable.

YUB-YEC-2-32

Reference: **YUB-YEC-1-46(h), PDF page 98; Order-in-Council 2021/16, February 11, 2021, Section 10(4)**

Issue: **Demand Side Management**

Quote: From the response to YUB-YEC-1-46, PDF page 98:
"As stated above, YG has publicly confirmed its support for utility-driven DSM programming and further they indicated that they expect YEC to undertake such programing. Based on YG's clear expectation (now confirmed by OIC 2021/16) and with the knowledge that a significant capacity shortfall exists on the Yukon integrated system, YEC believed it was timely and prudent to include these programming costs in the 2021 application."

From OIC 2021/16, Section 10(4), page 5:
"(4) This section applies only in respect of an application, report or other filing that is made in the first Instance to the Board on or after November 1, 2020 and for which no order is issued under section 27 of the Act before this section comes into force."

Request:

(a) Please provide reference(s) to where the Yukon Government has confirmed its support for "utility-driven" DSM programs.

(b) Please elaborate on why YEC believed it was "timely and prudent" to include DSM costs (2019, 2020, and 2021) in its 2021 application filed in November of 2020.

(c) Generally, rates are set on a prospective basis. Please explain why YEC is requesting the Board to approve rates that were in place prior to the filing date of the application (November 2020).

(d) Please explain if approving DSM costs in 2019 and 2020 respectively constitutes impermissible retroactive ratemaking.

(e) Under the *Public Utilities Act,* Section 91,

> "In fixing just and reasonable rates, tolls or charges, or schedules of them, to be imposed, observed and followed by an owner of a public utility
>
> (a) the Commission may consider all revenues and costs of the owner that are in the Commission's opinion applicable to a period consisting of
>
> (i) the whole of the fiscal year of the owner in which a proceeding is initiated for the fixing of rates, tolls or charges, or schedules of them,
>
> …
>
> (c) the Commission may give effect to that part of any excess revenue received or any revenue deficiency incurred by the owner that is in the Commission's opinion applicable to the whole of the fiscal year of the owner in which a proceeding is initiated for the fixing of rates, tolls or charges, or schedules of them, as the Commission determines is just and reasonable." (emphasis added)

Please explain why YEC is of the view that the Board has the statutory authority to adjust YEC's rates for 2019, given the application was filed in 2020.

(f) Is it YEC's view that OIC 2021/16 is limited to costs for DSM programming incurred from November 1, 2020 onwards. If not, please explain why not.

(g) Is it YEC's view that the Board has the authority to apply OIC 2021/16, Section 10, to YEC's DSM programming for time periods prior to November 1, 2020? Please explain.

YUB-YEC-2-33

Reference: **YUB-YEC-1-47(a) and (b), PDF page 100**

Issue: **Effect of DSM on energy and capacity requirements**

Quote: "Yukon Energy in partnership with ATCO Electric Yukon and Yukon Government completed a DSM Program Portfolio which was filed with the Yukon Utilities Board as part of AEYs 2013-2015 GRA. This included a Conservation Potential Review, Market Characterization, Implementation Plan, and Evaluation Measurement and Verification Plan. The Conservation Potential Review was updated for Yukon Energy's 2016 Resource Plan. DSM programs were again shown to be a cost effective resource and were included in the recommended portfolio. These studies concluded the DSM can cost effectively reduce Yukon's energy and capacity requirements.

A portion of the residential programs presented in this portfolio were launched to the Yukon public. Progress reports and evaluations of the energy and capacity savings as well as cost effectiveness of these programs in accordance with the filed Evaluation Measurement and Verification Program were conducted and filed with the YUB. These reports and evaluations clearly demonstrated DSM as a cost-effective energy and capacity resource.

In Order 2014-06, the Board applied four standard cost-effectiveness measures for DSM costs (collectively, the "InCharge Programs Prudency Measures"), namely the total resource cost test (TRC), the program

> administration cost test (PAC), the rate-impact measure test (RIM), and the participant cost test (PCT). Program elements of the residential non-government DSM portfolio that passed all four cost-effectiveness measures for 2014 and 2015 were approved by the Board.
>
> Evidence provided by Yukon Energy in the 2017/18 GRA indicated that the Approved InCharge Programs met InCharge Programs Prudency Measures endorsed by the Board in Order 2014-06 and were rate neutral for ratepayers." (footnote removed)

Request:

(a) In the quote above, YEC stated that, in partnership with AEY and the Yukon Government, it completed a DSM Program Portfolio which was filed with the Board as part of AEYs 2013-2015 GRA and the Conservation Potential Review was updated for Yukon Energy's 2016 Resource Plan.

i. Does YEC, or its program partners, have more recent studies available in support of YEC's statement that "DSM can … reduce Yukon's energy and capacity requirements" and, more specifically, recent studies in support of the DSM programs applied for in the application?

ii. If so, please provide those studies. If not, please explain why not. In response, please explain why YEC considers it reasonable to rely on the studies, some of which are almost a decade old, in support of its assertion that they can reduce Yukon's energy and capacity requirements in support of the DSM programs applied for in this application.

(b) YEC stated that a "portion of the residential programs presented in this portfolio were launched to the Yukon public". Please list the residential programs referred to in this quote.

(c) Please confirm whether YEC, or its program partners, have more recent analysis (other than that discussed in the above quote) of the effect of YEC's DSM projects to date on the energy and capacity requirements for YEC and the associated cost savings as well as cost effectiveness compared to the costs of the DSM programs. If confirmed, please provide YEC's more recent analysis.

(d) If (c) is not confirmed, please explain why YEC, or its program partners, did not undertake such analysis more recently. In your response, please explain why YEC considers it reasonable to rely on the older studies to determine whether the applied for DSM projects are cost-effective energy and capacity resources.

(e) Please confirm that all DSM projects applied for in the application passed all four standard cost-effectiveness measures for DSM costs for 2019, 2020, and 2021, as applied for in Order 2014-06 and quoted above. If confirmed, please provide details. If not confirmed, please explain.

YUB-YEC-2-34

Reference: **YUB-YEC-1-47(c), PDF page 102**
Issue: **Effect of DSM on energy and capacity requirements**
Quote: "The RIM test as reviewed in Board Order 2014-06 (see response to (a) and (b) above) recognizes and addresses the possibility that DSM programs may lead to significant decline in energy sales that result in increased rates. As reviewed in response to (a) and (b) above, Yukon Energy DSM programs were previously confirmed to pass the RIM test and were rate neutral for ratepayers.

YEC anticipates that the targets for its ongoing DSM programs will emphasize capacity focused reductions rather than energy reductions. Capacity savings directly result in a reduced requirement for temporary diesel rental units. **These savings, in combination with the fuel savings from any related energy savings, are expected to outweigh any potential rate impacts driven by the reduction of sales**." (emphasis added)

Request:

(a) Please elaborate on the assertion that YEC "anticipates" that the targets for its ongoing DSM programs will emphasize capacity-focused reductions rather than energy reductions.

(b) Does YEC, or its program partners, have any recent analysis or research that supports the conclusion in the last sentence (highlighted) of the above quote. If confirmed, please provide this information.

YUB-YEC-2-35

Reference: **YUB-YEC-1-59(b), PDF pages 275, 276**
Issue: **DSM projects costs**
Quote: "Breakdown of $832,906 costs spent in 2019:

- $385,009 DSM Program Design.
- $433,612 Residential Demand Response Pilot (gross cost; contributions of $365,315 received and separately noted in Table 5.4).
- $14, 285 inCharge maintenance.

In 2020, YEC planned to complete the design of a new portfolio of DSM programs as well as incur costs to administer the Residential Demand Response Pilot. The DSM 2020 program was delayed and actual 2020 costs were therefore lower than forecast in the Application. The actual 2020 DSM costs are broken out as follows:

- $571,901 Residential Demand Response Pilot (gross cost; contributions of $488,932 received and recorded as offset to project costs).

- $8,576 HPS light disposal and inCharge admin.

- Total Net Project Cost $91,545.

In 2021, YEC planned to implement the new portfolio of DSM programs as well as continuing the administration of the Residential Demand Pilot. The forecast costs for 2021 have been updated as required, given delays in the program starting in 2020.

The table below provides breakdown for the updated cost for 2021.

Demand Side Management		
DSM Administration	$	25,000
New Program Design Completion	$	300,000
New Program Implementation	$	240,000
Energy Management Tracking	$	-
Peak Smart Pilot (Gross Costs)	$	250,000
Total Gross Project Cost	**$**	**815,000**
Contributions (PeakSmart funding)	$	*(215,000)*
Total Net Project Cost	**$**	**600,000**

"

Net of contributions, the updated costs for 2020/2021 are $691.545 as compared with $904,000 in the Application."

Request:

(a) Please explain why the "DSM 2020 program" was delayed resulting in lower actual 2020 costs of $0.092 million compared to $0.375 million of 2020 forecast costs in the application. In your response, please explain what projects were included in the "DSM 2020 program" and which of those were delayed.

(b) Please explain why the DSM programs were delayed in 2021 resulting in lower forecast 2021 costs of $0.600 million compared to $0.894 million of 2021 costs forecast in the application. Please list the delayed projects or project activities.

YUB-YEC-2-36

Reference: **YUB-YEC-1-61(a), PDF pages 280, 281**
Issue: **DSM projects costs**
Quote: "The Residential Demand Response Pilot will install internet-connected, wifi-enabled electric baseboard thermostats and hot water tank controllers in the homes of residential electrical customers anywhere on the Yukon Integrated System. The thermostats and hot water tank controllers will be used to temporarily lower the temperature set-point of the homes heat and hot water during a period of peak demand to lower the demand on the grid.

1000 thermostats and 400 hot water tank controllers will be installed as part of the pilot across 400 Yukon residences.

The actual costs to the end of 2020 are $269K in equipment, $149K in labour, $512 in professional services and $8K in expenses. The forecast remaining costs to complete the pilot are $68K labour and $414 professional services, including ongoing licensing and support."

Request:

(a) YEC stated that the Residential Demand Response Pilot (pilot project) would be conducted "anywhere on the Yukon Integrated System". Please explain how YEC decided in which areas of Yukon to conduct this pilot project and why.

(b) Please explain how YEC determined which Yukon residences would participate in this pilot project.

(c) Based on the quote above, please confirm that this pilot project's actual costs in 2020 amounted to $0.427 million. If not confirmed, please explain.

(d) Please elaborate on the nature of the costs included in the $512 in professional services and $8,000 in expenses.

(e) Please elaborate on the nature of the "forecast remaining costs to complete the pilot are $68 thousand labour and $414 professional services, including ongoing licensing and support". In the response, please explain in what year these costs will be incurred.

YUB-YEC-2-37

Reference: **YUB-YEC-1-61(c), (d), (e), pages 3 - 5**
Issue: **DSM projects costs**
Quote: From the response to YUB-YEC-1-61(c), PDF pages 281, 282:
"(ii) No projection has been made as to how many total hot water tanks could take part if this pilot is transitioned into a full program."

"(iv) Controllers are being installed on customers' existing typical hot water tanks. Accordingly, the average lifespan of the hot water tanks in the program are the same as a typical hot water tank. YEC does not have detailed data on this expected lifespan at this time."

"(vi) There are no financial incentives being paid to participants of the pilot."

From the response to YUB-YEC-1-61(d), (e), PDF pages 282, 283:
"(d) This particular pilot was pursued by YEC due to the funding opportunities from NRCan, AEY and YDC largely offsetting the program costs, enabling learnings from the pilot to be applied to future DSM programs at far less than the full project cost. The analysis and design of other DSM programs, such as direct incentives to customers, will now be advanced given OIC 2021/16 directions enabling YEC to recover through rates the costs reasonably incurred to provide or participate in a demand side management program.

(e) YEC has not performed any analysis of this project relative to alternatives. As discussed in (d) this pilot was pursued as funding was available to do so."

Request:

(a) Please explain why YEC did not make any projections as to how many homes it could be expanded to if this pilot is transitioned to a full program.

(b) Please confirm if the "existing typical hot water tanks" is a reference to older vintages of hot water tanks that have been in service for some time. If not confirmed, please explain.

(c) If (b) is confirmed, please explain whether YEC is planning to install controllers on newer hot water tanks as well. If not, please explain.

(d) Are there other incentives for participants in this pilot project?

(e) Please confirm that this pilot project was the only project that would have been eligible for the NRCan funding. Please explain.

(f) If (e) is not confirmed and YEC could have done other projects that would have been eligible for that funding, please explain why YEC did not consider some alternatives.