

Yukon Energy Corporation (YEC) 2017-2018 GRA

Information Requests of YEC
from
John Maissan

Introduction to Application

JM-YEC-1-1	<p>Page 5 Re. Non-Fuel Operating and Maintenance Costs:</p> <ul style="list-style-type: none">(a) What portion of the requested increase in non-fuel O&M costs is due to the amortization of the balance in the RFID and the vegetation management deferral accounts?(b) What portion of the rate increase requested is this?
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Section 1 Introduction

JM-YEC-1-2	<p>Page 1-3 Re. Mayo Flexible Debt Financing last sentence “Lower Loads in 2014 resulted in negative interest payments from YDC to YEC of \$0.112 million, further reducing the impact to ratepayers in that year.”</p> <ul style="list-style-type: none">(a) Please explain how reduced or negative interest payments to YDC were a direct benefit to ratepayers as opposed to improving YEC’s ROE?
JM-YEC-1-3	<p>Page 1-9 Re. Continued planning to meet other future supply requirements</p> <ul style="list-style-type: none">(a) Please detail the demand side initiatives YEC is planning to undertake with respect to addressing the growth in peak demand. In particular please detail the initiatives aimed at reducing the peak demand from electric space heating.(b) Which of these initiatives will commence in 2017 and which in 2018?

Section 2 Sales and Revenue

JM-YEC-1-4	<p>Page 2-1 “Starting in 2014, firm load supplied by Yukon Energy to non-industrial customers on the Integrated System has fallen below the actual and approved forecast load for 2013 ...”</p> <ul style="list-style-type: none">(a) Please explain why the 2012-2013 GRA sales forecasting failed to identify the significant downturn in sales that started in 2014.(b) Please provide a copy of the sales forecast that was part of the 2013 LNG Application and please provide any updated provided in the 2014 LNG proceeding.(c) Did the LNG proceeding forecast recognize the downturn that
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	<p>appeared to begin with Alexco’s shutdown in 2013?</p> <p>(d) Given the significant downturn in sales in 2014 from forecasted levels, please explain why YEC did not come forward with a 2014- 2015 GRA to address this matter rather than wait until 2017.</p>
<p>JM-YEC-1-5</p>	<p>Page 2-6 to 2-9 Re firm wholesale sales and public information from the media that Victoria Gold Corp. (discussed on page 2-8) has now started development work.</p> <p>(a) Please explain how Victoria Gold will likely change wholesale sales in 2018 and how YEC will adjust their application to reflect this change.</p> <p>(b) Please explain how YEC’s firm retail sales will change as a result of this development work and how the application will be adjusted to reflect this change.</p> <p>(c) For Victoria Gold please provide a table by month and year the energy loads that YEC understands the mine will require (by year of operation if applicable).</p> <p>(d) In a similar table please provide the monthly peak demands that YEC understands that Victoria Gold will require of the grid (again by year if applicable).</p> <p>(e) Media coverage around the time of Victoria Gold’s announcing the start of development included interviews with YEC officials. It was understood that YEC said that there was an adequate supply of power available on the grid for Victoria Gold. Please provide YEC’s official position on grid power – energy and capacity – available for Victoria Gold.</p> <p>(f) Please provide a table of the additional (to the forecasts provided in the Application) monthly hydro, diesel, and LNG generation that would be required to meet Victoria Gold’s requirements in its first year of operation.</p> <p>(g) How will service to Victoria Gold affect residential and General Service customer rates?</p>
<p>JM-YEC-1-6</p>	<p>Page 2-7 and 2-8 Major Industrial</p> <p>(a) Please provide an estimate of the long term average (LTA) hydro energy that would be spilled by month in each of 2017 and 2018 if all sales are as projected in the application.</p> <p>(b) Please provide a breakdown of the forecasted secondary sales in each of 2017 and 2018 by month.</p> <p>(c) Is the LTA energy available to supply future industrial customers (potentially Victoria Gold in 2018) the sum of the above “spilled” hydro energy plus the forecasted secondary sales figures or more than the sum? Please explain and provide a monthly table if more than the</p>

	sum.
JM-YEC-1-7	<p>Page 2-8 Alexco Mine</p> <p>(a) Please provide a table of the metered energy and metered demand for the last 12 months of the Alexco Mine's full operation (prior to shutdown in 2013).</p>
JM-YEC-1-8	<p>Page 2-10 lines 24 and 25 and footnote 18</p> <p>(a) Has the Mayo hydro plant not been said by YEC to supply more than 9 MW (11 MW?) of firm generation in past documentation? If so please explain why this has now been reduced to 9 MW.</p> <p>(b) Please explain the down-river icing and flooding issues on the Mayo River.</p> <p>(c) What constraints have these placed on Mayo B and how has the winter energy and dependable capacity available from the Mayo hydro system been affected by this constraint?</p>
JM-YEC-1-9	<p>Page 2-10 Re Mayo Hydro</p> <p>(a) What constraints in energy and capacity does the silted outlet of Mayo Lake impose on the Mayo hydro facilities?</p> <p>(b) When does YEC plan to dredge the outlet of Mayo Lake to remove these constraints?</p> <p>(c) Are there any other constraints on the Mayo hydro plant? If so please explain them and their impact.</p>
JM-YEC-1-10	<p>Page 2-11 lines 24 and 25 Spinning reserve</p> <p>(a) Please describe YEC's policy or policies with regard to spinning reserve, including how that may vary by season if applicable.</p> <p>(b) Around early August there were a series of 3 or 4 quite extensive grid outages. For each of these outages please provide:</p> <ol style="list-style-type: none"> i. The grid load (MW) at the time of the outage; ii. A list of the plants operating at the time of the outage and the load supplied by each plant; iii. The plant or other facility that tripped to cause the outage; iv. The spinning reserve running at the time of the outage and which plant or plants were providing that spinning reserve; v. The shortfall in generation as a result of the trip (load less operating generation including spinning reserve); vi. The spinning reserve that would have been required to prevent an outage; and vii. A list of the diesel generators that were brought on line to

	<p>assist in restoration from the outage.</p> <p>(c) What forms of spinning reserve (hydro, diesel, LNG, etc.) would have been required at the time of these trips to prevent outages?</p>
JM-YEC-1-11	<p>Page 2-12 Drought-Flood Year Constraints</p> <p>(a) What would be the reductions in LTA annual hydro-generation from a 1 in 100 year drought and from the driest year on record?</p>
JM-YEC-1-12	<p>Page 2-12 Diesel and LNG Thermal Generation</p> <p>a) For the years 2012 to 2016 inclusive please present a table of actual diesel and LNG generation by month.</p> <p>b) Please discuss the cold load pick-up capability (i.e. after an outage) of diesel vs. LNG generators.</p> <p>c) For each year from 2012 to 2016 please list the number of outages on the Yukon integrated system that required the use of the Whitehorse Rapids diesel plant for restoration.</p> <p>d) What diesel capacity is required for restoring the grid as quickly as reasonably possible, from a grid outage affecting 50% or more of the electrical load?</p>
JM-YEC-1-13	<p>Page 2-18 Table 2.2</p> <p>(a) Table 2.2 (line below line 17) shows that the total forecasted thermal generation in 2017 and 2018 will be 2,172 and 2,010 MWh respectively. These figures are less than one-half of the actual thermal generation required in 2015, and approximately one-third of the actual thermal generation required in 2016. Please explain this, particularly in light of the increase in peak demand forecast.</p> <p>(b) Line 17 indicates that the actual forecasted LNG generation is approximately 53.9% and 53.5% in 2017 and 2018 respectively. In light of these figures, please explain how YEC calculated a mix of 90% LNG and 10% diesel (Application page 4 and elsewhere) on a go forward basis.</p> <p>(c) If these 2017 and 2018 forecasts include diesel generation required for restoration from outages and diesel maintenance (regular run-ups), please provide separately diesel and LNG consumptions by year for:</p> <ol style="list-style-type: none"> i. Maintenance and outage restoration; and ii. The LTA requirements based on hydro energy and/or capacity limitations. <p>(d) If the forecasts for 2017 and 2018 incorporate above LTA water availability please answer (c) above as though LTA water availability applies to 2017 and 2018.</p>

Section 3 Revenue Requirement

JM-YEC-1-14	<p>Page 3-10 Brushing costs and Appendix 3.1</p> <p>(a) YEC’s 2012-2013 GRA said on page 3-9 lines 8 and 9: “In 2012 Yukon Energy is field testing the recommendations (e.g., herbicide treatments) prior to developing a formal policy.” Please provide the results of these field testing trials of these species specific herbicides.</p> <p>(b) Appendix 3.1 suggests (Section 9) that YEC is still “studying” the use of these herbicides, please explain in detail. Does “studying” include field trials as were being done in 2012?</p>
JM-YEC-1-15	<p>Page 3-11 Table 3.8</p> <p>(a) Please explain what SCADA Communication entails.</p> <p>(b) Please explain why SCADA Communication costs more than doubled in 2014 over previous years and has continued at this higher level.</p>
JM-YEC-1-16	<p>Page 3-19 Hearing Cost Reserve Account</p> <p>(a) YEC requests a decrease in the hearing reserve account appropriation to \$250,000 per year from \$550,000. Does this mean that YEC is proposing to have a GRA once every 4 years instead of every 2 years?</p> <p>(b) Does YEC not consider a Phase 2 hearing within the next 2 to 4 years a possibility? Would not more stable rates in the long term result from maintaining a modest credit balance by simply reducing the annual appropriations to something under \$550,000 but more than \$250,000?</p>
JM-YEC-1-17	<p>Page 3-21 and 3-22 Cost of Debt</p> <p>(a) Did YEC initiate discussions with YDC to reduce its debt, or did the YDC/Yukon Government initiate these discussions?</p> <p>(b) In January 2011 YEC’s debt with YDC was reduced from 4.65% - 7.00% on various debts to 4.25%, and in Board Order 2013-01 the YUB reduced the interest rate to 3.97% for 2012 and to 3.58% for 2013. These were based on long-term (30-year) Canada bond rates plus 120 basis points. Since these interest rates were based on 30-year bond rates, why were these debts refinanced less than 5 years later?</p> <p>(c) In lines 17-20 on page 3-22, the interest rate is forecast at 2.15% “... based on the most recent market rate for such borrowings as at May 2017.” Please explain in detail what “market” is being referred to and what is meant by “such borrowings”. Does this assume that YEC is a stand-alone utility?</p>
JM-YEC-1-18	<p>Appendix 3.3 reportable outages</p> <p>(a) Please explain the protection systems that minimize the extent of outages when a generating plant trips off-line.</p> <p>(b) It appears that often certain areas or subdivisions in and around</p>

	<p>Whitehorse are tripped off whereas others are not. Please explain how these areas are determined and how they fit into the response for (a) above.</p> <p>(c) Are industrial customers treated as a separate group or category for being tripped-off to minimize the impact to residential and general service customers? If not why not?</p> <p>(d) Would the answer to (c) above be different if the Victoria Gold and Alexco mines were grid customers? If not why not?</p>
JM-YEC-1-19	<p>Appendix 3.4 Page 3.4-6 “Actual LNG unit operation has been constrained by unit size at 4.4 MW, i.e., smaller existing diesel units are relied upon for thermal loads less than 2.6 MW ...”</p> <p>(a) 2.6 MW from a 4.4 MW LNG unit represents 59% of its capacity. Please explain why the LNG units cannot run at a loading less than 59%.</p> <p>(b) IF LNG units are really constrained to 2.6 MW why would YEC not run them at 2.6 MW and conserve water at Aishihik (or elsewhere) when thermal loads are less than 2.6 MW?</p> <p>(c) Are diesel units not also operated this way, i.e. when a diesel unit is required it is operated constantly at or near peak efficiency by reducing the hydro output, thereby saving the water for future use and at the same time increasing the hydro spinning reserve?</p>
JM-YEC-1-20	<p>Appendix 3.4 Page 3.4-9 “2016 average delivered LNG fuel cost of 18.17 cents per kW.h was actual costs [sic] of LNG used from inventory ...”</p> <p>(a) Please explain how the boil-off gas was used and accounted for, and how the vented LNG is accounted for in these calculations.</p> <p>(b) If the boil-off and the vented LNG in 2016 is not included in the referenced cost, please explain where the costs for this LNG are accounted for.</p>
JM-YEC-1-21	<p>Appendix 3.4 Page 3.4-12 Re. summary highlights impacts with a \$16 million DCF cap option.</p> <p>(a) Please explain how these impacts would change with the addition of the Victoria Gold mine at 62 GWh per year (year 1) to the grid.</p>
JM-YEC-1-22	<p>Appendix 3.4 Page 3.4-13 “The Diesel Contingency Fund (“DCF”) operates to smooth customer rate changes ... caused by fluctuation of hydro generation due to water conditions or changes in wind conditions.”</p> <p>(a) The water conditions are readily available to the public based on data from Water Survey of Canada gauging stations, however changes in wind conditions (on Haeckel Hill?) are less readily apparent. Please provide the data source that YEC is or will be relying on to determine wind conditions (short term and long term), and indicate whether this</p>

	<p>is available to the public.</p> <p>(b) How will wind production losses related to operational and maintenance decisions, as opposed to wind “conditions”, be determined?</p> <p>(c) The Vestas wind turbine appeared to be shut down for a large portion of August (to the present), what factors are / were involved in it not operating?</p>
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Section 4 Rates

JM-YEC-1-23	<p>Page 4-9 lines3 to 6 and Appendix 4.2</p> <p>(a) Please provide a table detailing the revenue requirement reductions in each of 2017 and 2018 resulting from each of the following:</p> <ul style="list-style-type: none"> i. The renegotiation of YEC’s long term debt effective 2015; ii. The capital contribution of \$22.4 million from YDC; and iii. The Mayo B flexible debt financing compared to conventional debt at the same unreduced interest rate; and iv. The \$128.5 million in contributions (from page 5-4) towards the cost of various projects. <p>(b) Is it not true that Yukon’s power rates are where they are compared to NWT and Nunavut as a result of significant YDC, Yukon government and federal government capital contributions for various infrastructure projects effectively subsidizing the rates through reduced revenue requirements?</p>
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Section 5 Capital Projects

JM-YEC-1-24	<p>Page 5-7 Section 5.2.1.2 Aishihik elevator shaft</p> <p>(a) Can YEC confirm that the Aishihik elevator shaft structural steel was installed in approximately 1975?</p> <p>(b) If correct, the useful life of the original structure was far less than 72 years, so how can YEC justify an expectation of 72 years of life from the replacement structural steel?</p>
JM-YEC-1-25	<p>Page 5-12 Communications upgrades</p> <p>(a) Will the installation of the proposed upgrades result in the retirement of the power line carrier communications system? If not, please explain.</p>
JM-YEC-1-26	<p>Page 5-15 Whitehorse Hydro unit No. 4 overhaul</p> <p>(a) Has the unit 4 overhaul been completed?</p>

	<p>(b) Have the spider replacement and the excitation system replacements been completed?</p> <p>(c) If the answers to (a) and / or (b) above are yes, please provide the actual costs of the completed works.</p> <p>(d) Was a capacity increase of WH 4 by the installation of a new turbine (“wheel” or “runner”) design a consideration? Please explain.</p>
JM-YEC-1-27	<p>Pages 5-22 to 5-26 (and page 5-6) LNG plant</p> <p>(a) Please provide the capital cost estimate for the LNG plant provided in the 2014 LNG Part 3 Application.</p> <p>(b) Please provide the capital cost estimate for the alternative diesel project provided in that Application.</p> <p>(c) Please provide the capital cost estimate for the addition of the third LNG unit in that Application.</p> <p>(d) Please provide the updates to the costs in (a) to (c) provided during the hearing.</p> <p>(e) Please provide the long term oil and gas cost forecasts provided in the LNG proceeding on which the economic analyses and economic justification was based.</p> <p>(f) Please provide the delivered diesel fuel costs and the delivered LNG costs (per litre of diesel equivalent) that result from (e) above.</p> <p>(g) Please provide the forecasted cost per kWh from a new diesel plant and the then proposed LNG plant.</p> <p>(h) Please provide the present (July 31, 2017) actual figures for (e) to (g) above.</p> <p>(i) YEC’s LNG Application on page 10 in Figure 3-1, and in the table below it, provides a graphical figure and a table of ratepayer costs for capital and fuel costs with new diesel and with LNG. Please reproduce the graph and the table with costs using actual energy loads and actual fuel prices for the same years, and also both with and without YDC’s \$18.3 million contribution towards the capital cost.</p> <p>(j) Please confirm that the capital cost estimate for the “diesel” alternative (page 5-26 line 21) was for two 6.7 MW dual fuel engine generators and included infrastructure to distribute gas to the engines within the diesel plant.</p> <p>(k) Please confirm that the capital cost estimate for the “diesel” alternative included electrical switchgear replacements and other building upgrades designed to service three 6.7 MW dual fuel generators.</p>
JM-YEC-1-28	<p>Page 5-26 LNG third generator</p> <p>(a) Since the LNG plant was designed for three 4.4 MW generators,</p>

	<p>please explain why each of the proposed option review, preliminary engineering, development of equipment specifications, grid impact, and detailed engineering studies are required?</p> <p>(b) Why is it not just a matter of specifying and ordering equipment identical to the equipment specified, purchased, and brought into service just over 2 years ago?</p> <p>(c) Once the third generator is installed, what will be the dependable annual energy capability of the LNG plant?</p>
JM-YEC-1-29	<p>Page 5-29 lines 6-8</p> <p>(a) If the subject work extends the life of the WAF lines, is there a corresponding reduced depreciation cost? If not why not?</p>
JM-YEC-1-30	<p>Page 5-32 to 5-33 Stewart Crossing - Keno City Transmission Line</p> <p>(a) Detailed line design and substation design work was expected to be complete in Q1 2017, now that we are in Q3 is this work complete? Please provide an update.</p> <p>(b) The last paragraph on this topic on page 5-33 suggests that the project could be staged with the first stage being the removal and replacement of end of life infrastructure. Is this not in effect what has been happening over the past 20 or more years?</p> <p>(c) Could Victoria Gold's requirements be met with the present 69 kV line for at least a period of time? Or for an indeterminate time?</p>
JM-YEC-1-31	<p>Pages 5-34 to 36 Battery project</p> <p>(a) Around early August there were a series of quite extensive outages.</p> <ol style="list-style-type: none"> i. What was the cost to YEC to restore the grid from these outages (labour, diesel fuel, lost sales etc.)? ii. What was the estimated cost to AEY? iii. What is the cost of each outage to each of Yukon businesses, industry, and governments? <p>(b) Did the analysis of potential benefits of a BESS include the reduction of cost impacts to customers from fewer outages as a result of a more resilient grid from the provision of additional spinning reserve from the battery?</p> <p>(c) If the hydro grid currently provides the spinning reserve would the grid's hydro resources be better utilized (e.g. more energy available in winter) if a BESS could / would provide at least some portion of the necessary spinning reserve? If so please estimate the potential benefits.</p> <p>(d) Is the difference in cost between the two options listed (\$5.7 million) a matter of the difference in the cost of capacity only, or is there a</p>

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	<p>difference in energy storage capability or other features between the two battery options as well?</p> <p>(e) What is the incremental cost of capacity for each of the two battery types?</p>
JM-YEC-1-32	<p>Pages 5-36 to 5-39 New thermal plant</p> <p>(a) Is YEC considering an option of installing two new diesel generators in the existing Whitehorse diesel plant effectively replacing the retired Mirrlees generators? If not why not?</p> <p>(b) On what grounds does YEC think that a third party can supply gas to an LNG plant more cheaply than they can supply it themselves?</p> <p>(c) Would the new thermal plant be designed so that it could “firm-up” new intermittent renewable energy supplies (such as the potential Mt. Sumanik wind farm) whether developed by YEC or IPPs?</p>
JM-YEC-1-33	<p>Page 5-41 DSM</p> <p>(a) The development of capacity focused DSM programming is expected to take 2 years, why so long especially since peak load growth has been apparent for some time and some capacity programming was considered in the previous CPR study?</p>
JM-YEC-1-34	<p>Page 5-50 Time of Use Rate Structure and Smart Grid study</p> <p>(a) Please discuss this item in light of the YUB’s decision to not to approve AEY’s proposed contribution of \$100,000. How does this affect YEC’s cost?</p> <p>(b) Along the same lines as secondary sales, is YEC considering other rate or rate structure measures that would encourage summer season use of energy when hydro is often in surplus supply while conserving winter supplies (e.g. seasonal rates, or summer farm or irrigation rates that would support other Yukon government initiatives in food self-sufficiency)? Please explain.</p>
JM-YEC-1-35	<p>Page 5-50 Detailed Line Inspection</p> <p>(a) Is this work a repeat of similar work carried out about 15 years ago? Please explain.</p>
JM-YEC-1-36	<p>Page 5.3-4 Whitehorse Wind 1 Decommission</p> <p>(a) Has YEC tried to sell this asset “as is where is” to minimize ratepayer costs?</p> <p>(b) Should the cost not come from a net salvage value account? If not why not?</p>
JM-YEC-1-37	<p>Page 5.3-9 Building Condition Report</p> <p>(a) Please provide a copy of this report.</p>

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	<p>(b) Is it YEC's intention to bring all of its buildings into full compliance with all of the most recent building codes? Please explain.</p> <p>(c) Can this work and cost be spread out over a longer period of time?</p>
JM-YEC-1-38	<p>Page 5.3-10 Mayo B exterior overhead crane</p> <p>(a) How was this deficiency in the recently built Mayo B plant overlooked? Why shouldn't the contractor be responsible for correcting this deficiency?</p> <p>(b) How often is this crane inspected and serviced?</p> <p>(c) What is the cost of renting the boom hoist?</p> <p>(d) Can this project be deferred?</p>
JM-YEC-1-39	<p>Page 5.3-10 Stewart-Minto Local SCADA</p> <p>(a) How did such an important design features get overlooked in these recently built facilities?</p> <p>(b) Was it to minimize capital costs in their original construction?</p> <p>(c) Can this project be deferred?</p>
JM-YEC-1-40	<p>Page 5.4-2 Aishihik and Mayo Hydro Climate Change Study</p> <p>(a) Please provide the scope of work and any other documentation YEC possesses on these studies.</p> <p>(b) What portion of the overall study cost is YEC covering?</p> <p>(c) At over \$441,000 these studies are very costly to YEC and ratepayers. Since predictions of future water flows can only be general in nature at best, please justify this cost to ratepayers at a time of significant rate increases.</p>
JM-YEC-1-41	<p>Page 5.4-3 Mt. Sumanik Wind Study</p> <p>(a) At the end of 2018 will there be a completed wind farm feasibility for Mt. Sumanik?</p> <p>(b) Will this study be made public?</p>
JM-YEC-1-42	<p>Page 5.4-3 Northern Diesel Plant Relocation Study</p> <p>(a) Would it be YEC's intention to sell the land on which these plants are currently located if it is decided to move them?</p>

Other issues

JM-YEC-1-43	<p>Very high levels of studies and capital projects</p> <p>(a) YEC's rate base seems to be growing rapidly because of high numbers of studies and a high number of smaller capital projects. They give the impression of everyone's wish list being included.</p>
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	<p>Given the requested rate increases it would seem that this must be an unsustainable level of activity from a ratepayer point of view, even if no other. Please discuss what YEC anticipates in the five years following the test years – will the level of activity and costs forecasted in smaller projects for the test years continue? Please explain.</p> <p>(b) Does YEC have a plan or target for reducing these costs to reduce future rate increases? Will projects be selected more carefully in future, and will costs be pared down to bare essentials in future? Please explain why or why not.</p>
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