Yukon Energy Corporation (YEC) 2012-2013 GRA

Information Requests of YEC
from
John Maissan, Leading Edge Projects Inc.

Tab 1 Introduction

LE-YEC-1-1	Page 1-1 "... *Yukon Energy is seeking its first increase in retail rates since the 1998-1999 period*." (a) Please provide the rate schedules (including all riders) that outline all charges applicable to each of residential non-government and general service non-government customers resulting from the 1998-1999 adjustments. (b) Please provide the rate schedules (including all riders) that outline all charges applicable to residential non-government and general service non-government customers resulting from the 2008-2009 GRA Phase II YUB decisions. (c) What were Yukon Energy's total sales in 1999? (d) What were Yukon Energy's total revenues in 1999? (e) What were Yukon Energy's total sales in 2011? (f) What were Yukon Energy's total revenues in 2011? (g) Does Yukon Energy not consider Rider F which as at May 1, 2012 is at 0.420 cents per kWh a rate that Yukon consumers must pay? (h) Does Yukon Energy not consider the fixed monthly charge a rate that Yukon consumers must pay?
LE-YEC-1-2	Page 1-4 Re CSTP Stage 1 "*... because of third party contributions...*": Please list all third party contributions to CSTP Stage 1.
LE-YEC-1-3	Page 1-5 Debt refinancing in 2011: (a) What was the amount remaining on the Flex Term Debt and had the term on this instrument expired, and if not what was the end date? (b) What was the amount remaining on the Mayo Dawson Note and had the term on this instrument come to an end and if not what was the end date? (c) ".. as well as other YDC debt held by YEC..." is this intended to say YEC debt held by YDC? (d) Please provide a complete list of this other debt, the amounts on each of the instruments, the terms (end dates), and the interest rates. (e) Please provide a listing of all the new debt instruments, the terms, and

	the applicable interest rates (are they all at 4.25%)? (f) Is the reduction in costs (to YEC and ratepayers) a decrease in YDC revenue? (g) Does YDC provide financing to YEC for its capital projects, and if so will this reduction not result in a reduced YDC ability to finance YEC projects?
LE-YEC-1-4	Page 1-6 Re non-industrial load growth: (a) Please provide the non-industrial load growth from 2005 to 2011 in percentages by month (e.g. x% in January, y% in February, ..., z% in December). (b) Please outline what portions of the residential load growth is due to the growth in numbers of customers and what portion is due to the usage per customer. Please include all Yukon residential customers.
LE-YEC-1-5	Page 1-7 increase in baseload diesel to meet load growth: (a) What would be the projected increase in rates for 2012 if 100% (rather than 101%) of long term average hydro generation were assumed for 2012? (b) What would be the projected further increase in rates for 2013 if 100% (rather than 101.8%) of long term average hydro generation were assumed for 2013? (c) In what year does Yukon Energy propose that long term average hydro generation starts being used for setting retail and industrial rates?

Tab 2 System Sales and Generation

LE-YEC-1-6	Page 2-2 "*Industrial load growth to date continues to bring higher revenues that tend to more than offset any related incremental costs*." (a) Does this statement refer to the present industrial customers (Minto and Alexco) only? (b) Will this be the case for any new industrial customer that connects in 2012 or 2013 (with 44% and 56% incremental diesel generation respectively for load growth as noted on page 1-7), and if so at what magnitude of load (in MW) would this no longer be the case? Please provide some substantiation. (c) Does the present blend of growth in all non-industrial load result in lower revenues than any related incremental costs? If so please provide some substantiation.
LE-YEC-1-7	Page 2-2 Re secondary sales: "*... as a result of this sustained interruption a number of secondary sales customers have converted to primary supply for their electric heating loads.*"

	(a) Given that space heating (including electric) has a load factor of only 30% and that it is winter focused when we peak with diesel generation, why were these secondary customers allowed to convert to primary electric heat? (b) Why were they not required to use their other heating systems which were a requirement for them to get secondary service in the first place?
LE-YEC-1-8	Page 2-2 "*... actual diesel generation exceeded ... 10.55 GWh in 2011 ...*": On page 1-7 the long term average diesel generation for 2011 is indicated at 5.6 GWh per year. Please explain the difference in these numbers.
LE-YEC-1-9	Page 2-6 Whitehorse Copper Tailings [Eagle Industrial Minerals]: Once connected it appears that the project will not be operational during the coldest months of the year (December through February). This will mean that they will not add to the winter peak (electric heating) and less of their annual energy will be generated by diesel, a desirable customer from all appearances. (a) Will a lower generation cost be reflected in a lower power purchase cost for this customer? (b) Will Eagle Industrial Minerals be a Yukon Energy customer or a YECL customer? Please explain.
LE-YEC-1-10	Pages 2-13/14 Re diesel generation: At the top of page 2-14 diesel fuel efficiencies of 3.77 kWh per litre at Whitehorse, 3.8 kWh per litre in Faro, and 3.72 kWh per litre in Dawson are indicated. Table 2.2 indicates that all of the diesel generation proposed for 2012 and 2013 takes place in Whitehorse, Faro, and Dawson. (a) Please indicate how diesel generation in these three locations combined can result in an average fuel efficiency of only 3.67 kWh per litre when each of these locations have higher efficiencies? (b) Please indicate why the average fuel efficiency is not a weighted average based on the generation distribution indicated in Table 2.2?
LE-YEC-1-11	Page 2-16 "*In summary, under N-1, there is a surplus capacity of approximately 7.2 MW in 2012 and 6.5 MW in 2013.*": Please show exactly the mathematical calculations that lead to the numbers in this summary – what load must be served and how was it derived?
LE-YEC-1-12	Tab 2 DSM: Conspicuous by its absence in this tab is any indication of reductions in forecast sales due to DSM/conservation activities that ratepayers are asked to start paying for in 2012. Please explain fully why this is not included.
LE-YEC-1-13	Tab 2 IPP and Net Metering: Yukon Energy has been working on IPP and Net Metering policies for some considerable time. (a) When will these policies come into effect? (b) If in the test years why do they not appear in Tab 2 offsetting load

	growth and new Yukon Energy supply projects?

Tab 3 Revenue Requirement

LE-YEC-1-14	Page 3-3 Re Fuel and purchased power: (a) Please provide a table of monthly hydro and diesel generation on the WAF grid + MD Grid (or consolidated grid) in GWh for each of the years 2008 through 2011 by month. (b) Please reconcile and explain the statement "*Due to low water conditions and non-activation of the DCF, fuel costs in 2011 were material ...*" to the statement "*... Secondary sales have been interrupted ... except for temporary resumption in September 2011 due to high water levels in Aishihik Lake...*" on page 2-2, the and the statement and footnote on page 4-4 that says "*... secondary sales were suspended ... due to low water*[4]. [4]*Except for the period from September 1, 2010 until September 1, 2011 when they were temporarily resumed due to high water in Aishihik Lake*.", and with our experience of a wet summer last year.
LE-YEC-1-15	Page 3-5 "*These test year forecasts are adopted to address the transition to annual long-term average levels and the potential future use of LNG at materially lower cost than diesel...*": Why is a transition period to long term average diesel use levels required when diesel was not "on the margin" in 2011 as Yukon Energy repeatedly argued during the Rider F policy review proceeding?
LE-YEC-1-16	Pages 3-6/7 Re labour expenses: Of the increase in 12.26 FTEs between 2009 and 2013 virtually all of this appears to be in the President, Resource Planning, and Finance categories (Table 3.4). It would seem that Yukon Energy is getting very top heavy and/or bureaucratic. (a) In general terms please discuss why this is necessary and cost effective for ratepayers? (b) How many of these new positions are term and will come to an end over the next 4 years? (c) What actions are being taken to reduce the labour force in future or to prevent further increases?

Tab 4 Rates

LE-YEC-1-17	Pages 4-10 to 13 Wholesale Rates: (a) What incremental cost of diesel does Yukon Energy propose to use for the Hydro Zone to apply to the ERA? (b) Please show how this incremental cost was calculated. (c) If this is the Hydro Zone incremental rate set in Board Order 2010-13

	please explain why. (d) Please show two sample monthly calculations of ERA as proposed by Yukon Energy, one with the actual wholesale purchase above the forecast and one with the actual wholesale purchase below forecast.

Tab 5 Capital Projects

LE-YEC-1-18	Page 5-1 Yukon Energy major capital project policies: (a) Did Yukon Energy not make a commitment in the past to bring major capital projects of a specified cost (or higher) to the Board for review prior to proceeding to construction? If this was in the form of a policy please provide a copy this policy. (b) Should the Mayo hydro substation and the Aishihik generating station redundancy not have received prior Board scrutiny by virtue of their costs?
LE-YEC-1-19	Page 5-5/6 Mayo B project: Preamble: The following questions are to help Leading Edge understand the useful peaking capacity available from the expanded Mayo hydro installations prior to any expanded storage range on Mayo Lake. (a) What is the long term annual average water flow (in cubic meters per second – CMS) available at present? (b) What was the annual average generating capacity (in MW) and annual average energy (in GWh) that would have been available from Mayo A alone prior to the Mayo B installation? (c) What is the minimum water flow (riparian flow) in CMS that must now be released through the Mayo A plant? (d) What annual average generating capacity (in MW) and annual energy (in GWh) does this represent? (e) Can YEC confirm that the long term annual average water flow available to the Mayo B plant is (a) – (c)? (f) What annual average generating capacity (in MW) and annual energy (in GWh) does this represent, assuming that all of it is useful? (g) Can YEC confirm that water run through the Mayo A plant cannot be subsequently run through the Mayo B plant? (h) Can YEC confirm that under long term average water conditions and with the forecast electrical loads in the two test years not all of the potential additional energy available from the installation of Mayo B is useable? If this assumption is not correct please explain. (i) At what integrated grid load does using Mayo A for peaking reduce the

	annual useful energy available from Mayo B?
LE-YEC-1-20	Page 5-5/6 Mayo B project: (a) Do the penstocks for Mayo A and Mayo B have a common intake on Wareham Lake? (b) Can these two penstocks be isolated from each other as required for penstock maintenance on one facility without disrupting the operation of the other? (c) If the answer to (a) is no, please explain why not. (d) If the answer to (a) in no, does Yukon Energy plan to install isolating mechanisms in future and if so what would they cost? (e) Some photos of the Mayo B construction show very deep excavations for the penstock. How deep are the penstocks buried. i.e. what is the minimum earth cover over it? (f) How was the minimum cover determined? (g) What would have been the risks if it had been reduced? (h) What would have been the incremental excavation cost saving for 1 meter or 2 meter reduced excavation and burial depths? (i) Please provide a detailed listing of the projected final cost by component and also by contractor (including YEC internal costs). (j) Please provide copies of Yukon Energy's agreements with NND with respect to Mayo B and Mayo Lake enhanced storage.
LE-YEC-1-21	Pages 5-6 to 9 Aishihik third turbine: (a) Please explain how the completed project is different from the project scope contemplated originally (page 5-8 line 12). (b) What was the estimated cost saving attributed to each of these measures? (c) Will any of the cost saving measures result in increased operational, maintenance, or future capital costs? If so please explain the reason for selecting them nonetheless. (d) Of the projected final cost of $13.8 million how much will have been paid to AECOM for their work in this project? (e) Please provide two detailed cost listings of the projected final cost, one by component and one by contractor (including YEC internal costs).
LE-YEC-1-22	Pages 5-9 to 11 Mayo Hydro substation enhancements: (a) One of the reasons given for the $10.15 million project is the addition of the Mayo B plant, yet its allocation was only $0.6 million – for a simple tap to the bus with appropriate disconnects according to the footnote. Based on the actual costs being experienced in the reconstruction of this

	substation and the Aishihik substation, is this still the appropriate cost allocation for a least cost connection? (b) If the answer to (a) is yes, is the $0.6 million least cost connection the same interconnection cost as would be required of a 10 MW independent power producer connecting to an existing substation? If not please explain fully.
LE-YEC-1-23	Pages 5-14 to 16 Aishihik generating station redundancy: (a) Of the projected final cost of $6.356 million what will have been paid to AECOM for their work in this project? (b) Please provide two detailed listings of the projected final cost, one by component and one by contractor (including YEC internal costs). (c) Please discuss Yukon Energy's confidence level in AECOM in light of their involvement in the Aishihik third turbine and Aishihik generating station redundancy projects both of which experienced significant cost overruns.
LE-YEC-1-24	Page 5-28 and pages 5-39 to 41 (see also pages 6-2 to 9) DSM: In Board Orders2009-2 and 2009-8 the YUB instructed Yukon Energy and YECL to file a DSM plan, including DSM initiatives. Since such a plan has not been filed as ordered please provide an update on activities and progress towards meeting this order as of the time of responding to this IR.
LE-YEC-1-25	Pages 5-33 to 35 Gladstone Creek diversion: Can Yukon Energy confirm that while the project would provide up to 36.6 GWh per year (on average), intended primarily for winter use, it will not add any additional winter capacity (in contrast to Marsh Lake storage).
LE-YEC-1-26	Pages 5-36 to 38 Mayo Lake enhanced storage: (a) Yukon Energy states that the project would add a potential 4 GWh per year to the grid system (presumably at the Mayo power plant). What is the long term annual average increased water flow to the Mayo hydro installations in CMS? (b) Would the increased storage also result in an increase in winter peaking capacity to the power plant? (c) If the answer to (b) is yes, would that mean increased peaking using Mayo A without foregoing useful energy at Mayo B because Mayo B is already at full capacity?
LE-YEC-1-27	Pages 5-45/46 LNG: (a) Please table all reports, studies, construction plans, and LNG contracts that Yukon Energy has prepared / entered into that show that LNG is appropriate and cost effective for Yukon in its present circumstances aside from the downloads on the Yukon Energy website. (b) When does Yukon Energy expect to have its LNG plant operational?

	(c) Where will the LNG plant be located? (d) What is the planned capacity of the plant? (e) Will it be a combined heat and power plant?
LE-YEC-1-28	Table 5.2 Re Generation expenditure: Minto mine diesel upgrades and SCADA: Page 6-13 indicates that Yukon Energy did not purchase the Minto diesels and so cannot be in rate base, why then should this $490,000 project related to these diesels be added into rate base?
LE-YEC-1-29	Table 5.2 Re Generation expenditures: Aishihik River icing study mitigation – bridge ($665,000), Aishihik River icing study – berm ($455,000), Aishihik elevator modernization project ($398,000), and Aishihik third turbine spare parts ($368,000): (a) Please provide a detailed rationale for each of these four generation projects not being included in the Aishihik third turbine project? (b) Please provide two detailed listings of the cost details for each of these projects, one by component and one by supplier / consultant (including Yukon Energy's internal cost) for all amounts of $20,000 or more.
LE-YEC-1-30	Tables 5.4 to 5.7 Feasibility study costs: Wind Feasibility – Ferry Hill: (a) Please provide two detailed listings of the cost for this project to the end of 2011 ($427,617), one by component and one by supplier / consultant (including Yukon Energy's internal cost) for all amounts of $20,000 or more. (b) Please provide detailed breakdowns for proposed expenditures of $100,000 in each of 2012 and 2013.
LE-YEC-1-31	Tabs 5 and 10 hydro projects and depreciation of capital projects and related capital expenditures: Preamble: Leading Edge wishes to understand the depreciation of new hydro plants and the treatment of capital improvements and re-investments that take place in hydro plants over the course of the lives over which they are depreciated. (a) Can Yukon Energy confirm that its new hydro plant facilities, including Mayo B and Aishihik third turbine will be depreciated over 65 years? (b) Is it not also true that these hydro plants contain many components that will need to be replaced or updated or upgraded with new capital investments over the course of their service lives since they have average service lives shorter than 65 years (for example transformers, switchgear, substations, generators, governor systems, turbine runners, dams, spillway equipment, water licences, etc.)? (c) Are such capital investments depreciated over the remaining service life of the overall hydro facility or over the anticipated service life of the component, or something different? Please explain the rationales used.

	(d) When calculating the levelized cost of energy from these new hydro plants does Yukon Energy's modeling include estimated costs for capital reinvestments required over the course of their service lives? (e) Please provide a table of the sum of the capital cost expended (on any component) on each of the Mayo hydro plant, the Whitehorse Rapids hydro plant, and the Aishihik Hydro plant in each year since Yukon Energy assumed ownership in 1987 to the present but not including expenditures related to Mayo B and Aishihik third turbine.

Tab 6 Board Directives

LE-YEC-1-32	Page 6.8 Directive #7 re brushing activities: Appendix 12.2 provides Yukon Energy with a number of recommendations with alternatives in some cases. (a) Please describe in detail the recommendations that Yukon Energy is field testing and what is involved in the field tests. (b) Are there any recommendations with which Yukon Energy disagrees or which Yukon Energy considers impractical? If so please list those recommendations and Yukon Energy's reasons for their views.
LE-YEC-1-33	Page 6-13/14 Directive #16: While Yukon Energy has provided short business case discussions on projects of over $1 million requested to be added into rate base, it has not provided any supporting analyses. Please provide the supporting analyses (spreadsheets etc.) for all projects over $1 million with the exception of Mayo B and CSTP Stage II which have been adequately reviewed in past.
LE-YEC-1-34	Page 6.1-4/5 Appendix 6.1 hydro generation KPIs: (a) The Forced Outage rate is missing from the Table 1-1 and Figure 1-1, please provide this information. (b) In addition to the Forced Outage rate the <u>planned</u> outage rate would be very useful too, and should be easy to calculate (100% less forced outage rate and less unit availability?). Please provide this information.

Tab 12 Technical Reports

LE-YEC-1-35	Appendix 12.2 Pages 12.2-36/37: L250, the Mayo – Keno City line is listed as being of H frame construction, yet this line was a single pole structure line (tangents structures in any case). Did the consultant actually inspect the line? Please clarify and explain.
LE-YEC-1-36	Appendix 12.2 page 12.2-38: Did Yukon Energy complete the brushing on all of the recommended priority spans in 2011 as recommended? If not please explain.

Other Matters

Preamble: In 2011 the YUB held a proceeding on Rate Schedule 39, specifically to review Yukon Energy's request to escalate industrial rates as required by OIC 2007/94. At that time Leading Edge wished to submit IRs on matters related to industrial rates [refer to letter from Leading Edge to the YUB dated January 10, 2011] that was not specifically on the topic of the escalation of rates. Yukon Energy [in a letter dated January 14, 2011] objected to these matters being raised in the proceeding and cited as Yukon Energy's 2008 GRA as having been one opportunity to raise these issues. The Board ruled that the proceeding was to deal with the escalation only. It follows then that this GRA is a suitable proceeding at which to ask these IRs.

LE-YEC-1-37	Is it YEC's interpretation that it has an obligation to serve any potential new industrial customer that requests service, even if no grid connection to that industrial customer presently exists? If so please reference the relevant portions of any Acts, or OICs that Yukon Energy relies on for that interpretation.
LE-YEC-1-38	Preamble: The addition of the Eagle Industrial Minerals to the industrial customer class on the now integrated grid will increase marginal diesel requirements to 56% (from Table 3.2-2) from 49% in 2012 (as per Table 3.2-1) of any further new load. (a) Which party or parties are covering the cost for the additional diesel generation in the case of Eagle Industrial Minerals? (b) If the industrial loads as a whole increase as a result of the addition of Carmacks Copper (52 GWh per year) the marginal diesel generation required on an annual basis will then increase to about 70% of any new supply. Carmacks Copper will require between 56% and 70% of its power requirement to be met by diesel. Victoria Gold (100GWh per year) would require up to about 85% or more diesel (extrapolating Table 3.2-2 and assuming that Carmacks Copper does <u>not</u> connect). How does or would Yukon Energy calculate what it considers to be a fair allocation of these additional costs to these mines individually or as an industrial class? (c) Since the connection of any new industrial customer increases the percentage of diesel generation required to meet the overall electrical load on the grid is that new industrial customer responsible for the full cost of the incremental increase in diesel generation? (d) If the answer to the above is no, would the industrial customer class as a whole be responsible for the full cost of the incremental increase in diesel generation?
LE-YEC-1-39	For 2014 and beyond when OICs 2012/68 and 2007/94 are no longer in effect: (a) If any new industrial customer were to request connection to the integrated grid would they, under OICs 1995/090, or any other legislation now in effect, be required to be served at the present Rate

	Schedule 39 with the stipulated escalation to the demand and energy charges? (b) If the connection of any such new industrial customer further increases the percentage of diesel generation required to meet the overall electrical load on the grid absent that industrial customer, would that new industrial customer be responsible for the full cost of the incremental increase in diesel generation? (c) If the answer to the above is no, would the industrial customer class as a whole be responsible for the full cost of the incremental increase in diesel generation?
LE-YEC-1-40	Re increase in future generation costs: (a) In future when YEC develops (or purchases) new generation resources (hydro or other forms of generation) that are more costly than our present mix of “heritage” resources, how does YEC foresee allocating the increased costs between retail load and industrial load (regardless of whether YEC or YECL serves that load)? (b) Should such new generation sources have long amortization periods (such as the 65 years for Mayo B) that are well beyond the anticipated lives of the industrial customers that are being served, how does YEC plan to allocate responsibility for the financial risk of such facilities becoming surplus to the needs of the grid?
LE-YEC-1-41	Re Rate Schedule 39: (a) What changes to Rate Schedule 39 does YEC contemplate will be required following the expiry of OIC 2012/68 besides escalation of the demand and energy charges? (b) Will changes be required to the demand ratchet clause (Billing Demand (b))? (c) Will changes be required to encourage the industrial customers to be energy efficient or participate in YEC’s DSM programs? (d) If in future the industrial rate class load grows at a faster rate than the load from retail classes what other adjustments to Rate Schedule 39 would YEC anticipate would be required?