

## 2023-24 YEC GRA Information Requests

1) Ref: *Yukon Energy Corporation's (Yukon Energy or YEC) 2023/24 General Rate Application (the GRA or Application) addresses changes to Yukon Energy's approved revenue requirement and other matters through implementation of an adjusted Rider J in order to meet Yukon's need for an increasing supply of safe, reliable and sustainable electricity.* (GRA first paragraph, PDF p.2)

How much of this GRA actually supports increasing the supply of sustainable electricity?

Please provide three lists of capital projects categorized as follows:

- a) A list of capital projects supported by this GRA which provide new sustainable / renewable capacity. (Atlin, Moon Lake, etc. if these are supported in this GRA?)
- b) A list of capital projects supported by this GRA which provide thermal capacity. (such as diesel replacement and upgrades, Mayo diesel, etc.)
- c) A list of capital projects in this GRA which support both new sustainable and thermal projects. (example: Whitehorse Interconnection which supports BESS and rental diesel)

Each item on each of the lists should have dollar amount provided by this GRA, and a) and b) should also list MW capacity as appropriate. Please also provide a total for each category.

- d) Is it fair to claim this GRA is about "*safe, reliable and sustainable electricity*" given that much of the GRA is about diesel replacement (not sustainable) and rental diesel (not reliable or sustainable)?

2) Please provide an updated and complete YIS Generation Inventory that includes the rentals (and spares) for 2023-24. Format should be the same as "Appendix A: Existing Resources Technical Attributes" on p. 71 of the 10 -Year Renewable Electricity Plan from 2020.

3) Please provide the same table of as above updated to show complete generation inventory expected for 2024-25.

4) Please provide the stacking order for thermal generation – two separate lists:

- a) for 2023-24
- b) for 2024-25

5) BESS:

- a) What is the current status of this project?
- b) Is there an estimated completion date?
- c) How is this project supported in the current GRA?

6) THELP / Atlin:

- a) What is the current status of this project?
- b) Is there a new estimated completion date or range of dates?

- c) What was the expected completion date in 2020, according to the 10-Year Renewable Electricity Plan? Any other expected completion dates of note?
- d) What progress has been made so far? Please provide a list including year and milestone achieved for this project for the last 5 years.
- e) Please provide an outline of future milestones – what needs to be done to get this online and when that is expected to occur.
- f) How is the future of this project supported in the current GRA?
- g) Does YEC expect that there will be another Atlin / THELP EPA hearing due to changing costs or other factors?

7) Moon Lake:

The last thing I have heard about Moon Lake is from the Atlin proceeding:

“Moon Lake pumped storage is a proposed future project that requires material grant funding to complete feasibility studies, as well as to proceed with actual development – its timing, if it proceeds, is likely to be delayed beyond time forecast in the 10-Year Renewable Electricity Plan.” (Atlin proceeding, NY-YEC-1-2 REVISED p.3)

- a) Has anything happened since then? What is the current status of this project?
- b) What is the new estimated completion date? If this is not available, what is the range? Earliest reasonable completion date and latest?
- c) What was the original estimated completion date according to the 10 Year Renewable Plan?
- d) Please provide a list of milestones achieved and dates for this project for the last 10 years.
- e) Please provide an outline of future milestones – what needs to be done to get this online and when each is expected to occur?
- f) How is this project supported in the current GRA?

8) When does YEC anticipate a significant reduction in the number of rental diesels, and are Moon Lake and Atlin expected to be the drivers of this change or are there other options?

9) Please provide an updated table of “Number of Diesel Rentals”, which was originally provided by YEC with NY-YEC-1-2 REVISED on pdf p.3 from the Atlin/THELP EPA. Please update to reflect delays in Atlin and Moon Lake and other projects, and note when these projects are expected to be completed. Also please start the table in 2017 or when YEC first rented diesels, as it is useful to be able to chart the growth of the rental diesel fleet.

10) What are the most recent 10 renewable projects with a dependable capacity greater than 2MW that YEC has completed? Please provide year, project name and capacity.

11) Are there any other renewable or sustainability oriented projects of note that YEC is pursuing if Atlin and Moon Lake are further delayed or canceled? What are the next 5 renewable projects greater than 2 MW dependable capacity other than BESS, THELP/Atlin and Moon Lake? Please provide lead times and best guess as to expected completion dates, current status, MW dependable capacity and the name of the project.

12) Whitehorse Thermal Permitting:

It is first noted that Section 9 of the Air Emissions Permit expired on March 31, 2022. Section 9 had allowed 12MW of rental diesel in N-1 conditions.

- a) What is the current permitted diesel generation capacity limit for the WGS? Undertaking #29 from the 2021 GRA (PDF p251 of Undertakings Final) indicates YEC considers this to be 14MW. Looking at capacities from the most recent assessment of WD3 thru WD7 (YESAB 2011-0241 p.9) the last assessed capacity of the 5 generators mentioned adds up to a total permitted capacity of 13.75 MW, which YEC is then rounding up to 14 MW. Is this correct?
- b) What is the currently installed dependable capacity for diesel at the WGS, including installed and rented generators, in regular and in N-1 conditions?
- c) What relevant actions has YEC taken since the expiration of Section 9 of the permit? Has YEC checked with the Regulator, the Department of Environment to understand the ramifications of the expiration of this section? Please provide all correspondence between YEC and the Department of Environment concerning the expiration of Section 9 of the Whitehorse air emissions permit, and the ability to run more than 14MW and rental diesel after March 31, 2022.
- d) In March of 2023, Yukon Energy held public meetings concerning the renewal of their thermal permit which expires in 2024 and indicated that a YESAB assessment would be starting in Fall of 2023. Is this still on schedule? Will YEC be asking for capacity other than the 14MW currently permitted?

13) Whitehorse Thermal Permitting additional questions on noise and efficiencies:

- a) Given that the 2020 Noise Monitoring Assessment for the WGS acknowledged that sound levels were higher than allowed by BC OGC and Health Canada, what progress (if any) has been made towards Yukon Energy's stated commitment to: "Explore possible ways to reduce noise levels at the Whitehorse diesel plant. This may include adding equipment to the generators to muffle noise, making changes to the building or other options."
- b) What are the noise levels of the permanent/installed diesel generators compared to the rentals? Please provide a comparison of noise produced by all of the installed/permanent generators running at the same time (9.55MW) vs the noise from 9.55 MW produced exclusively by the rentals.
- c) What are the generating efficiencies of the installed diesels compared to the rentals? Please provide a comparison of fuel consumption at 9.55 MW using the installed/permanent generators vs fuel consumption of the rentals to produce the same output? Fuel usage per MWh would also be useful.
- d) Please provide a comparison of NO<sub>2</sub> and other pollutants at similar capacities – Installed vs rental units.
- e) Has YEC considered moving its diesel generation to a different location further from residences, particularly given that rental diesel is expected to be required for many years? While I realize relocation costs will be high, I am guessing that a YESAB assessment increasing capacity to 26 MW or more in this location will also be challenging.
- f) There were a number of issues with the 2020 sound monitoring report which remain unaddressed, from missing baseline measurements to classification of Bell Crescent as “urban” rather than “suburban” to indicating that it was quieter when the generators were running than when they were not.

The report uses Health Canada guidelines to calculate “High Annoyance” based on changes in noise levels. Amazingly, the 2020 sound monitoring report concluded that the noise from the diesel generators would actually decrease annoyance of nearby residents in comparison with the baseline of the generators not running – which was said to be louder. Wait... diesel generator noise makes things quieter and makes people happier?

While YEC's diesel happiness generators are an interesting concept, a report that reaches this conclusion cannot be taken seriously.

When will a new and ideally less comically flawed sound monitoring report be available?

14) Faro diesel replacement, modifications to the FGS:

- a) Please provide all plans, layouts, specifications, studies (noise, emissions, etc) and all other documentation relating to the modifications (2023 and 2024) to the FGS. This would also include plans, requirements and instructions given to contractors and subcontractors. Also please provide a list of contractors and subcontractors and RFPs.
- b) Please provide all correspondence between YEC and the Department of Environment concerning the 2023 and 2024 modifications to the FGS.

15) Faro noise issues:

Ref: *The results of the noise survey indicated that the operational sound levels at various locations exceeded the nighttime permissible sound levels during operation of Faro diesel units. While the new diesel generators will have lower noise emissions than both the rentals and FD1, noise mitigation is included as part of the design and installation of the Faro diesel replacement project.* (GRA PDF p. 163)

- a) According to YEC data provided by YEC at a meeting in Faro in January 2023, the current configuration at the the FGS exceeded nighttime permissible sound levels at **all** measured and modelled locations. At the meeting, YEC representatives presented new numbers that showed that permissible nighttime sound levels would still be exceeded at half of the locations after proposed diesel replacement and planned mitigation. Has YEC subsequently determined what will be changed or implemented to make the facility not exceed permissible noise levels?
- b) Please provide the sound modelling report for the modifications to the Faro facility. This report was referenced by YEC in the January of 2023 meeting in Faro. I requested it from YEC on February 7 and was informed by YEC that *"The full report is not yet available. The results of the sound modelling were shared ahead of the full report so they could be presented at the January meeting in Faro."* I requested the full report again in June and August, and still nothing. Is the full report finally available?
- c) Given that the rentals are only used in colder temperatures, why is sound modelling done at 0c and 70% humidity in past reports and in the preliminary results provided?
- d) Please provide a comparison of noise levels between the proposed diesel replacement generators and the rentals with both operating at 5MW output.
- e) Please provide a comparison of the efficiencies of the proposed diesel replacement generators and the rentals at 5MW output. Fuel usage at 5MW, Fuel usage per MWh, and NO<sub>2</sub> and other emissions compared.

16) Tier 2 Diesels:

- a) Other than the ever expanding rental diesel fleet, will YEC be installing any more dirty Tier 2 diesels?
- b) My understanding is that Tier 2 is considered an obsolete standard and that Tier 2 units can no longer be imported to Canada. Is this correct? What year did this happen?

17) Mayo rental diesel:

Ref: *To provide sufficient dependable capacity for the YIS during the W2023, 20 rental diesel units (36 MW) are required to address the shortfall in required dependable capacity that the YIS permanent facilities can provide. This is an increase of 5 required diesel rental units compared with the prior winter.* (GRA p. 166)

and

Ref: *Mayo has been selected as the location for the five added diesel rentals needed for 2023.* (GRA p. 166)

Taking this together, YEC is counting on running each of the 20 rentals at full capacity of 1.8MW each. (20 x 1.8 MW =36 MW). So 9 MW is attributable to the five added diesel units in Mayo.

- a) YESAB 2023-0090 for the Mayo rental diesels was for 4.9 MW. How does YEC propose to meet N-1 planning criteria with 4.9 MW from the Mayo rentals instead of 9 MW?
- b) In the YESAB process, YEC declared two of the five generators to be “backups” or spares. Where is this shown in the GRA?
- c) What is YEC’s of understanding of “dependable capacity” and the YESAB and permitting processes? Does capacity have to be assessed and permitted for YEC to consider it as “dependable capacity” or N-1 dependable capacity?
- d) What is the dependable capacity of the Mayo rental diesels in an N-1 emergency?
- e) Why did YEC apply to YESAB for a 4.9 MW limit for the Mayo rental diesels while claiming 9 MW of dependable capacity to the Board?

18) Ref: *The YESAA assessment of the Faro project location was completed in early Q2 2022 and the Air Emissions permit to operate beyond 10.6 MW was issued to YEC. The Air Emissions permit limits normal operations to a certain capacity without limiting actual installed capacity or capacity operation during an N-1 event to protect public health and safety<sup>10</sup>.*

And

<sup>10</sup> Under Section 49 of the Yukon Environmental and Socio-economic Assessment Act, YEC has the ability to operate any available diesel generating capacity in an N-1 event to protect public health and safety. The Board found in Appendix A to Order 2022-03 (para 110) “...that N-1 emergency conditions described by YEC appear on their face to be consistent with Subsection 49(1) of the Yukon Environmental and Socio-economic Assessment Act and with responding to an emergency that is in interest of public welfare, health or safety.”

(GRA PDF p.162)

- a) While section 49(1) of YESAA states the “no assessment is required” in response to an emergency, the YESAB assessment is only part of the authorization to run generators. Has this “unlimited capacity” idea been confirmed with the Department of Environment?
- b) What steps must be taken before capacity that has not been permitted or assessed can be used in an N-1 event?
- c) The permitted capacity of the FGS is 15.5 MW, and YEC is claiming 20.6 MW dependable N-1 capacity for 2024-25. Is this correct? (GRA PDF p.163)

19) Diesel Rental Business Case, Rental costs:

- a) Are the per unit rental costs of the 22 rentals (including spares) the same across locations?
- b) Are operational costs and fuel costs the same across the rentals? If not, please explain the differences.
- c) Are all 22 of the rentals on the same contract with the supplier? Please provide contract(s) or agreement(s) for all years of rental diesel.

- d) How has the per-unit rental cost changed over the years of YEC rental diesel? Please provide a table with a breakdown of total cost, per unit cost and number of units for each year that YEC has rented diesel generators. Please also include actual or expected cost for 2024-25.
- e) Is there a competitive bidding for the supply of rental diesel, or does the same supplier always get the contract? Please provide rationalizations for whatever approach is taken, and describe the process including time of year for each part.

20) Diesel Rental Business Case, purchase cost:

- a) This model of rental generator is relatively common, and examples can often be found for sale. What is the typical cost of purchase for rental diesel units of this type on the open market? Provide examples
- b) What is the cost of purchase for rental diesel units from the current rental supplier? Has YEC made any inquiries? Please provide written quotes received.

21) Diesel Rental Business Case, Rationalizations:

Ref: *During the review of YEC's 2021 GRA, YEC explained why trading diesel engines [i.e., purchasing diesel rental units and sale later when it is not needed] is not considered to be a feasible option for YEC.*<sup>1</sup> (GRA PDF p.91)

and

<sup>1</sup> See September 29, 2021 hearing transcript, line 16 at page 460 to line 21 at page 463.

In the referenced part of the transcript, Andrew Hall states *"If we were to look at an option to purchase and then sell again in the future, we have to look at, firstly, you know, what certainty we have around those overall economics."*

- a) How thoroughly Has YEC looked at the economics? Please provide data on purchase and resale options. How is claiming that one has to analyze an option a strike against that option?

He goes on to say *"In terms of practicality, you know, I'll draw folks attention to Figure 20 again in the 10-year renewable plan, and I'll just get a reference there."*

Figure 20 shows a reduction in rental diesel, as Atlin and BESS come online in 2024, and elimination of rental diesel when moon lake Moon Lake is online in 2028.

- b) Mr. Hall points to a graph showing that rentals will be reduced in 2024 and eliminated by 2028. Is there any validity for YEC to be citing this in a business case in 2023, given that things are clearly not playing out that way?
- c) Are there any lessons learned from the failure to make meaningful progress with renewables as evidenced by the referenced graph?
- d) Much of the reasoning of the business case seems to hinge on the rentals being temporary and disappearing soon. This does not seem to be happening. Are rental diesels they only/best option if they are still needed 10 years from now? 15 years? 20? Please discuss and provide any supporting data concerning longer term rental diesel.

He also states *“So this whole idea of getting into the business of trading pretty much on an annual basis diesel engines, I mean, that’s not our business, and I wouldn’t be comfortable with us getting into that line of work.”*

- e) How is “temporary rental diesel” any more YEC’s traditional business or “line of work” than the purchase and operation of generation equipment? Mr. Hall’s mention of “trading pretty much on an annual basis” rings hollow given that so far, there would have been no need to sell any units.
- f) Mr. Hall does not consider the option of the combination some purchase and some rental. This also seems to have been ignored in the Business Case. Please provide any research done on a hybrid approach.

22) Diesel Rental Business Case, longer term lease vs short term rental and prudence:

Ref: *With respect to the further alternative of a longer-term lease of diesel rental units, instead of short-term rentals during the winter months of the test years, YEC has concluded that this is not a viable or prudent option.* (GRA PDF p. 92)

and from the Atlin EPA Submission:

Referencing a possible need for up to 35 rental units, YEC has noted that *“In additional [sic] to the challenges finding this number of rental diesels, YEC would also face location and connection issues to safely connect diesel rental units to YIS.”* (YEC Atlin EPA Submission pdf p.23)

- a) What are the costs and terms available of a longer term lease? For one year? For 3 years? For 5 Years or more? Please provide quotes from the supplier.
- b) When in the yearly cycle does YEC inform the supplier how many rental are needed?
- c) Having only short term leases, and given that YEC has noted potential challenges in finding rentals, is there a possibility that an insufficient number of generators will be available in a given year?
- d) Does YEC have any alternatives or a backup plan if the desired number of short term rentals are not available any given year?
- e) Is it prudent to have unreliable and possibly unavailable rental diesels taking on an increasingly large role in Yukon’s energy supply?

23) Diesel Rental Business Case

Ref: *In contrast, using new purchase costs for the 5 MW of Faro units in service in 2024 at \$3.66 million/MW, the LCOC for new units sold in the 11th year after commissioning can only compete with the rental option at unrealistically high sales prices. For example, an unrealistic 10-year sales price equal to 75% of original cost (reflecting the remaining three-quarters of the original expected life) yields an LCOC for the purchase option of \$278/kW-yr which remains much higher than the LCOC for the rental option in these specific circumstances.* (GRA PDF p.91)

This appears to suggest that the option of selling the new diesels purchased as part of diesel replacement would not be prudent.

- a) Why is YEC considering or analyzing selling the new “permanent” diesels?
- b) How does showing that selling the permanent diesels is not prudent support the Diesel Rental Business Case?

24) Our Diesel Future?

- a) Why have recent GRAs been about adding more “temporary rental diesel”, while minimizing or ignoring the clearly needed focus on longer term solutions.
- b) What failures in the planning process have brought us to an unstable, ever expanding temporary quick fix cycle?
- c) Does YEC have any guidance for a much needed intervention? A plan for progress? A rehab plan to get off of the growing rental diesel addiction? Why isn't this happening?

25) DSM Questions:

- a) There seem to be very few incentives for customer participation in DSM programs. Does YEC really expect many customers to give up control of their heat or water heaters or EV charging often in exchange for little more than a free device that allows the utilities to take control?
- b) How much of a peak reduction does YEC expect to get from the current DSM programs in future years?

26) Time of Use rates: and customer motivations:

There is no mention of TOU rates in this YEC GRA. TOU has proven to motivate customers towards DSM and peak shifting strategies. This seems important given YEC's peak load and N-1 issues. AMI and TOU are mentioned in the AEY GRA, but AEY is less affected by peak load, peak load not actually being mentioned in their GRA.

- a) Please explain how TOU rates could help (or not help) address load issues.
- b) When will we see YEC push towards TOU billing? If not, why not?
- c) Does YEC foresee a joint AEY/YEC application / proceeding towards TOU?
- d) Does YEC have any other programs besides DSM described in the GRA that would help address peak load?
- e) What is the best way to encourage customers to use electricity more efficiently?
- f) What is the best way to encourage customers to reduce usage at peak times?

27) Interim Rates

*(Ref) Through this approach, the impact of YEC's 2023 and 2024 rate increases on customer bills will be reduced, there would be no impact to residential bills throughout the winter, and greater bill stability and predictability will be provided to Yukoners. (GRA PDF p.3)*

- a) How is there “no impact to residential bills throughout the winter”? Without the interim rate, the bill would be lower. Interim rates do impact customer bills. Please provide an sample bill reflecting the January 1 2024 interim rate increase, and a sample bill with all of the same data but without the interim rate increase. Is there a difference?
- b) How can there be “no impact” to customer bills, while there is an impact to how much YEC collects from customers?
- c) YEC assumes that customers prefer bill stability to lower rates. Is there anything backing up this assumption?
- d) Would YEC expect customers to object to a lower rate in January 2024?



- e) YEC's approach to bill stability seems to rest on the idea that customers would prefer a constant rate per KWh over an occasionally lower rate. Does YEC believe that customers are aware of the actual cost per KWh, given that it is not expressed on the billing statement?
- f) Given that usage and rates vary, is YEC's bill stability based on the idea that customers perceive that all utility costs vary linearly with kWh? Please explain how customers perceive and understand bill stability.