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IN THE MATTER OF THE YUKON ENERGY CORPORATION
Tlingit Homeland Energy EPA

Heard before the

YUKON UTILITIES BOARD

July 19 - 20, 2022

REPLY ARGUMENT OF NATHANIEL YEE

Introductory Comments:

In this reply argument I will address issues discussed in the Final Arguments of John Maissan (JM), Utilities Consumers Group (UCG), and Yukon Energy (YEC). My silence on issues not addressed is not to be interpreted as agreement with, or disagreement with the stated positions. I leave these matters to the Board to address based on all of the information on the record.

JM Final Arguments Reply:

I am generally in agreement with the argument of Mr. Maissan, particularly his summary and conclusions in sections E and G on pages 10 and 11.

Given that YEC does not seem to have any other new hydro projects on the horizon, issuing an RFP would make sense. And since YEC has "substantial surplus renewable renewable energy generation forecast in the summer period" it would make sense that the IPP SOP program be refocused to encourage winter generation.

I also appreciate his mentions of GHG emissions and meeting the 93% renewable target by 2030.

UCG Final Arguments Reply:

I agree with UCG's assertion that the comparison of a 8.75MW hydro facility to a 12.5MW thermal plant is "apples to oranges" for the reasons given by UCG, and for further reasons in my arguments.

I am also in agreement about the risk of not knowing the outcome of the Conditions Precedent, as big surprises could cause us to have to revisit another amended EPA or give up the project altogether.

YEC Final Arguments Reply:

1. "ii) This would increase diesel rental requirements from 15 diesel rentals (excluding spares) in 2021/22 to 37 1.8 MW rental diesel units in 2030/31 (see Table 4-1 from the Submission)." (YEC Arg p.3 c *ii*)

While the prospect of 37 rentals does show the necessity of the EPA, it is effectively saying that YEC has no idea what would happen without the EPA, as YEC has no idea if 37 rentals would even be possible and has not explored this or any other options. YEC is saying that the EPA is necessary because YEC has no idea how to solve the problem without it. Agreed.

2. Consideration of alternative options: “Since 2016, YEC has pursued permanent solution options to address its N-1 dependable capacity shortfall, including pursuit of a 20 MW new diesel plant option, installation of the third LNG unit, the BESS project, dependable capacity DSM, and potential new dependable hydro capacity options.” (YEC Arg p.4)

Despite pursuing these options since 2016, the only actual alternative that YEC has found is the unplanned expansion of temporary rental diesel. This option has not been fully considered, despite it being YEC’s default “solution.” YEC has not investigated the cost or feasibility of increasing the number of rental diesels.

3. YEC claims to have been pursuing “potential new dependable hydro capacity options” since 2016 and yet Mr Hall states that compared to this unsolicited proposal, “...there were no other options on the table that were nearly as far advanced -- as advanced. There were some options, other hydro projects identified in the ten-year renewable plan, but they would be starting from scratch, having done little or no work on them, with First Nations where we had -- we would have had no feeling for whether there was support for hydro in their traditional territory.” (YEC Arg p.5)

If YEC has supposedly been pursuing these options since 2016 as claimed a page earlier, and is still “starting from scratch, having done little or no work on them,” there should be some concern.

4. “In summary, the Submission, IR responses and testimony at the hearing demonstrate that the EPA pricing is designed to mirror or improve upon the forecast cost impacts for the lowest cost alternative for both dependable capacity and delivered energy i.e. a permanent thermal generation plant.” (YEC Arg p.7)

The lowest cost alternative permanent thermal generation plant will not be built, be it 8.75, 12.5 or 20 MW, making the comparison somewhat ambiguous. However, if everything goes as hoped, the EPA will possibly improve even more on the actual alternative, which is continued scaling up of rental diesel. That is, between the imaginary permanent thermal plant and the impossible up to 37 rental diesels, the EPA does appear to be the best option for customer rates.

5. “The Amended EPA is expected to enhance the current reliability of service to Yukon utility customers. This reflects the EPA reliance on hydro generation, the provision of this generation to the southern YIS (which currently has its closest electricity supply at Whitehorse) and the expected positive impacts from system upgrades to the southern YIS transmission.” (YEC Arg p.16)

Yes, this seems reasonable. There are risks of climate issues not considered but these are not unique to the EPA and are possible throughout the YIS. I am thinking at the moment of the risks of greater than normal precipitation as experienced in recent years. This issue has been dramatically evidenced by the Whitehorse landslides and the Alaska Highway washout. Again, this affects all infrastructure and hopefully this and future projects will be built with the required resilience in mind.

6. “All risks related to Project development (other than YEC securing any approvals of the EPA it may require), including permitting, securing necessary grant funding, capital costs to complete the Project

and schedule (including completing all conditions precedent needed for the EPA to come fully into force for development of the Project) are held by THELP." (YEC Arg p.17)

This does not mean that YEC has no risks, only that YEC has has no control of these risks, other than "commercial imperative" as Mr. Hall explained at the hearing. The project has been delayed by a year due to management of project budget in consideration of the commercial imperative. (Transcript Vol 1 p.72 lines 17-22 and p.48 line 6)

7. "If the EPA is unable to proceed or is delayed, the EPA retains YEC's ability to sustain reliable service without any cost penalties using existing YIS resources plus rented diesel units as required for dependable capacity requirements." [54]

[54] See YUB-YEC-1-1 Amended. See also amended Submission, Section 4.3, and Table 4-1 re rental diesel requirements; YUB-YEC-1-13(b) Amended, and YUB-YEC-1-22. YEC will be able to accommodate at its existing Whitehorse and Faro thermal facilities the up to 5 units (1.8 MW each) of added rented diesels if so required (in-service of 7.2 MW BESS dependable capacity and 12.5 MW Diesel Replacement are planned before the end of 2023, reducing diesel rental requirements without Atlin Project to less than the 2021/22 winter requirements until winter 2027/28). (YEC Arg p.18)

Despite these claims, it is not clear that YEC will be able to accommodate the five added rented diesels claimed in the footnote, and it is noted that the 12.5MW of diesel replacement has unintended consequences in respect to this.

YEC justified the Faro diesels by claiming that there is no room for more than the 9 rentals + 1 spare in Whitehorse. It is not clear that YEC could add any more than the current 6 rentals + 1 spare in Faro. In fact, the diesel replacement in Faro will reduce the capacity to 4 rentals + 1 spare. 13 rentals total, and two spares.

This is because replacing the 5.1MW Mirrlees (derated to 2.4MW) with a new 5.0MW diesel displaces rental diesel rather than actually increasing thermal capacity, and limits YEC's ability to use rental diesel in Faro due to the 15.5MW limit that YEC pursued with YESAB in order to avoid an Executive Committee Screening.

Here are the scenarios:

Current:

FD1	2.4MW	Derated Mirrlees to be replaced
FD7	2.8MW	Derated Cat
Rentals	10.3MW	5.72 rental diesels which YEC has rounded up to 6 units. (see note below)
	15.5MW Total limit at Faro	

After diesel replacement:

FD1	5.0MW	Replacement for Mirrlees
FD7	2.8MW	Derated Cat
Rentals	7.7MW	4.27 Rental Diesels, that would round down to 4 units. (see note below)
	15.5MW Total limit at Faro	

Note: To avoid a YESAB Executive Committee Screening, YEC claimed that the total capacity of the Faro plant would be 15.5MW, rather than the 16MW that 6 rental diesels and installed generators would actually produce. While there are 6 rentals installed, only the power of 5.72 units can be

utilized. After diesel replacement, only the power of 4.27 rentals can be utilized. Renting and running a 5th 1.8MW diesel to produce only .48MW would not make sense, so Faro additional capacity is reduced to 4 rentals. The idea that 5.72 generators could be run without running 6 is still baffling, but YEC chose this route and will have to live with it.

Given that diesel replacement will reduce the number of generators in Faro from 5.72 to 4.27 or 4, it is unclear that YEC will be able to add if the required rental diesels if the EPA is delayed or does not produce as expected, given that the limit after diesel replacement goes from 15 to 13 rental diesels plus two spares. YEC has not shown that scenarios involving a greater number of rentals are possible, despite suggesting this as the backup plan if the EPA, BESS or Moon Lake should be delayed or canceled. Any scenario that suggests more than 13 rentals should be considered suspect, as YEC has not shown how this could be done.

8. The term “thermal displacement” is used frequently. It is misleading, and could more accurately be called “theoretical rental diesel displacement.” No YEC thermal assets are being displaced by this project. (CW-YEC-1-1) The reality is that this is displacing theoretical rental diesel expansion.

Respectfully submitted,

Nathaniel Yee
August 4, 2022