CITY OF WHITEHORSE
(CW)

TOPIC: **Stranded Thermal Assets**

REFERENCE: **YEC Application PDF page 18 of 136, Section 4.1.**

PREAMBLE: **On PDF page 18, YEC states:**

> **The public need for the EPA under reasonable electric load forecasts is examined in the context of the Project's expected capabilities to supply YIS electric load to displace thermal generation. This approach allows YEC to secure through the EPA the Project's energy and dependable capacity benefits while the Project is owned and developed by THELP.**

As the proposed agreement will displace thermal assets, CW would like information to understand the treatment of existing thermal assets.

QUESTION:

a) Please fully explain what will happen to existing thermal assets, whose energy will be displaced by the EPA. Will YEC maintain all thermal assets, or will they be removed from rate base? Will there be any reduction to maintenance costs related to thermal assets?

b) Please fully explain whether the EPA will create any stranded assets.

ANSWER:

(a) and (b)

The EPA will not create any stranded YEC thermal assets.

Table 4-1 and Figure 4-1 of the Submission show 2021-2030 forecast non-industrial peak load and the forecast dependable capacity excluding mobile rented diesel units. This indicates a forecast YIS N-1 capacity shortfall for winter 2024/25 without the EPA of 17.2 MW related to non-industrial YIS load. Without the EPA and Moon Lake Pumped Storage, this capacity shortfall increases to 27.6 MW by 2027/28 (requiring 16 x 1.8 MW diesel

rental units, plus any spares needed to support these units), and then 41.5 MW by 2030/31 (requiring 24 rented diesel units).

As noted in the Submission, the EPA replaces the requirement for rental or new permanent diesel units. This would not change the requirement for YEC to continue to maintain thermal assets that it currently owns or plans to replace in order to ensure that it can continue to meet N-1 requirements.

TOPIC: **Pricing**

REFERENCE: **YEC Application, PDF page 28 of 136.**

PREAMBLE: **On PDF page 28, YEC indicates that the Capacity price is $200 per kW per year and the energy price is $0.19 / kWh.**

QUESTION:

a) Please fully explain how the proposed pricing for energy and capacity was developed.

ANSWER:

(a)

Please see response to YUB-YEC-1-24.

TOPIC: **Deliveries above LTA**

REFERENCE: **YEC Application PDF page 14 of 136.**

PREAMBLE: **At Item 3 of PDF page 3, YEC states:**

> **3. Delivery of all Winter Energy available: while YEC will only pay for winter energy that displaces LTA forecast thermal generation, YEC will take delivery each winter season (Sep-May) of all available energy that the Project is able to generate.**

CW requires information to better understand pricing proposed in the agreement.

QUESTION:

a) Please fully explain how the volumes above the LTA will be priced. In the response please fully explain why the price for surplus energy should not be priced at the YEC cost of hydro energy.

ANSWER:

(a)

Winter delivery volumes above the low flow year deliveries (25.2 GWh/yr), including winter volumes delivered above the LTA (30.8 GWh/yr), will all be priced using the Non-Firm Winter Energy Price (see Table 3-1 in YEC's Submission).

Please see responses to YUB-YEC-1-11, YUB-YEC-1-12 and YUB-YEC-1-24 for explanations as to how EPA energy prices were determined based on displaced thermal fuel generation costs.

In developing energy prices for IPP purchases (including purchases under the Atlin EPA) no estimates have been developed of YEC cost savings for reduced non-fuel O&M costs for thermal or hydro generation, i.e., the focus has remained on thermal generation fuel cost savings. EPA deliveries will result in some added YEC cost savings for displaced

thermal generation non-fuel O&M and (to a smaller degree) for displaced hydro generation due to increased spills at YIS hydro facilities.

TOPIC: **Cost to customers**

REFERENCE: **YEC Application, PDF page 18 of 136.**

PREAMBLE: **On PDF page 18, YEC states:**

> **The Minister's Terms of Reference state that the general purpose of this review of the EPA "is to obtain the YUB's report and recommendations on the potential benefits, costs, risks and customer impacts that influence whether the Agreement should proceed as proposed by YEC"**

CW requires information to assess the impact of the proposed agreement on end use customers. YEC discusses the cost of energy and the cost of capacity.

QUESTION:

a) Please provide a detailed analysis that demonstrates the total cost to a customer after the arrangement is complete. In the response please include:

- The cost of energy delivered under the EPA for LTA volumes.
- The cost of energy delivered in excess of LTA Volumes.
- The cost of capacity under the EPA.
- The asset costs related (Return, Income Tax, and Depreciation) to maintaining YEC Thermal to meet LTA volumes. (if any) (including any costs of leased assets)
- The operating costs related to maintaining YEC Thermal assets to meet LTA volumes.(if any) (including any costs of leased assets)
- The asset costs related (Return, Income Tax, and Depreciation) to maintaining YEC Thermal assets as backup. (including any costs of leased assets)
- The operating costs related to maintaining YEC Thermal assets as backup. (including any costs of leased assets)

b) Please provide a detailed analysis that demonstrates the current cost of thermal generation to a customer prior to the implementation of the EPA:

- The asset costs related (Return, Income Tax, and Depreciation) to own and operate YEC Thermal assets. (including any costs of leased assets).
- The operating costs related to owning and operating YEC Thermal assets as backup (including any costs of leased assets).

ANSWER:

(a) and (b)

YEC can only provide the relevant costs for YEC – developing costs "to a customer" is not feasible without spelling out as specific customer's load requirements and rates. Review of impacts on overall costs for YEC addresses the overall impact of the EPA on Yukon utility customer rates (given that rates for YEC and AEY are consolidated).

YEC also has developed costs only based on incremental changes due to the EPA, based on reasonable specified assumptions. It is not practical or cost effective to develop full YEC system costs for scenarios with and without the EPA.

Please see the following responses for EPA related information requested that is available:

- CW-YEC-1-2 for review of the specific EPA prices and how these were determined based on forecast YEC loads and costs for thermal fuel and new permanent diesel generation capacity.

- YUB-YEC-1-11, YUB-YEC-1-12 and YUB-YEC-1-24 for explanations as to how EPA energy prices were determined based on displaced thermal fuel generation costs.

- JM-YEC-1-10 (a) for simplified annual firm and non-firm energy as well as capacity payment example under the EPA for the years 2024-2065.

There is no impact from the EPA to the return or depreciation expenses of the current permanent thermal assets. The EPA impacts as follows:

- The energy deliveries from the EPA reduce the thermal generation requirements which in turn reduce thermal fuel costs and potentially non-fuel thermal

maintenance costs. For the EPA pricing only forecast thermal fuel cost reductions are used and no forecast maintenance cost savings are included [which would increase the EPA energy benefits – but note that non-variable O&M new diesel costs are included in the capacity pricing below].

- The EPA capacity delivery will reduce the N-1 capacity shortfall and reduce reliance on diesel rentals and/or the need for new permanent diesels. The capacity shortfall exists even with all existing thermal units [i.e., the EPA dependable capacity does not replace the dependable capacity that is being provided by the existing permanent thermal units]. The pricing for the EPA dependable capacity is based on levelized cost estimates for new diesel capacity, which address capital and non-variable O&M costs for new diesel over an assumed 40-year life – however, the levelized cost assessment does not reflect the cost profile for new diesel impacts on customer rates over this life (i.e., YEC owned new diesel assets compared with the equivalent EPA levelized costs would tend to have higher fixed cost impacts in the initial years and lower fixed cost impacts in later years due to standard methods for assessing return on rate base over an asset's life).

YEC does not own the rented diesel units, therefore does not earn a return or calculate depreciation expenses for the rental diesel units but pays rental related cost. The cost of diesel rentals was reviewed during the 2021 GRA as well as during BESS Part 3 hearing. YEC will continue to rely on diesel rental infrastructures built to accommodate diesel rentals until sufficient permanent dependable capacity is developed to address the growing capacity shortfalls.

TOPIC: **Reliability**

REFERENCE: **YEC Application, PDF page 33 of 136.**

PREAMBLE: **On PDF page 33, YEC states:**

> **The Project is expected to be highly reliable (i.e., only 2% unplanned downtime is applicable), given long-term evidence on water availability, the available Surprise Lake Storage, and the mature hydro generation technology being used. However, risks still remain, e.g., winter conditions along with climate change may lead to ice condition instability or other issues in any given year that reduce actual dependable capacity delivered during a PWP from what was confirmed in the December Dependable Plant Capacity Test used to set Dependable Capacity Payments for the PWP.**

CW requires information to understand the impact and remedy for unplanned outages.

QUESTION:

a) Please confirm that 2% unplanned outages equates to 175 hours per year. If not confirmed, please fully explain.

b) Please provide a detailed discussion of the remedies available to YEC for unplanned outages, including specific references to the EPA purchase agreement that include the remedies.

c) Please fully explain the impact of an unplanned outage, including how YEC would supply the power shortfall.

ANSWER:

(a)

Confirmed.

(b) and (c)

YEC will deal with an unplanned outage at the Atlin facilities (or required AEY transmission facilities) in the normal way it deals with unplanned outages for any source of generation. The methods will vary depending on the circumstances related to each outage. With respect to energy supply requirements, YEC has adequate thermal generation capability to address such events (and customer net cost impacts are expected to be minimal given the basis for determining EPA energy prices based on displaced thermal energy generation fuel cost savings). With respect to dependable capacity requirement, YIS reliability under the N-1 dependable capacity criterion requires sufficient back-up dependable capacity to meet winter peak load requirements with the loss of the Aishihik Generation Facility (37 MW).

Please also see the response to YUB-YEC-1-13(b and c) for review of backup provisions to maintain N-1 capacity.

With respect to EPA provisions for unplanned Atlin outages, YEC will not be required to pay THELP for any energy that is not delivered. With respect to dependable capacity, the EPA provisions for excess capacity payment recoveries under section 8.3 of the EPA will also be applied.

TOPIC: **Impact On Rate Base**

REFERENCE: **YEC Application, PDF page 29 of 136.**

PREAMBLE: **On PDF page 29, YEC states:**

> **There is some uncertainty with respect to what, if any impact the EPA may have on YECs balance sheet (i.e., rate base). Based on preliminary assessments of the Agreement, YEC has concluded that this transaction does not contain a capital lease and therefore there is no balance sheet or rate base impact. This conclusion, however, is not final. The ultimate impact can only be known when the Project is complete and YECs auditors (the Auditor General of Canada) have reviewed the transaction.**

CW would like to better understand what the rate base impacts could be if YEC's preliminary conclusion proves to be incorrect.

QUESTION:

a) Please fully explain the range of potential impacts on YEC's balance sheet if YEC's preliminary conclusion of no impact proves incorrect.

b) What is the greatest rate base impact possible?

ANSWER:

(a) and (b)

Please see response to YUB-YEC-1-42.

TOPIC: **ATTACHMENT A: EPA Article 2 Conditions Precedent**

REFERENCE: **YEC Application, PDF page 67 of 136.**

PREAMBLE: **Section 2.1 (d) sets out the Conditions Precedent. The Condition Dates for the first two of these have passed. CW would like a status update.**

QUESTION:

a) Has the Condition Precedent in Section 2.1 (d) (i) been met? If yes, please provide a copy of the referenced Interconnection Agreement. If no, please explain the status and any impact flowing from the failure to meet this Condition Precedent by the Condition Date

b) Has the Condition Precedent in Section 2.1 (d) (ii) been met? If no, please explain the status and any impact flowing from the failure to meet this Condition Precedent by the Condition Date.

ANSWER:

(a) and (b)

YEC and THELP have agreed to extend the dates for the satisfaction of the following conditions precedent in the EPA:

- 2.1 (d)(i) and (ix) extended from January 31, 2022 to March 31, 2022;
- 2.1(d)(ii) extended from February 15, 2022 to April 30, 2022
- 2.1(d)(vii) extended from February 28, 2022 to May 31, 2022.

The Interconnection Agreement is in the process of being finalized and this is now expected to occur before March 31, 2022. As the condition has been extended there is no impact flowing from the failure to meet this Condition Precedent by the Condition Date. This extension (as well as the other extensions noted above) also have no impacts on the overall schedule for concluding the EPA conditions precedent.

The Interconnection Agreement will include final scoping of the Buyer-AEY System Upgrades and budgeted costs for the Buyer-AEY System Upgrades will be determined subsequent to the finalization of that agreement. As the condition has been extended there is no impact flowing from the failure to meet this Condition Precedent by the Condition Date.