NATHANIEL YEE
(NY)

REFERENCE: **The FAQ on the THELP web page for the Project notes that "The Atlin Hydro Expansion Project will only generate power for the Yukon once the power needs of Atlin have been met. The power needs of Atlin are the first priority when it comes to the water resources of Surprise Lake."**

QUESTION:

a) Is this consistent with YEC's understanding of the agreement? If not, please provide specifics.

ANSWER:

(a)

YEC's understanding on this matter is as follows:

1. The Atlin Hydro Expansion Project is a separate facility from the Existing Plant, with all Energy from the Project to be exclusively provided only to YEC as provided in Section 7.1 of the EPA.

2. The expected water availability from Surprise Lake is sufficient to meet expected power needs of Atlin (as supplied from the Existing Plant) as well as provide 8 to 8.5 MW of dependable capacity to YEC during the Peak Winter Period (see Appendix A to the Submission, Tables A1 and A2).

3. THELP will cause Xeitl Limited Partnership ("XLP"), by its general partner Atlin Power Limited ("APL"), to not amend, modify, or make any changes to the Existing Plant which would have a material adverse effect on Seller's ability to deliver and Buyer's ability to receive during each Peak Winter Period the minimum energy deliveries as set out in Section 7.2(a) of the EPA.

4. The EPA does not have any specific provision stating that the Atlin Hydro Expansion Project will only generate power for the Yukon once the power needs of Atlin have been met.

Please see response to YUB-YEC-1-4 for additional analysis and information on the ability of the Project and the Existing Plant to be operated simultaneously at full capacity for extended periods during the Peak Winter Period.

TOPIC:

REFERENCE: **In the public presentation on 11-Feb, the slide listing capacities had in very large print "Eliminates 4 Rental Diesel Engines Each Winter."**

PREAMBLE:

QUESTION:

a) When the Project comes online, does YEC actually expect to have four fewer rentals than are currently installed, or was this just implied to sell the Project?

b) How many rental diesels does YEC expect to have each season from 2022-2035? On pages 18 and 19, scenarios involving 16, 24 and 35 rental diesels are mentioned, along with the text "the requirement for diesel rentals is forecast to increase significantly..." Please provide this forecast (rental diesel requirement by year) for 2022-2035.

ANSWER:

(a) and (b)

Please see response to YUB-YEC-1-13(c) for available forecasts of diesel rental requirements with and without the Project, focusing on winter 2024/25 and 2030/31. This information indicates that the EPA prior to in-service of Moon Lake Pumped Storage will reduce diesel rentals by 5 units (assuming each unit capacity = 1.8 MW).

TOPIC:

REFERENCE: Page A-3. Table A3-1.

PREAMBLE:

QUESTION:

a) Is it realistic to forecast and expect industrial load to be zero? No more industry in Yukon? Please explain this scenario.

ANSWER:

(a)

Yes. This is a prudent scenario when there are no firm forecasts for any specific planned and committed industrial load. This scenario occurred after closure of the Faro Mine until the Minto project was developed and connected with the Phase 1 of the Carmacks Stewart Transmission Project.

In the context of the Atlin EPA pricing, this scenario is particularly prudent when setting fixed energy prices intended to reflect forecast displaced thermal fuel generation costs that are dependent on forecast grid loads. In the event that actual loads are lower than forecast, ratepayers will incur net added costs relative to the thermal option to the EPA. In the event that actual loads are higher than forecast, ratepayers will benefit from lower added costs relative to the thermal option to the EPA and THELP will share in these benefits with YEC. In this way, YEC has structured this agreement to provide the highest possibility of a net benefit to Yukon ratepayers.

TOPIC:

REFERENCE: **Page A-3. Table A3-1 provides Forecast 12-month Annual Grid Load for 2024 and 2035.**

PREAMBLE:

QUESTION:

a) The 2021 GRA had a forecast total grid load of 538.7GWh. Is it realistic to expect 2024 and 2035 to be lower? Please explain.

b) Please provide the forecast annual grid load for all years from 2021 to 2035.

ANSWER:

(a)

Yes. The annual average increase in non-industrial load from 2021 GRA forecast [427 GWh] and 2024 forecast [453 GWh] is about 2%/year which reflects expected growth in electricity demand based on policies and actions outlined in the strategy, including increased demand for EVs. The lower loads for 2024 [528 GWh] and 2035 [483 GWh] when compared to the 2021 GRA load at 539 GWh are due to forecast changes in industrial loads. The 2021 GRA forecast includes 112 GWh industrial load [with losses], while 2024 forecast includes 75 GWh industrial load and for 2035 no industrial load was forecast in the 10 Year Renewable Electricity Plan.

Please also see the response to JM-YEC-1-17(a).

(b)

Please see the table below for the requested information. The load for 2021 is based on 2021 GRA; 2022-2035 years are based on 10-Year Renewable Electricity Plan.

The actual sales in 2021 were lower compared to the 2021 GRA load forecast due to lower industrial load [industrial load with losses at 98.6 GWh compared to 112 GWh in the GRA

forecast]. The actual non-industrial load was close to the GRA forecast [at 428.7 GWh with losses compared to the 426.7 GWh GRA forecast].

	Total Load before IPPs and Microgen, GWh
2021	538.7
2022	541.3
2023	521.7
2024	527.9
2025	534.4
2026	541.3
2027	546.8
2028	556.8
2029	567.5
2030	538.7
2031	528.4
2032	516.9
2033	514.7
2034	514.8
2035	483.1

TOPIC:

REFERENCE: Page 18, note 22.

PREAMBLE:

QUESTION:

a) Correction: Dependable capacity would actually be reduced by 5.0MW and not 5.2MW, as FD1 has been derated to 2.8MW. Please confirm.

ANSWER:

(a)

Not confirmed.

In response to NY-YEC-2-1 in YEC's 2021 GRA, YEC concluded that the FD1 unit could be run up to 2.4 MW while in remote mode without significant risk of an over-heating shutdown. This is a reduction of 0.6 MW from the dependable capacity assumed in the 10-Year Renewable Electricity Plan. Therefore, the reduction in dependable capacity would be 4.6 MW. Please see response to NY-YEC-1-6 for corrected table.

TOPIC:

REFERENCE:

PREAMBLE: Page 20 Table 4-1. Similar to above, YEC dependable thermal capacity is overstated due to derating of FD1. 2021/22 and 2022/23 YEC dependable thermal capacity is actually 35,850.

Other years may also be affected. Corresponding capacity shortfalls are also incorrectly stated.

QUESTION:

a) Please provide updated Table 4-1 reflecting correct existing dependable capacity.

b) Correction Page 18: N-1 Capacity shortfall is actually 26.6MW, as this number came from Table 4-1. Please confirm.

ANSWER:

(a) and (b)

In response to NY-YEC-2-1 in YEC's 2021 GRA, YEC concluded that the FD1 unit could be run up to 2.4 MW while in remote mode without significant risk of an over-heating shutdown. This is a reduction of 0.6 MW from the dependable capacity assumed in the 10-Year Renewable Electricity Plan. Please see revised version of Table 4-1 below.

Based on the revised table the capacity shortfall for 2021/22 is about 27 MW (compared with about 26.4 MW in the Submission Table 4-1).

Table 4-1 Revised: Forecast Non-Industrial Peak and Dependable Capacity under N-1 Capacity Planning Criterion: 2021/22-2030/31 Winter (kW)

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Non-industrial Peak	**104,102**	**107,372**	**110,546**	**113,952**	**117,030**	**120,515**	**124,517**	**129,214**	**133,769**	**138,676**
Non-industrial Peak	*103,284*	*106,277*	*109,078*	*111,985*	*114,393*	*116,982*	*119,783*	*122,870*	*125,268*	*127,285*
EV Peak	*818*	*1,096*	*1,468*	*1,968*	*2,637*	*3,533*	*4,734*	*6,344*	*8,501*	*11,391*
Existing Resource Dependable Capacity	**111,500**	**111,500**	**106,900**	**106,900**	**106,900**	**106,900**	**106,900**	**106,900**	**106,900**	**106,900**
YEC Hydro	*70,500*	*70,500*	*70,500*	*70,500*	*70,500*	*70,500*	*70,500*	*70,500*	*70,500*	*70,500*
YEC Thermal	*35,450*	*35,450*	*30,850*	*30,850*	*30,850*	*30,850*	*30,850*	*30,850*	*30,850*	*30,850*
AEY Thermal	*5,550*	*5,550*	*5,550*	*5,550*	*5,550*	*5,550*	*5,550*	*5,550*	*5,550*	*5,550*
N-1 Event [Loss of AH GS or L171]	**-37,195**	**-37,194**	**-37,193**	**-37,192**	**-37,191**	**-37,190**	**-37,189**	**-37,188**	**-37,187**	**-37,186**
Loss of AH GS	*-37,000*	*-37,000*	*-37,000*	*-37,000*	*-37,000*	*-37,000*	*-37,000*	*-37,000*	*-37,000*	*-37,000*
Loss of AEY Haines Junction diesel	*-1,500*	*-1,500*	*-1,500*	*-1,500*	*-1,500*	*-1,500*	*-1,500*	*-1,500*	*-1,500*	*-1,500*
Haines Junction peak	*1,305*	*1,306*	*1,307*	*1,308*	*1,309*	*1,310*	*1,311*	*1,312*	*1,313*	*1,314*
Capacity Shortfall/Surplus under N-1	**-29,797**	**-33,066**	**-40,839**	**-44,244**	**-47,321**	**-50,805**	**-54,806**	**-59,502**	**-64,056**	**-68,962**
Committed and Planned Supply Options	**2,843**	**12,247**	**26,952**	**35,018**	**35,085**	**35,152**	**35,221**	**70,289**	**70,359**	**70,429**
Diesel Replacements	*0*	*0*	*12,500*	*12,500*	*12,500*	*12,500*	*12,500*	*12,500*	*12,500*	*12,500*
Whitehorse #2 Uprate	*638*	*638*	*638*	*638*	*638*	*638*	*638*	*638*	*638*	*638*
BESS	*0*	*7,200*	*7,200*	*7,200*	*7,200*	*7,200*	*7,200*	*7,200*	*7,200*	*7,200*
Atlin Hydro EPA	*0*	*0*	*0*	*8,000*	*8,000*	*8,000*	*8,000*	*8,000*	*8,000*	*8,000*
DSM	*2,205*	*4,409*	*6,614*	*6,680*	*6,747*	*6,814*	*6,883*	*6,951*	*7,021*	*7,091*
Moon Lake Pump Storage Phase 1	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*35,000*	*35,000*	*35,000*
Capacity Shortfall/Surplus under N-1	**-26,955**	**-20,819**	**-13,887**	**-9,226**	**-12,236**	**-15,652**	**-19,585**	**10,787**	**6,303**	**1,467**
Capacity Shortfall/Surplus under N-1 w/o Atlin/ Moon Lake	**-26,955**	**-20,819**	**-13,887**	**-17,226**	**-20,236**	**-23,652**	**-27,585**	**-32,213**	**-36,697**	**-41,533**

TOPIC:

REFERENCE:

PREAMBLE: **Page 20, Table 4-1.**

QUESTION:

a) Please provide the specifics of the "Diesel Replacements" giving current dependable capacity of each engine being retired, and capacity of each corresponding replacement.

ANSWER:

(a)

YEC's 10-Year Renewable Electricity Plan includes the development of 12.5 MW of replacement diesel capacity at three different existing plant sites. This was based on considering the results of the technical, environmental and socio-economic research, as well as public feedback where YEC would focus potential options to add or replace capacity at existing generation facilities on an incremental basis as diesel engines are retired.

The Plan includes consideration of the following near-term activities:

- Installation of 5 MW of thermal capacity at the Whitehorse Generation Station - three existing Mirrlees units were retired in the past, with three LNG units replacing the two units that were initially retired; the third 4.5 MW unit that will now be replaced was retired more recently.

- Replacement of 5.1 MW of diesel to be retired at the Faro Diesel Plant with a 5 MW diesel unit.

- Retirement of the existing 2.5 MW of diesel capacity in Dawson City with installation of 2.5 MW of diesel capacity at the Callison Substation.

TOPIC:

REFERENCE: **Given the many conditions of this agreement that have not yet been met, including funding, environmental and government approvals, TRTFN approval, etc., and that the EPA has no legal force until all conditions are met, there appear to be many ways that the Project could fail.**

PREAMBLE:

QUESTION:

a) What costs have been incurred so far, and how much of this total will be passed on to ratepayers if the Project does not go forward?

b) Please provide a breakdown of all costs incurred by the Project to date, and forecast to be spent on the Project previous to meeting of conditions of the EPA and (assumed) approval of the EPA.

ANSWER:

(a) and (b)

Please see YUB-YEC-1-43(b).