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October 7, 2021

Mr. Richard Buchan, Chair
Yukon Utilities Board
Box 31728
Whitehorse, Yukon Y1A 6L3

Dear Mr. Buchan:

Re: Yukon Energy 2021 General Rate Application – Revised Response to Undertaking #11

On October 5, 2021, YEC provided a response to Undertaking #11 which was "To provide two term sheets for 2019, using the same format as used on Table 2-2, report to the Board, December 10, 2019, one using only the YUB Board directives and one using the OIC."

The LWRF report filed with the YUB on December 10, 2019 does not include Table 2-2 referenced by Mr. Rondeau during the oral hearing. However, the response to Undertaking #11 provided the continuity table results from the 2019 filing for the 2 options in response to the original request.

In correspondence to the Board dated October 6, 2021, Mr Rondeau clarified that he was referencing Table 2.1-2 LWRF Analysis - 2018 Year End in the December 10, 2019 filing – a table used in the Term Sheet filing rather than in the Annual Report filing.

YEC has added text and an appendix to Undertaking #11 to provide the back up details needed to determine the LWRF results for 2019 for the two options identified in the Undertaking. In the time available YEC is not able to provide the exact format now requested by Mr. Rondeau.

If you have any questions regarding the above, please call.

Yours truly,

Jason Epp

Undertaking #11 at Page 257, line 17-22 - Revised

To provide two term sheets for 2019, using the same format as used on Table 2-2, report to the Board, December 10, 2019, one using only the YUB Board directives and one using the OIC.

Yukon Energy Response:

The LWRF report filed with the YUB on December 10, 2019 does not include Table 2-2 referenced by Mr. Rondeau during the oral hearing. On October 6, 2021 Mr. Rondeau clarified that he was referencing Table 2.1-2 LWRF Analysis - 2018 Year End in the December 10, 2019 filing – a table used in the Term Sheet filing rather than in the Annual Report filing. In the time available, YEC cannot replicate the specific table for 2019 – however, Appendix 1 to this Undertaking provides a detailed Table A1A that shows the determination of the LWRF for 2018 and for 2019 per Order 2019-08 directives, including refinements that YEC determined to be needed when dealing with the 2019 situation. Table A2A in Appendix 1 copies the same level of detailed information as filed in Exhibit B-11 for 2019 determined per OIC 2021-16.

The attached Tables 1A and 2A from the original Undertaking #11 filing show the estimated LWRF balance to December 31, 2019 using LWRF calculations approach as per YUB 2019-08 directives for 2017 and 2018 in each case, and the following for 2019 (the LWRF charge for 2019 is as per Appendix 1 in each case):

- Table 1A for 2019 uses LWRF calculations approach as per 2019-08 directives that only includes approved forecast loads for LWRF determinations (incremental thermal generation charge to LWRF of $5.530 million); and

- Table 2A for 2019 uses LWRF calculations as per OIC 2021-16 approach as filed by YEC that includes actual loads for LWRF determinations (incremental thermal generation charge to LWRF of $6.268 million). [This table is the same as Table 2.1-2 filed with the Board on April 8, 2021 (Exhibit B-11).]

It is noted that 2019 included low water conditions (with thermal generation higher than LTA) and actual grid load higher than the last approved forecast (the approved 2018 GRA forecast).

Table 1A: LWRF Continuity Schedule [LWRF calculations for 2017-2019 are as per YUB 2019-08 approach].

Line	Activity	2017 ($000s)	2018 ($000s)	2019 ($000s)
A	**Opening Balance[1]**	**$9,485**	**$6,710**	**$3,379**
B	Incremental Thermal Generation Cost to Charge/(Refund) to LWRF	$0	$534	$5,530
C=B	Total LWRF operation for YEC			
	YEC pays to LWRF	$0	$0	$0
	YEC withdraws from LWRF	$0	($534)	($5,530)
D=A+C	**LWRF Balance after Annual Operation**	**$9,485**	**$6,176**	**($2,152)**
E	**Interest on LWRF Balance[2]**	**$86**	**$76**	**($7)**
F=D+E	**LWRF Balance after Interest charge**	**$9,571**	**$6,253**	**($2,159)**
G	**Rider E (Rebate)/Collections [January - December]**	**($2,861)**	**($2,874)**	**($1,004)**
H=F+G	**LWRF Ending Balance**	**$6,710**	**$3,379**	**($3,163)**
I	**LWRF Cap [3]**		**`+/-8000**	**`+/-8000**
J	**LWRF Rebate/(Collections) Required**		**$0**	**$0**

Notes:

1. Opening Balance is based on 2016 DCF ending balance as provided in DCF 2016 Annual Filing.

2. Per the March 11, 1996 letter recording the settlements [provided as Exhibit B-16 in the 2008/2009 GRA] the DCF fund is to attract interest based upon the short/intermediate term bond rates in which the Companies may invest the fund and any negative balances would only attract interest at the lowest short-term borrowing rate available to the Companies through a line of credit.

3. LWRF cap based on LWRF Term Sheet, YEC 2017-18 GRA Compliance Filing, Appendix 2.1, Attachment 2.1-1.

Table 2A: LWRF Continuity Schedule [LWRF calculations for 2017-2018 are as per YUB 2019-08 approach, 2019 is based on OIC 2021-16].

Line	Activity	2017	2018	2019
		($000s)	($000s)	($000s)
A	**Opening Balance[1]**	**$9,485**	**$6,710**	**$3,379**
B	Incremental Thermal Generation Cost to Charge/(Refund) to LWRF	$0	$534	$6,268
C=B	Total LWRF operation for YEC			
	YEC pays to LWRF	$0	$0	$0
	YEC withdraws from LWRF	$0	($534)	($6,268)
D=A+C	**LWRF Balance after Annual Operation**	**$9,485**	**$6,176**	**($2,889)**
E	**Interest on LWRF Balance[2]**	**$86**	**$76**	**($7)**
F=D+E	**LWRF Balance after Interest charge**	**$9,571**	**$6,253**	**($2,896)**
G	**Rider E (Rebate)/Collections [January - December]**	**($2,861)**	**($2,874)**	**($1,004)**
H=F+G	**LWRF Ending Balance**	**$6,710**	**$3,379**	**($3,900)**
I	**LWRF Cap [3]**		**`+/-8000**	**`+/-8000**
J	**LWRF Rebate/(Collections) Required**		**$0**	**$0**

Notes:

1. Opening Balance is based on 2016 DCF ending balance as provided in DCF 2016 Annual Filing.

2. Per the March 11, 1996 letter recording the settlements [provided as Exhibit B-16 in the 2008/2009 GRA] the DCF fund is to attract interest based upon the short/intermediate term bond rates in which the Companies may invest the fund and any negative balances would only attract interest at the lowest short-term borrowing rate available to the Companies through a line of credit.

3. LWRF cap based on LWRF Term Sheet, YEC 2017-18 GRA Compliance Filing, Appendix 2.1, Attachment 2.1-1.

Appendix 1

Table A1A: LWRF calculations for 2018 and 2019 [based on LWRF calculation directed by YUB 2019-08 adjusted]

Line No		2018	2019		Notes
L1a	Diesel Fuel Cost per kW.h	26.333	26.333	cents/kW.h	GRA Application Average Fuel cost (2017/18 GRA Application)
L1b	LNG Fuel Cost per kW.h	14.668	14.668	cents/kW.h	
L1c	GRA YIS firm Load forecast	420,265	420,265	MW.h	
L1d	GRA LTA Thermal Generation forecast	16,355	16,355	MW.h	
Calculation of Thermal Cost to Charge (Refund) LWRF					
	Assumptions				
L2	YEC Grid load	450,086	440,676	MW.h	Actual
L3	Fish Lake	5,458	4,964	MW.h	Actual
L4=L2+L3	Total Grid load	455,544	445,639	MW.h	
	Assumed Actual Generation Sources				
L5	YECL Fish Lake	5,458	4,964	MW.h	Actual
L6	YEC Hydro	412,771	370,818	MW.h	assumed actual (L2-L7-L8)
L7	YEC Thermal	37,316	69,858	MW.h	Actual
	Diesel	7,186	3,793	MW.h	Actual
	LNG	30,130	66,065	MW.h	Actual
L7a	*YEC Diesel/LNG charged to capital, RFID and maintenance*	1,361	1,593	MW.h	Actual
L7a1	*Diesel*	1,003	1,422	MW.h	Actual
L7a2	*LNG*	358	171	MW.h	Actual
L7b=L7-L7a	*YEC Net Diesel/LNG*	35,955	68,265	MW.h	Actual
L7b1	*Diesel*	6,183	2,371	MW.h	Actual
L7b2	*LNG*	29,772	65,894	MW.h	Actual
L7b3=L7b1/L7b	*Diesel % of total net thermal*	*17%*	*3%*		
L8	YEC Wind	-	-	MW.h	Actual
L9	Total Grid load	455,544	445,639	MW.h	
	LTA Expected Generation Sources				
L10	YECL Fish Lake (expected)	8,391	8,391	MW.h	Based on YEC forecast in 2017/18 GRA [2017 is based on actuals].
L11	YEC Wind (expected)	-	-	MW.h	
L12=L9-L10-L11	YEC Grid load net of expected Fish Lake and Wind	447,153	437,248	MW.h	
L13=L12-L1c+L11	Load Variance	26,889	16,984	MW.h	
L14	LTA Thermal Generation at Actual Load	31,391	25,300	MW.h	Estimated based on LWRF Term Sheet
L15=L7b/L14-1	Thermal Generation change from LTA as % of LTA Thermal Generation at Actual Load	15%	170%		Shows water-related impact (extent > or< than 0%)
L15a=L14-L1d	LTA variance for Actual vs Forecast Load	15,036	8,945	MW.h	
*L15b=Min(L13-L15a,L15a*L15)*	Maximum Water-related thermal generation for Load Variance	2,186	8,039	MW.h	Impact capped by total load variance less LTA for load variance
L16=L7b-L14-L15b	Minimum Water-related thermal generation at Forecast Load	2,378	34,926	MW.h	Balance of total water-related thermal generation
L17=L16+L1d	Estimated Actual Thermal Generation at Forecast Load	18,733	51,281	MW.h	
L17a	Diesel	*3,221*	*5,128*	MW.h	Total thermal less LNG below.
L17b	LNG	*15,511*	*46,153*	MW.h	90% of total thermal, subject to not exceeding total thermal less estimated diesel forecast load.
L18=L1d	Forecast YEC Net Thermal Generation	16,355	16,355	MW.h	
L18a	Diesel	*1,636*	*1,636*	MW.h	
L18b	LNG	*14,720*	*14,720*	MW.h	
L19=L17-L18	YEC Thermal Generation to be included in LWRF	2,378	34,926	MW.h	
L19a	YEC Diesel Generation to be included in LWRF	1,586	3,493	MW.h	
L19b	YEC LNG Generation to be included in LWRF	792	31,434	MW.h	
L20=L1axL19a+L1bxL19b	Incremental YEC Thermal Generation Cost to Charge (Refund) LWRF ($000s)	$534	$5,530		

Table A2A: LWRF Calculations for 2019 Based on OIC 2021-16

Table 2: LWRF calculations for 2019 based on OIC 2021-16

Line No		2019		Notes
L1a	Diesel Fuel Cost per kW.h	26.333	cents/kW.h	GRA Application Average Fuel cost (2017/18 GRA Application)
L1b	LNG Fuel Cost per kW.h	14.668	cents/kW.h	
L1c	GRA YIS firm Load forecast	420,265	MW.h	
L1d	GRA LTA Thermal Generation forecast	16,355	MW.h	
Calculation of Thermal Cost to Charge (Refund) LWRF				
	Assumptions			
L2	YEC Grid load	440,676	MW.h	Actual
L3	Fish Lake	4,964	MW.h	Actual
L4=L2+L3	Total Grid load	445,639	MW.h	
	Assumed Actual Generation Sources			
L5	YECL Fish Lake	4,964	MW.h	Actual
L6	YEC Hydro	370,818	MW.h	assumed actual (L2-L7-L8)
L7	YEC Thermal	69,858	MW.h	Actual
	Diesel	3,793	MW.h	Actual
	LNG	66,065	MW.h	Actual
L7a	*YEC Diesel/LNG charged to capital, RFID and maintenance*	1,653	MW.h	Actual
L7a1	*Diesel*	1,482	MW.h	Actual
L7a2	*LNG*	171	MW.h	Actual
L7b=L7-L7a	*YEC Net Diesel/LNG*	68,205	MW.h	Actual
L7b1	*Diesel*	2,311	MW.h	Actual
L7b2	*LNG*	65,894	MW.h	Actual
L7b3=L7b1/L7b	*Diesel % of total net thermal*	*3%*		
L8	YEC Wind	-	MW.h	Actual
L9	Total Grid load	445,639	MW.h	
	LTA Expected Generation Sources			
L10	YECL Fish Lake (expected)	8,391	MW.h	Based on YEC forecast in 2017/18 GRA.
L11	YEC Wind (expected)	-	MW.h	
L12=L9-L10-L11	YEC Grid load net of expected Fish Lake and Wind	437,248	MW.h	
L13=L12-L1c+L11	Load Variance	16,984	MW.h	
L14	LTA Thermal Generation at Actual Load	25,300	MW.h	Estimated based on LWRF Term Sheet
L15=L7b/L14	Actual Thermal Generation as % of LTA Thermal Generation	270%		
L16=L14	Expected YEC Thermal Generation in Rates	25,300	MW.h	
L16a	Diesel	*2,530*	MW.h	Total thermal less LNG below.
L16b	LNG	*22,770*	MW.h	90% of total thermal, subject to not exceeding total thermal less estimated diesel (when L15>100%) or actual diesel (when L15<100%).
L17=L7b	YEC Net Thermal Generation	68,205	MW.h	
L17a=L7b1	Diesel	*2,311*	MW.h	
L17b=L7b2	LNG	*65,894*	MW.h	
L18=L17-L16	YEC Thermal Generation to be included in LWRF	42,905	MW.h	
L18a=L17a-L16a	YEC Diesel Generation to be included in LWRF	-219	MW.h	
L18b=L15b-L16b	YEC LNG Generation to be included in LWRF	43,124	MW.h	
L19=L1axL18a+L1bxL18b	Incremental YEC Thermal Generation Cost to Charge (Refund) LWRF ($000s)	$6,268		