

# ATTACHMENT 1: LWRP CALCULATIONS AND BALANCE UPDATES FOR 2022

## Table 1-1: LWRP Calculations

Line No		2022 Annual	Notes
L1a	Diesel Fuel Cost per kW.h	20.507 cents/kW.h	
L1b	LNG Fuel Cost per kW.h	18.136 cents/kW.h	2021 GRA Average Fuel cost
L1c	GRA YIS firm Load forecast	538,726 MW.h	
L1d	GRA LTA Thermal Generation forecast	85,930 MW.h	
<b>Calculation of Thermal Cost to Charge (Refund) LWRP</b>			
<i>Assumptions</i>			
L2	YEC Grid firm load	533,744 MW.h	Actual
L3	Fish Lake	9,597 MW.h	Actual
L4=L2+L3	Total Grid load	543,341 MW.h	
<i>Assumed Actual Generation Sources</i>			
L5	YECL Fish Lake	9,597 MW.h	Actual
L6	YEC Hydro	488,394 MW.h	Calculated as L2-L7-L8
L7	YEC Thermal	43,398 MW.h	Actual
	Diesel	17,846 MW.h	Actual
	LNG	25,552 MW.h	Actual
L7a	YEC Diesel/LNG charged to capital, RFID and maintenar.	4,193 MW.h	Actual
L7a1	Diesel	2,141 MW.h	Actual
L7a2	LNG	2,051 MW.h	Actual
L7b=L7-L7a	YEC Net Diesel/LNG	39,205 MW.h	Actual
L7b1	Diesel	15,704 MW.h	Actual
L7b2	LNG	23,501 MW.h	Actual
L7b3=L7b1/L7b	Diesel % of total net thermal	40%	
L8	IPPs	1,952 MW.h	Actual
L9	Total Grid load	543,341 MW.h	
<i>LTA Expected Generation Sources</i>			
L10	AEY Fish Lake (expected)	8,730 MW.h	Expected based on LTA [Note 1]
L11	IPPs	1,952 MW.h	Expected at actual level [Note 2]
L12=L9-L10-L11	YEC Grid load net of expected Fish Lake and IPP	532,659 MW.h	
L13=L12-L1c+L11	Load Variance	-4,115 MW.h	
L14	LTA Thermal Generation at Actual Load	78,635 MW.h	Estimated based on LTA Thermal Calculation Table [please see below]
L15=L7b/L14	Actual Thermal Generation as % of LTA Thermal Generation	50%	
L16=L14	Expected YEC Thermal Generation in Rates	78,635 MW.h	
L16a	Diesel	15,704 MW.h	Total thermal less LNG below.
L16b	LNG	62,930 MW.h	90% of total thermal, subject to not exceeding total thermal less estimated diesel or actual diesel
L17=L7b	YEC Net Thermal Generation	39,205 MW.h	
L17a=L7b1	Diesel	15,704 MW.h	
L17b=L7b2	LNG	23,501 MW.h	
L18=L17-L16	YEC Thermal Generation to be included in LWRP	- 39,429 MW.h	
L18a=L17a-L16a	YEC Diesel Generation to be included in LWRP	- MW.h	
L18b=L17b-L16b	YEC LNG Generation to be included in LWRP	- 39,429 MW.h	
L19=L1axL18a+L1bxL18b	Incremental YEC Thermal Generation Cost to Charge (Refund) LWRP (\$000s)	(\$7,151)	

**Notes:**

- YEC's 2021 GRA assumed Fish Lake generation at 3.628 GWh for 2021 based on information provided by AEY at the time of preparation of the GRA application. This forecast assumed that only one unit would be available in 2021. However, in 2022 actual year both Fish Lake units were in service generating 9.597 GWh. Therefore, Fish Lake expected generation assumed at 8.730 GWh which is based on long-average generation as approved by YUB Order 2014-06.
- As per LWRP Term-Sheet, the actual YIS load for this assessment is net of long-term average annual (i.e., expected) availability for all renewable sources other than YEC hydro generation, including Fish Lake hydro, and IPP renewable generation based on available information. As the number of IPP connections is evolving, the LTA availability from this renewable source will change each year. Therefore, for the purpose of the LWRP calculations the actual IPP deliveries are used, which is the best available information.

**LTA Thermal Calculations for 2022 for Line 14 in Table 1-1**

	MWh	
1	YEC Grid load net of expected Fish Lake and IPPs [Table 1-1, L12]	532,659
2	WH2 and WH4 Uprates [2021 GRA, App 2.1, Table 2.1-1 note #7]	7,100
3=1-2	Load net of WH2 and WH4 Uprates	525,559
4=3 Rounded	Rounding to Lower Five Thousand	525,000
5	Expected LTA Thermal at Rounded Load [2021 GRA, App 2.1, Table 2.1-1]	78,181
6=3-4	Load above Rounded Load	559
7	LTA Thermal as % of Incremental Load [2021 GRA, App 2.1, Table 2.1-1]	81%
8=6*7	LTA Thermal above the Rounded Load	453
9=5+8	LTA Thermal Generation at Total Load	78,635

**Table 1-2: LWRF Continuity Schedule**

Line	Activity	2017 (\$000s)	2018 (\$000s)	2019 (\$000s)	2020 (\$000s)	2021 (\$000s)	2022 (\$000s)
A	Opening Balance	\$9,485	\$6,709	\$3,379	(\$3,900)	(\$4,272)	\$2,744
B	Incremental Thermal Generation Cost to Charge/(Refund) <sup>1</sup> to LWRF	\$0	\$534	\$6,268	\$352	(\$7,019)	(\$7,151)
C=B	Total LWRF operation for YEC						
	YEC pays to LWRF	\$0	\$0	\$0	\$0	\$7,019	\$7,151
	YEC withdraws from LWRF	\$0	(\$534)	(\$6,268)	(\$352)	\$0	\$0
D=A+C	LWRF Balance after Annual Operation	\$9,485	\$6,176	(\$2,889)	(\$4,252)	\$2,746	\$9,895
E	Interest on LWRF Balance <sup>2</sup>	\$86	\$76	(\$7)	(\$20)	(\$3)	
F=D+E	LWRF Balance after Interest charge	\$9,570	\$6,252	(\$2,896)	(\$4,272)	\$2,744	\$9,895
G	Rider E (Rebate)/Collections [January - December]	(\$2,861)	(\$2,874)	(\$1,004)	\$0	\$0	\$0
H=F+G	LWRF Ending Balance <sup>3</sup>	\$6,709	\$3,379	(\$3,900)	(\$4,272)	\$2,744	\$9,895
I	LWRF Cap <sup>4</sup>		+/-8000	+/-8000	+/-8000	+/-16000	+/-16000
J	LWRF Rebate/(Collections) Required		\$0	\$0	\$0	\$0	\$0

Notes:

1. 2022 is based on calculations provided in Table 1-1. The calculations for the previous years are provided in the respective annual reports.
2. As per YUB Order 2022-03 the LWRF is included in the rate base. Therefore, going forward no interest calculations on the LWRF balances.
3. The negative balance indicates a cost to ratepayers, and the positive balance indicates a benefit to ratepayers.
4. LWRF cap was increased to +/- \$16 million as per YUB Order 2022-03.

**ATTACHMENT 2: 2022 ERA FILING**

**Table 2-1: ERA Determination for 2022**

	2022	
<b>A Wholesales Variance for AEY (MW.h)</b>		
Actual wholesales	346,339	A1
GRA approved wholesales assuming Fish Lake LTA generation	343,537	A2 [See note 1]
Fish Lake generation adjustment (expected LTA less actual)	-867	A3 [See note 2]
<b>Change in wholesales for ERA</b>	<b>3,669</b>	A4=A1-A2-A3
<b>B YEC Cost Impact per kW.h change in Wholesales</b>		
Losses (%)	9.00%	B1 [Actuals]
Total YEC's actual generation net of secondary (MWh)	532,659	B2 [See note 2]
GRA approved firm load forecast (MWh)	538,726	B3 [See note 1]
YEC incremental generation relative to GRA approved (MW.h)	-6,067	B4=B2-B3
YEC's actual LTA Thermal Generation (MWh)	78,635	B5 [See note 2]
GRA LTA Thermal Generation (MWh)	85,930	B6 [See note 1]
LTA Thermal Adjustment for WH uprates (MWh)	2,368	B6ii [See note 3]
YEC Incremental thermal generation relative to GRA approved (MWh)	-4,928	B7=B5-(B6-B6ii)
Incremental thermal generation for incremental total generation (%)	81.22%	B8=B7/B4
Thermal Generation cost per GRA (\$/kW.h)	0.1837	B9 [See note 2]
<b>YEC thermal cost change (\$/kWh wholesales)</b>	<b>0.1627</b>	B10=B9*B8*(1+B1)
<b>C YEC Revenue Impact per kW.h change in Wholesales</b>		
<b>Rate Schedule 42 Energy Charge (\$/kW.h wholesales)</b>	<b>0.08298</b>	C1
<b>Average YEC rider applicable to AEY retails (\$/kWh wholesales)</b>	<b>0.05290</b>	C2 [See note 4]
<b>D Net thermal cost impact on YEC (\$000)</b>		
Wholesale Change: Cost Impact (YEC thermal generation costs)	597	D1=A4*B10
Wholesale Change: Revenue Impact (YEC revenues)	427	D2=A4*(C1+C2)+A3*C1
Cost change>revenue change ("Yes"=1, "No"=0)	1	D3=1 if D1>D2 (absolute)
<b>ERA Charge (rebate) to AEY [Net added cost (cost saving) for YEC]</b>	<b>170</b>	D4=D3*(D1-D2)

Notes:

- Based on 2021 GRA.
- Please see LWRP calculations in Table 1-1 for generation numbers. The GRA thermal generation cost is based on 90% LNG and 10% diesel. Fish Lake generation adjustment of -867 MWh reflects the variance between the long-term average generation of 8,730 MWh and actual generation at 9,597 MWh.
- The 2021 GRA LTA thermal generation of 85.930 GWh is calculated based on increased hydro generation output for WH2 and WH4 uprates of 4.2 GWh for 2021 [July 1, 2021 in service date] compared to the annual benefit from these uprates at 7.1 GWh [please see note #7 and example provided in Table 2.1-1, Appendix 2.1, Tab 2, of the 2021 GRA]. An adjustment is added to remove the impact of the difference between 7.1 GWh and 4.2 GWh to the LTA thermal generation [2022 LTA thermal is calculated using 7.1 GWh for the uprates as shown in Table 1-1]. Without this adjustment the ERA calculation will have an error and results in a higher ERA than shown in this table.
- The average Rider is estimated based on total Rider J revenues from AEY retail customers for 2022, including added Rider J as per YUB Order 2023-01 Compliance Filing, divided by wholesales.

LTA Thermal Adjustment for WH Uprates for Line B6ii in Table 2-1

	2021 GRA MWh	Adjusted MWh
1 YEC Grid load net of expected Fish Lake and IPPs [Table 1, L12]	538,724	538,724
2 WH2 and WH4 Uprates [2021 GRA, App 2.1, Table 2.1-1 note #7]	4,213	7,100
3=1-2 Load net of WH2 and WH4 Uprates	534,511	531,624
4=3 Rounded Rounding to Lower Five Thousand	530,000	530,000
5 Expected LTA Thermal at Rounded Load [2021 GRA, App 2.1, Table 2.1-1]	82,231	82,231
6=3-4 Load above Rounded Load	4,511	1,624
7 LTA Thermal as % of Incremental Load [2021 GRA, App 2.1, Table 2.1-1]	82%	82%
8=6*7 LTA Thermal above the Rounded Load	3,699	1,331
9=5+8 LTA Thermal Generation at Total Load	85,930	83,562
Variance [2021 GRA LTA thermal vs adjusted LTA thermal]		2,368