

ATTACHMENT 1: LWRP CALCULATIONS AND BALANCE UPDATES FOR 2024

Table 1-1: LWRP Calculations

Line No		2024 Annual	Source References
L1a	Diesel Fuel Cost per kW.h	30.69 cents/kW.h	
L1b	LNG Fuel Cost per kW.h	19.06 cents/kW.h	2023/24 GRA Average Fuel cost
L1c	GRA YIS firm Load forecast	531,151 MW.h	
L1d	GRA LTA Thermal Generation forecast	68,095 MW.h	
Calculation of Thermal Cost to Charge (Refund) LWRP			
L2	YEC Grid firm load	521,295 MW.h	Metered grid load net of secondary sales
L3	Fish Lake	8,026 MW.h	Actual generation as provided by AEY
L4=L2+L3	Total Grid load	529,321 MW.h	
Assumed Actual Generation Sources			
L5	YECL Fish Lake	8,026 MW.h	Actual generation as provided by AEY
L6	YEC Hydro	419,558 MW.h	Calculated as L2-L7-L8
L7	YEC Thermal	92,890 MW.h	Total of diesel and LNG
	Diesel	41,036 MW.h	Actual metered diesel generation
	LNG	51,854 MW.h	Actual metered LNG generation
L7a	YEC Diesel/LNG charged to capital, RFID and maintenance	14,008 MW.h	Total of diesel and LNG
L7a1	Diesel	6,960 MW.h	Diesel charged to capital, RFID and maintenance
L7a2	LNG	7,048 MW.h	LNG charged to capital, RFID and maintenance
L7b=L7-L7a	YEC Net Diesel/LNG	78,882 MW.h	Total of diesel and LNG
L7b1	Diesel	34,076 MW.h	Net of diesel to capital, RFID and maintenance
L7b2	LNG	44,806 MW.h	Net of LNG to capital, RFID and maintenance
L7b3=L7b1/L7b	Diesel % of total net thermal	43%	
L8	IPPs	8,847 MW.h	Actual IPP purchases
L9	Total Grid load	529,321 MW.h	Total grid firm load net of secondary
LTA Expected Generation Sources			
L10	AEY Fish Lake (expected)	8,730 MW.h	Fish Lake Long-term average [Note 1]
L11	IPPs	8,847 MW.h	Actual IPP purchases [Note 2]
L12=L9-L10-L11	YEC Grid load net of expected Fish Lake and IPP	511,744 MW.h	
L13=L12-L1c+L11	Load Variance	-10,560 MW.h	
L14	LTA Thermal Generation at Actual Load	66,148 MW.h	Calculated based on LTA Thermal Calculation Table [please see below for details of calculation]
L15=L7b/L14	Actual Thermal Generation as % of LTA Thermal Generation	119%	
L16=L14	Expected YEC Thermal Generation in Rates	66,148 MW.h	
L16a	Diesel	28,575 MW.h	Total thermal less LNG below.
L16b	LNG	37,573 MW.h	90% of total thermal, subject to not exceeding total thermal less estimated diesel or actual diesel
L17=L7b	YEC Net Thermal Generation	78,882 MW.h	
L17a=L7b1	Diesel	34,076 MW.h	
L17b=L7b2	LNG	44,806 MW.h	
L18=L17-L16	YEC Thermal Generation to be included in LWRP	12,734 MW.h	
L18a=L17a-L16a	YEC Diesel Generation to be included in LWRP	5,501 MW.h	
L18b=L17b-L16b	YEC LNG Generation to be included in LWRP	7,233 MW.h	
L19=L1axL18a+L1bxL18b	Incremental YEC Thermal Generation Cost to Charge (Refund) LWRP (\$000s)	\$3,067	

Notes:

- The approved 2024 Fish Lake generation in AEY's 2023/24 GRA is 10,143 GWh. The OIC 2021/16 requires use of long-term average renewable resource energy for generation forecasting used to set rates. Therefore, Fish Lake expected generation is 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 2024 for Line 14 in Table 1-1

	MWh	
1	YEC Grid load net of Fish Lake and IPPs [Table 1-1, L12]	511,744
2	Rounding to Lower Five Thousand	510,000
3	Expected LTA Thermal at Rounded Load [2023/24 GRA, App 2.1, Table 2.1-1]	64,840
4=1-2	Load above Rounded Load	1,744
5	LTA Thermal as % of Incremental Load [2023/24 GRA, App 2.1, Table 2.1-1]	75%
6=4*5	LTA Thermal above Rounded Load	1,308
7=3+6	Total LTA Thermal	66,148

Table 1-2: LWRF Continuity Schedule

Year (Note 1)	Opening Balance (Note 2)	Water Availability (LTA) Adjustment (+/-) (Note 3)	Finance Charge (+/-) (Note 4)	Adjustment for balances outside fund caps (Note 5)	Other Adjustments (Note 6)	Ending Balance	Active (A)/Inactive '(I) (Note 7)
1989	2,000					2,000	I
1990	2,000					2,000	I
1991	2,000	10				2,010	A
1992	2,010	290				2,300	A
1993	2,300				-400	1,900	I
1994	1,900				-1400	500	I
1995	500					500	I
1996	500	-1,458	189		3,540	2,771	A
1997	2,771	-191	85		170	2,835	A
1998	2,835	467	159		-1,225	2,236	A
1999	2,236	-1,132	43		-499	648	A
2000	648		35			683	I
2001	683		33			715	I
2002	715		19			734	I
2003	734		21			755	I
2004	755		16			772	I
2005	772		19			791	I
2006	791		30			821	I
2007	821		35			856	I
2008	856		27			883	I
2009	883		4			887	I
2010	887		4			891	I
2011	891		11			902	I
2012	902	3,715	11			4,628	A
2013	4,628	3,518	52			8,198	A
2014	8,198	1,342	87			9,627	A
2015	9,627	1,974	53	-759		10,895	A
2016	10,895	990	54	-2,454		9,485	A
2017	9,485	0	86	-2,861		6,710	A
2018	6,710	-534	76	-2,874		3,379	A
2019	3,379	-6,268	-7	-1,004		-3,900	A
2020	-3,900	-352	-20	0		-4,272	A
2021	-4,272	7,019	-3	0		2,744	A
2022	2,744	7,151				9,895	A
2023	9,895	5,791	629			16,314	A
2024	16,314	-3,067	1,012	-74		14,186	A
2025	14,186						

Notes:

1. Year refers to the YEC calendar year, ending December 31.

2. Balance at start of fiscal year in YEC fund to address YEC thermal generation cost changes from forecast due to changes in water availability. This fund's name and terms have varied over the years, e.g., low water fund, Diesel Contingency Fund (DCF), Low Water Reserve Fund (LWRF). YEC's first GRA filing for the 1989/90 GRA indicated that a reserve of \$2 million had been established by YEC out of retained earnings in 1987 to assist in maintaining rate stability in the event of increased costs to produce electricity by diesel generation at times of low water conditions and shut downs of hydro facilities. Subsequent changes to the fund are due to factors as explained in the table based on the approach approved for the calculations in place at the time. A positive balance means owing to customers while a negative balance owing to YEC.

3. Water Availability Adjustment refers to the annual adjustment to the LWRF due to the difference between forecast renewable generation and actual renewable generation based on the approach approved for the calculations in place at the time. Long-term average (LTA) forecasts for water availability were first approved for setting rates in the 1996/97 GRA (Order 1996-7). Where relevant, adjustments address wind or other non-hydro variances in renewable energy availability.

4. Finance charge refers to the change in the LWRF due to interest or equivalent calculations.

5. When the fund is outside its caps (currently set at +/- \$16 million), YEC must request a rider to either charge or refund to customers amounts to bring the balance of the LWRF within the boundaries of the fund caps.

6. Other adjustments reflect the following:

- a. In response to closure of the Faro mine and its impact on YEC rates and reserve requirements for potential low water conditions, Board Order 1993-8, section 5.1.4.3 approved a \$0.4 million allocation to 1993 and a \$1.4 million allocation to 1994 as an offset to the 1993 and 1994 revenue requirements.
- b. The adjustment for 1996 reflects the Settlement approved in Order 1996-7 to replenish the DCF using funds from pre-1996 reserves related to the Faro mine bad debt payment and net recoveries related to reopening of the Faro mine.
- c. The adjustments for 1997, 1998 and 1999 reflect credits applied as per Board Order 1997-7 related to Faro mine closure as well as adjustments related to Whitehorse Hydro Plant Fire and Forest Fires [RFID related transactions].

7. Indicate whether the LWRF was active or inactive for that given year. Inactive periods occurred when mine closures reduced hydro grid loads to levels where water availability was not expected to materially affect thermal generation costs. The table reflects years when actual renewable availability ended up impacting the LWRF/DCF (even if actual YUB decisions related to such changes to the fund were deferred until subsequent years).

ATTACHMENT 2: 2024 ERA FILING

Table 2-1: ERA Determination for 2024

	2024		Source References
A Wholesales Variance for AEY (MW.h)			
Actual firm wholesales	374,831	A1	Actual metered sales
GRA approved wholesales assuming Fish Lake LTA generation	362,365	A2	See note 1
Fish Lake generation adjustment (expected LTA less actual)	704	A3	See note 2
Change in wholesales for ERA	11,762	A4=A1-A2-A3	
B YEC Cost Impact per kW.h change in Wholesales			
Losses (%)	8.70%	B1	Actual line losses for 2024
Total YEC's actual generation net of secondary (MWh)	511,744	B2	Attachment 1, Table 1-1, L12
GRA approved firm load forecast (MWh)	531,151	B3	Attachment 1, Table 1-1, L1c
YEC incremental generation relative to GRA approved (MW.h)	-19,407	B4=B2-B3	
YEC's actual LTA Thermal Generation (MWh)	66,148	B5	Attachment 1, Table 1-1, L14
GRA LTA Thermal Generation (MWh)	68,095	B6	Attachment 1, Table 1-1, L1d
YEC Incremental thermal generation relative to GRA approved (MWh)	-1,947	B7=B5-B6	
Incremental thermal generation for incremental total generation (%)	10.03%	B8=B7/B4	Calculated
Thermal Generation cost per GRA (\$/kW.h)	0.2022	B9	See note 3
YEC thermal cost change (\$/kWh wholesales)	0.0221	B10=B9*B8*(1+B1)	Calculated
C YEC Revenue Impact per kW.h change in Wholesales			
Rate Schedule 42 Energy Charge (\$/kW.h wholesales)	0.08298	C1	Approved wholesale rate
Average YEC rider applicable to AEY retails (\$/kWh wholesales)	0.08780	C2	See note 4
D Net thermal cost impact on YEC (\$000)			
Wholesale Change: Cost Impact (YEC thermal generation costs)	259	D1=A4*B10	Calculated
Wholesale Change: Revenue Impact (YEC revenues)	2,067	D2=A4*(C1+C2)+A3*C1	Calculated
Cost change>revenue change ("Yes"=1, "No"=0)	0	D3=1 if D1>D2 (absolute)	Calculated
ERA Charge (rebate) to AEY [Net added cost (cost saving) for YEC]	0	D4=D3*(D1-D2)	Calculated

Notes:

1. Approved wholesales for 2024 based on 2023/24 GRA.
2. Fish Lake generation adjustment reflects the variance between the approved LTA generation of 8,730 MWh and actual generation at 8,026 MWh.
3. The approved thermal generation cost of 0.2022 in YUB Order 2024-05.
3. The average Rider is estimated based on total Rider J revenues from AEY retail customers for 2024 as per YEC's 2023/24 GRA Compliance Filing, divided by wholesales.