YUKON ENERGY CORPORATION
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April 17, 2018

Mr. Robert Laking, Chair
Yukon Utilities Board
Box 31728
Whitehorse, YT Y1A 6L3

Dear Mr. Laking:

Re: Yukon Energy 2017/18 GRA – Round 2 Interrogatory Responses

On April 6, 2018 Yukon Energy provided responses to Round 2 Information Requests for the 2017/18 GRA proceeding pursuant to the amended schedule outlined in Order 2018-02.

The response to UCG-YEC-2-39 noted that Yukon Energy expected to file the 2017 DCF Annual Filing within the next week. This filing was provided to the Board on April 13, 2018. The 2017 DCF Annual Filing includes minor corrections to the DCF Calculations and Balance [compared to the material filed in the initial response to UCG-YEC-2-39].

Revised responses to UCG-YEC-2-39 and CW-YEC-2-1 are provided to address required corrections in this regard.

If you have any questions regarding the above please call.

Yours truly,

Ed Mollard
Chief Financial Officer

Attachments

TOPIC: **2017 Actual Results**

REFERENCE: ERA Two Part Filing, page 2-3

PREAMBLE: On page 2-3, YEC states:

> **Revenue requirements:** Fuel and purchase power costs forecast of $2.381 million and $2.407 million in 2017 and 2018 respectively, including approval to assume that LTA thermal generation requirements (separate from thermal generation maintenance activity requirements) are supplied with a combination of 90% LNG and 10% diesel generation.
>
> CW requires information to understand the requested costs.

QUESTION:

a) Please provide a detailed analysis in Excel format that compares forecast 2017 costs to actual 2017 costs. In the response, please explain all variances.

b) Please provide a detailed analysis in Excel format of the 2017 actual thermal generation, compared to the LTA with an explanation of all variances.

c) Please fully explain how the 2017 actual results would impact the 2018 forecast.

ANSWER:

(a) and (b)

Detailed analysis as requested is provided in Tables 1 to 3 and Attachment 1 to this response. Table 1 and Table 2 provide the GRA Forecast [as filed in June 2017][1]; the

[1] Table 2.1, 2.2 and 3.2 in the GRA application filing provides the initial forecast sales, generation, LTA thermal, and forecast fuel costs (which included LTA firm thermal generation requirements plus forecast maintenance requirements, but excluded forecast capital thermal generation requirements).

updated forecast as provided in response to YUB-YEC-1-3[2] [filed September 22, 2017] and preliminary actuals.

In order to properly respond to the impact on costs, YEC must first review changes in generation. Table 1 below provides the prior sales and total generation forecasts for 2017 and preliminary actuals for 2017 (see UCG-YEC-2-28(a) for revised Table 2.1). Overall firm sales are 5.5% higher than the updated forecast (21.55 GW.h), and firm load generation is 4.8% higher the updated forecast. Firm wholesales account for 66% of this sale increase, and industrial for 24%. Lower than expected winter temperatures were an important factor for sales increases well above forecast. Overall losses at 8.1% of sales were lower than the 8.8% forecast. Secondary sales were lower than forecast due to Whitehorse hospital boiler maintenance and lower than expected water at Mayo.

[2] The response to YUB-YEC-1-3 [filed September 22, 2017] provided a revised Table 2.1 to reflect the AEY Compliance Firm Wholesale forecast for 2017 and related revised LTA thermal generation and fuel cost forecasts.

Table 1: Yukon Energy Sales & Total Generation - 2017
GRA Forecast, Updated Forecast, and Preliminary Actuals
[GRA Forecast as filed June 2017; Update as per YUB-YEC-1-3]

Line No.	Description	GRA Forecast 2017	Updated Forecast 2017	Preliminary Actuals 2017
1	**Sales (MW.h)**			
2				
3	Residential	13,622	13,622	14,965
4	General Service	25,318	25,318	26,132
5	Industrial	38,219	38,219	43,419
6	Stree Lights	225	225	228
7	Space Lights	12	12	12
8				
9	Total Firm Retail & Industrial	77,395	77,395	84,756
10				
11	Firm Wholesale Sales	309,000	314,234	328,426
12				
13	Total Company-Firm	**386,395**	**391,629**	**413,182**
14				
15	Secondary Sales	11,464	11,464	8,385
16				
17	Total Company Sales	**397,859**	**403,093**	**421,567**
18				
19	**Losses & Generation (MW.h)**			
20	Losses - MWh	35,012	35,472	33,987
21	Losses - %	8.8%	8.8%	8.1%
22	Total Generation	**432,871**	**438,565**	**455,554**
23				
24	Secondary Sales Related Generation (incl. losses)	12,473	12,473	9,097
25				
26	Firm Load Generation	**420,398**	**426,093**	**446,458**

1. 2017 Preliminary Actuals are unaudited actuals based on preliminary results and subject to change.

Table 2 below provides the break out of generation by sources for prior forecasts and preliminary actuals for 2017 (see UCG-YEC-2-39 for 2017 DCF Annual Report). In addition to the increase in firm sales and required firm generation, the following factors affecting actual generation in 2017 are noted:

- AEY Fish Lake hydro generation was below expected due to maintenance at one of AEY's units.

- A combination of colder than expected weather and lower than expected water at Mayo increased actual diesel and LNG generation more than might otherwise be expected.

- Wind generation was well below expected due to the turbines being shut down for the majority of the year due to required repairs.

- The DCF transfer was all LNG generation due to the high level of actual diesel generation, i.e., the maximum allowed share of LNG was included in the estimated preliminary DCF transfer per the GRA proposals in Appendix 3.4 of the GRA. As a result, LNG share of final total LTA thermal generation was 86.6% rather than 90% as assumed in the GRA forecasts.

Table 2: Yukon Energy Capital, Maintentance & Firm Generation - 2017
[GRA Forecast as filed June 2017; Update as per YUB-YEC-1-3]

Line No.	Description	GRA Forecast 2017 MW.h	Updated Forecast 2017 MW.h	Preliminary Actuals 2017 MW.h
1	Firm Load Generation (YEC)	420,398	426,093	446,458
2	YECL Fish Lake Hydro	8,536	8,536	7,103
3	Total Grid ex. Secondary Sales	428,934	434,629	453,561
4				
5	Capital & RFID Generation			
6	Diesel	596	596	766
7	LNG	0	0	158
8	Total	**596**	**596**	**924**
9	Maintenance Generation			
10	Diesel	313	313	229
11	LNG	133	133	60
12	Total	**446**	**446**	**288**
13				
14	Actual Firm Generation Source (ex Capital, RFID and Maintenance)			
15	YECL Fish Lake	8,536	8,536	7,103
16	YEC Hydro	418,688	424,155	433,164
17	Wind	580	580	33
18	Diesel	113	136	3,623
19	LNG	1,017	1,222	9,638
20	Total	428,934	434,629	453,561
21				
22	LTA Generation (for firm sales)			
23	YECL Fish Lake	8,536	8,536	8,536
24	YEC Hydro	405,672	408,514	417,868
25	Wind	580	580	33
26	Thermal [see note]	14,146	16,999	27,124
27	Total LTA	428,934	434,629	453,561
28				
29	DCF Transfer (Thermal)			
30	Diesel	1,302	1,564	
31	LNG [see note]	11,715	14,077	13,863
32	Total	13,016	15,641	13,863
33				
34	Mix of LTA Thermal Generation			
35	Diesel	1,415	1,700	3,623
36	LNG	12,732	15,299	23,501
37	Total	14,146	16,999	27,125

*Note: Line 26 determined based on DCF Term Sheet Table 3.4-1 in GRA.
Line 31 = 90%xLine 26-line 19, subject to limit that Line 31 cannot > line 32.

1. 2017 Preliminary Actuals are unaudited actuals based on preliminary results and subject to change.

In summary, as shown in Table 2, expected LTA thermal generation was almost double the initial GRA forecast (27.1 GW.h actual versus 14.2 GW.h in the GRA forecast and 17.0 GW.h in the updated forecast) due mainly to total firm grid generation load being 23.6 GW.h higher than forecast (453.6 GW.h actual versus 428.9 GW.h forecast). The increased firm grid load was mainly the result of lower than normal winter temperature in the latter part of 2017. Due to the high levels of actual diesel generation, in part reflecting lower than expected water at Mayo, the DCF transfer is 100% LNG and the final LTA fuel mix for 2017 is 86.6% LNG and 13.4% diesel.

Forecast 2017 costs (GRA) are compared to preliminary actual 2017 costs for fuel and purchase power as provided in Table 3 below. The fuel costs include LTA thermal generation plus maintenance fuel requirements (see Table 2), and assume fuel prices and efficiencies as per the GRA forecasts (actual diesel generation fuel costs reflect actual mix of plant generation sources).

Table 3: YEC Fuel & Purchase Power Costs for 2017
[GRA Forecast as filed June 2017]

($000)	Proposed 2017 GRA	Preliminary 2017 Actuals
Fuel (Actuial generation - firm Load & Maintenance)		
Diesel	$ 112	$ 988
LNG	$ 169	$ 1,422
Total	$ 281	$ 2,411
DCF Transfer		
Diesel	343	0
LNG	1,718	2,033
Total	2,061	2,033
Purchased Power	39	49
Total Fuel and Purchased Powe	$ 2,381	$ 4,492

1. 2017 Preliminary Actuals are unaudited actuals based on preliminary results and subject to change.

The above tables are provided in excel format as CW-YEC-2-1(a and b) Attachment 1. It is noted that 2017 Preliminary Actuals are unaudited actuals based on preliminary results and subject to change.

(c)

2017 actual thermal generation results do not impact 2018 thermal generation forecasts. However, 2017 actual water/snow levels would impact 2018 forecasts.

TOPIC:

REFERENCE: **December 18, 2017 Alternative GRA Forecast Submission**
Appendix 3.5 – Diesel Contingency Fund ("DCF") 2016 Annual Report

PREAMBLE:

QUESTION:

a) Please provide the 2017 DCF Annual Report.

ANSWER:

(a)

Revised response

Please see the 2017 DCF Annual Filing provided as Attachment 1 to this response. The 2017 DCF Annual Filing includes minor corrections to the DCF Calculations and Balance provided in the tables filed in response to UCG-YEC-2-39 as provided on April 6, 2018.

YUKON ENERGY CORPORATION
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April 13, 2018

Mr. Robert Laking, Chair
Yukon Utilities Board
Box 31728
Whitehorse, Yukon Y1A 6L3

Dear Mr. Laking:

Re: Diesel Contingency Fund ("DCF") 2017 Annual Report and 2017 Energy Reconciliation Adjustment ("ERA") Filing

Pursuant to Yukon Utilities Board ("YUB" or the "Board") direction provided in Order 2015-01 and 2015-06 and Yukon Energy's 2017-18 General Rate Application ("GRA"), this correspondence provides Yukon Energy Corporation's ("Yukon Energy" or "YEC") Annual Report summarizing DCF activities up to December 31, 2017 based on preliminary actuals, and includes the following information:

- **Attachment 1 -** DCF Calculations and Balance Updates.
- **Attachment 2 -** Updated Rider E Rate Schedule (at $0.00c/kWh rebate effective May 1, 2018).
- **Attachment 3 -** Update on Forecast Water Conditions for 2018.
- **Attachment 4 -** 2017 ERA Filing, provided as committed in Yukon Energy's ERA Application filed December 6, 2017 (Section 1.6, page 1-13).

It is noted that matters related to the DCF and the ERA for the period 2017 forward are currently being considered as part of the 2017/18 GRA proceeding pursuant to Board direction provided in Order 2017-08 and 2018-02. As such, it is expected that the material included with this correspondence will remain interim until the Board's final Order is issued regarding the 2017/18 GRA proceeding.

As determined in Tables 1 & 2 in Attachment 1, the forecast balance in the DCF fund will be less than the $8.0 million cap as of April 30, 2018. Based on this forecast, no Rider E rebate is appropriate after April 30, 2018, and it is proposed that the Rider E refund to ratepayers be set at 0.00 cents/kW.h for implementation from May 1, 2018 to March 31, 2019.

A summary of each of the above documents follows.

DCF Calculations and Balance as of December 31, 2017

Attachment 1, Table 1 in this filing provides DCF calculations and balance as of December 31, 2017, and Attachment 1, Table 2 provides a DCF Continuity Schedule for the years 2013 to 2017. Attachment 1, Table 3 provides Rider E calculation. Monthly reporting of generation sources for 2017 are provided in Table 4 of Attachment 1.

In summary, these attachments indicate as follows regarding the annual DCF calculations and balance for 2017:

- Based on actual annual load for 2017 and the proposed DCF Term Sheet in the GRA, the "expected" (i.e., based on long term average water conditions) thermal requirement for 2017 is 27.124 GW.h (Table 1, L15). This determination adjusts the “expected” thermal requirement to reflect the wind turbines being shut down for most of the year.
- Actual annual thermal generation requirement for 2017 (net of LNG and diesel charged to capital, RFID and maintenance) was 13.261 GW.h (Table 1, L17), including 3.623 GW.h diesel and 9.638 GW.h LNG.
- The resulting overall gap between expected and actual thermal generation for 2017 equals 13.863 GW.h (Table 1, L18), all of which is assumed to be LNG generation per GRA proposed determinations[1].
- The resulting payment required from YEC into the DCF for 2017 is $2.033 million.[2]

Table 2 Attachment 1 incorporates the annual results from above into the DCF Fund Continuity Schedule. The DCF balance at December 31, 2017 net of refunds is $8.743 million. Forecast refunds in 2018 for January through April equal $1.064 million. The forecast DCF balance as at April 30, 2018 is therefore $7.679 million.

Updated Rider E

In Order 2015-01, the Board directed that YEC refund DCF contributions in excess of the $8.0 million cap through a rate rider applicable to all firm sales throughout the Yukon (Rider E). Based on the 2015 Annual filing, the Board's letter of April 6, 2016 reinstated the earlier DCF rebate at 0.68 cents/kWh on an interim basis, effective May 1, 2016.

[1] LNG is assumed (per the GRA) to displace 90% of the 2017 expected long-term average thermal requirements, subject to not exceeding total expected thermal less actual net diesel generation (excluding RFID, capital and maintenance).
[2] Calculation assumes 100% LNG. The LNG price of $0.1467 per kW.h is forecast per GRA.

The DCF calculations and balance update for 2017 (Attachment 1, Tables 1 and 2) forecast DCF contributions at less than the $8.0 million cap as of April 30, 2018.[3] Based on this forecast, no Rider E rebate is appropriate after April 30, 2018 and the Rider E refund to ratepayers is therefore proposed at 0.00 cents/kW.h for implementation from May 1, 2018. For further detail regarding the Rider E calculation see Attachment 1, Table 3.

The updated Rider E Rate Schedule is provided as Attachment 2.

Update on Forecast Water Conditions for 2018

Attachment 3 provides a summary of snow pack conditions in each of the reservoir drainage basins as at March 2018. In addition, the report describes YEC expectations for reservoir supply levels for each of the hydro zones.

2017 ERA Filing

Attachment 4, Table 1 in this filing provides the 2017 ERA Filing. In summary, the increase in 2017 wholesales over GRA forecast results in added YEC costs of $1.665 million and added YEC revenues from AEY and its customers of $1.906 million. As a result, the change in revenues exceeds the change in costs, and no ERA amount is payable to YEC.

If you have any questions regarding the above please contact the undersigned.

Yours truly,

Ed Mollard, CGA
Chief Financial Officer
Yukon Energy Corporation

[3] Considering the implementation effective April 1, 2018 is not achievable, the new rates proposed to be effective May 1, 2018. The current Rider E at 0.68 cents/kW.h is assumed to continue until April 30, 2018.

ATTACHMENT 1: DCF CALCULATIONS AND BALANCE UPDATES – 2017

Table 1: DCF Calculations for 2013-2017

Line No								Notes
L1	Fuel Cost per kW.h, Diesel	28.71	28.71	28.71	28.71	26.33	cents/kW.h	2012/13 GRA Compliance Filing & 2017-18 GRA Average Fuel cost for 2017.
	Fuel Cost per kW.h, LNG			18.83	18.17	14.67	cents/kW.h	Actual for 2015 & 2016; 2017-18 GRA Fuel cost for 2017.

Calculation of Diesel or LNG Cost to Charge (Refund) DCF

		2013 Actuals	2014 Actuals	2015 Actuals	2016 Actuals	2017 Preliminary Actuals		
	Assumptions							
L2	YEC Grid load	419,173	396,498	410,316	412,776	446,458	MW.h	Actual net of secondary sales (with losses)
L3	Fish Lake	3,687	10,247	9,180	8,033	7,103	MW.h	Fish Lake generation
L4=L2+L3	Total Grid load	422,860	406,745	419,495	420,809	453,561	MW.h	
	Assumed Actual Generation Sources							
L5=L3	YECL Fish Lake	3,687	10,247	9,180	8,033	7,103	MW.h	Fish Lake generation
L6	YEC Hydro	416,987	394,595	404,797	406,136	431,951	MW.h	Residual as total generation less diesel and wind
L7	YEC Thermal	1,910	1,566	4,868	6,131	14,474	MW.h	Diesel and LNG
	Diesel	*1,910*	*1,566*	*3,574*	*2,879*	*4,618*		
	LNG			*1,295*	*3,251*	*9,856*		
L7a	*YEC Diesel/LNG charged to capital, RFID and maintenance*	*872*	*951*	*2,047*	*1,043*	*1,213*		Includes charged to RFID, Capital & (for 2017 only) maintenance.
	Diesel	*872*	*951*	*1,345*	*586*	*995*		
	LNG			*702*	*457*	*218*		
L7b=L7-L7a	*YEC Net Diesel/LNG*	*1,037*	*615*	*2,822*	*5,087*	*13,261*		
	Diesel	*1,037*	*615*	*2,229*	*2,293*	*3,623*		
	LNG	-	-	*593*	*2,794*	*9,638*		
L8	YEC Wind	277	337	650	509	33	MW.h	Wind generation (turbines shut down for most of year.
L9=L5+L6+L7+L8	Total Grid load	422,860	406,745	419,495	420,809	453,561	MW.h	
	Expected Generation Sources							
L10	YECL Fish Lake (expected)	4,380	8,730	8,730	8,730	8,536	MW.h	Unit #2 at 4.380 GW.h - no Unit #1 generation in 2012 and 2013. 2014-2016 based on long-term average at 8.730 GW.h. 2017 is based on YEC 2017/18 GRA forecast.
L11	YEC Wind (expected)	238	238	238	238	33	MW.h	2012/13 GRA Compliance Filing, 2017 at actual level [please see note].
L12=L9-L10-L11	YEC Grid load net of expected Fish Lake and Wind	418,242	397,777	410,527	411,841	444,992	MW.h	
L13a	YEC Grid Load amount per Column A of Approved DCF Term Sheet Table	415,000	395,000	410,000	410,000	440,000	GW.h	Table 1.1, Approved DCF Term Sheet (Order 2015-06). 2017 is based on proposal included in YEC's 2017/18 GRA, Appendix 3.4, Table 3.4-1.
L13b	Expected Base Thermal Generation at YEC Grid Load amount in row L13a	11,800	4,400	9,800	9,800	24,228	MW.h	Derived from Table 1.1, Approved DCF Term Sheet (Order 2015-06). 2017 is based on proposal included in YEC's 2017/18 GRA, Appendix 3.4, Table 3.4-1.
L14a	Incremental Expected Thermal Generation as percent of load above L13a (%)	*46%*	*32%*	*40%*	*40%*	*58%*	%	Table 1.1, Approved DCF Term Sheet (Order 2015-06). 2017 is based on proposal included in YEC's 2017/18 GRA, Appendix 3.4, Table 3.4-1.
L14b=(L12-L13a)xL14a	Expected Incremental Thermal Generation above amount in L13b	1,491	889	211	736	2,895	MW.h	Derived from Table 1.1, Approved DCF Term Sheet (Order 2015-06). 2017 is based on proposal included in YEC's 2017/18 GRA, Appendix 3.4, Table 3.4-1.
L15=L13b+L14b	Total Expected YEC Thermal Generation	13,291	5,289	10,011	10,536	27,123	MW.h	
L16=L15	Expected YEC Thermal Generation in Rates	13,291	5,289	10,011	10,536	27,123	MW.h	100% of long-term average
	Diesel	13,291	5,289	*8,509*	-	*3,623*	*MW.h*	Expected thermal less expected LNG.
	LNG			*1,502*	*10,536*	*23,501*	*MW.h*	At 15% LNG displacement of expected diesel in 2015; 100% of expected thermal in 2016; 90% of expected thermal in 2017, subject to not exceeding expected thermal less actual diesel.
L17=L7b	YEC Thermal Generation	1,037	615	2,822	5,087	13,261	MW.h	Net of capital, RFIS and (for 2017) maintenance thermal (L7b)
	Diesel	1,037	615	*2,229*	*2,293*	*3,623*	*MW.h*	
	LNG			*593*	*2,794*	*9,638*	*MW.h*	
L18=L17-L16	YEC Thermal Generation to be Included in DCF	- 12,254	- 4,674	- 7,189	- 5,449	- 13,863	MW.h	
	Diesel	- 12,254	- 4,674	- *6,281*	-	-	*MW.h*	
	LNG			- *909*	- *5,449*	- 13,863	*MW.h*	
L19=L1xL18	Incremental YEC Thermal Generation Cost to Charge (Refund) DCF ($000s)	($3,518)	($1,342)	($1,974)	($990)	($2,033)		

Note: The wind generation for 2017 was shut down for most of the year. Therefore, for 2017 DCF calculation the expected wind was changed from 580 MW.h [as per 2017/18 GRA] to 33 MW.h based on actuals for 2017.

Table 2: DCF Continuity Schedule

Line	Activity	2013 ($000s)	2014 ($000s)	2015 ($000s)	2016 ($000s)	2017 Preliminary ($000s)
A	**DCF Opening Balance[1]**	**$913**	**$4,484**	**$5,912**	**$7,180**	**$5,770**
B	Incremental Diesel Generation Cost to Charge/(Refund)[2] to DCF	($3,518)	($1,342)	($1,974)	($990)	($2,033)
C=B	Total DCF operation for YEC					
	YEC pays to DCF Fund	$3,518	$1,342	$1,974	$990	$2,033
	YEC withdraws from DCF Fund	$0	$0	$0	$0	$0
D=A+C	**DCF Balance after Total DCF Operation**	**$4,431**	**$5,825**	**$7,886**	**$8,170**	**$7,803**
E	**Interest on DCF Balance[3]**	**$52**	**$87**	**$53**	**$54**	**$86**
F=D+E	**DCF Balance after Interest charge**	**$4,484**	**$5,912**	**$7,939**	**$8,225**	**$7,889**
G	**DCF (Rebate)/Collections [January - December]**	**$0**	**$0**	**($759)**	**($2,454)**	**($2,861)**
H=F+G	**DCF Ending Balance**	**$4,484**	**$5,912**	**$7,180**	**$5,770**	**$5,028**
I	**DCF (Rebate)/Collections January - April 30, 2018 (forecast)**					**($1,064)**
J=H+I	**Forecast DCF Balance, After (Rebate)/Collections to April 30**					**$3,964**
K	**DCF Cap Approved by Board[4]**					**`+/-8000**
L=J-K	**DCF Rebate/(Collections) Required**					**$0**

Notes:
1. 2013 DCF Opening Balance is 2012 actual ending balance of DCF.
2. Based on calculations in Table 1. 2016 and 2017 DCF charge estimate is based on preliminary actuals.
3. 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.
4. Approved DCF Cap based on YUB Order 2015-01.

Table 3: Rider E Calculations

Line	Activity	Rider Estimate
A	**DCF Rebate/(Collections) Required ($000s)**	**$0**
B	Retail Sales for the previous 12 months (MW.h)	
C=A/B	**DCF Rebate/(Collection) Rider (cents/kW.h)**	

Notes:

1. No Rider E calculation is required as the balance is expected to be within +/-$8 million threshold approved by the YUB.

Table 4: DCF Quarterly Report (2017 Q4)

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
		Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Preliminary Actual	Preliminary Actual	Preliminary Actual	
	Generation Report													
L1	YEC Grid Load (MW.h)	49,560	41,098	42,318	34,749	34,316	29,360	29,843	30,733	29,195	38,906	47,369	48,108	455,554
L2	Less Secondary Sales with Losses (MW.h)	-384	-977	-52	-1,003	-1,059	-814	-1,213	-836	-803	-591	-886	-478	-9,097
L3	YECL Fish Lake (MW.h)	931	786	862	649	725	590	576	167	87	625	557	547	7,103
L4=Sum(L1:L3)	Total Grid Load excluding secondary sales (MW.h)	50,107	40,907	43,129	34,395	33,982	29,137	29,206	30,064	28,479	38,939	47,040	48,176	453,561
	Actual Generation Sources													
L5	YECL Fish Lake (MW.h)	931	786	862	649	725	590	576	167	87	625	557	547	7,103
L6	YEC Hydro (MW.h) [residual: YEC Grid firm load less thermal and wind]	46,475	38,327	39,807	33,726	33,114	28,390	28,499	29,674	27,731	38,254	45,023	42,932	431,951
L7	YEC Diesel (MW.h)	880	549	981	21	110	156	131	187	84	28	441	1,050	4,618
L7a	*YEC Diesel Charged to Capital, RFID and Maintenance*	491	9	4	14	108	103	129	1	26	27	16	67	995
L7b=L7-L7a	*YEC Net Diesel*	389	540	977	7	2	53	2	186	58	1	425	983	3,623
L8	YEC LNG (MW.h)	1,821	1,245	1,478	-	-	-	-	37	577	33	1,019	3,647	9,856
L8a	*YEC LNG Charged to Capital, RFID and Maintenance*	159	1	-	-	-	-	-	-	15	-	-	43	218
L8b=L8-L8a	*YEC Net LNG*	1,662	1,243	1,478	-	-	-	-	37	562	33	1,019	3,605	9,638
L9	YEC Wind (MW.h)	-	-	-	-	33	-	-	-	-	-	-	-	33
L10=L5+L6+L7+L8+L9	Total Grid Load excluding secondary sales (MW.h)	50,107	40,907	43,129	34,395	33,982	29,137	29,206	30,064	28,479	38,939	47,040	48,176	453,561
	Expected Generation Sources													
L11	YECL Fish Lake (expected) (MW.h)													8,536
L12	YEC Wind (expected) (MW.h)													33
L13=L10-L11-L12	YEC Grid Load net of expected Fish Lake and Wind (MW.h)													444,992
L14	Grid Load Benchmark (MW.h) (Col A of Table 1-1, Approved DCF Term Sheet)													440,000
L15	Diesel as % of incremental Grid Load above line 14 (%)													58%
L16	Expected Base Thermal Generation at Benchmark (MW.h)													24,228
L17=(L13-L14)xL15	Expected Incremental Thermal Generation (MW.h)													2,895
L18=L16+L17	Total Expected Thermal Generation (MW.h)													27,123
L19=L18	Expected Thermal Generation in Rates (MW.h)													27,123
	Diesel													-
	LNG													*27,123*
L20=L7b+L8b	Actual YEC Thermal Generation (net of capital, RFID and maintenance thermal) (MW.h)													13,261
	Diesel													*3,623*
	LNG													*9,638*
L21=L20-L19	Thermal Generation to be Included in DCF (MW.h)													(13,863)
	Diesel													-
	LNG													- *13,863*
L22	Thermal Fuel Cost per kW.h ($/kW.h)													
	Diesel													0.2633
	LNG													0.1467
L23=L21xL22	Incremental YEC Thermal Generation Cost to Charge (Refund) DCF ($000s)													($2,033)
L24	DCF Balance at 2016 Year End ($000)													9,485
L25	Rider E (Rebate) forecast by April 30, 2018													(3,925)
L26	Interest													86
L27=L24+L25+L26-L23	DCF Balance after refunds to April 30, 2018 ($000)													7,679

Note: The wind generation for 2017 was shut down for most of the year for required repairs. Therefore, for 2017 DCF calculation the expected wind was changed from 580 MW.h [as per 2017/18 GRA] to 33 MW.h based on actuals for 2017.

ATTACHMENT 2: UPDATED RIDER E RATE SCHEDULE

Effective: 2018 05 01
Supercedes: 2016 05 01

RIDER E

DIESEL CONTINGENCY FUND RIDER

AVAILABLE: To all retail and major industrial electric services throughout the Yukon Territory.

APPLICABLE: To all retail and major industrial classes of service [not applicable to secondary sales].

RATE: Service will be rendered at the applicable rates with the following surcharge/(refund):

A refund of -0.00 ¢ per kW.h will be applied to all firm kWh consumed.

NOTE: Rider E will be applied to all firm kWh consumed for the period from May 1, 2018 to March 31, 2019.

Rider E does not apply to Rate Schedule 32 Secondary Energy.

ATTACHMENT 3

Yukon Energy Corporation
Box 5920
Whitehorse, Yukon Y1A 6S7

Memo

To: Ed Mollard

From: Ronald Gee

Date: April 6, 2018

Re: 2018 Water Availability Forecast

The present generation forecast for 2018 on the total Yukon Energy grid is approximately 465 GWh's.

The March 2018 snow survey results specific to each Yukon Energy drainage basin are shown below. Snow surveys indicate Aishihik to be average to above average. The Whitehorse area is above average, however, the Southern Lakes and Northern British Columbia is below average. Mayo is below average.

Aishihik:

Station	March 2018 Snow Water Equiv (mm)	% of Normal	March 2017 SWE (mm)
Canyon Lake	82	101	76
Aishihik Lake	70	95	60
MacIntosh	106	131	No Survey

Whitehorse:

Station	March 2018 Snow Water Equiv (mm)	% of Normal	March 2017 SWE (mm)
Tagish	163	128	100
Montana Mt	144	110	110
Log Cabin	247	75	368
Atlin	70	64	88
Mt McIntyre	150	111	128
Whse Airport	108	117	52

Mayo:

Station	March 2018 Snow Water Equiv (mm)	% of Normal	March 2017 SWE (mm)
Mayo Airp	65	68	42
Calumet	142	82	150

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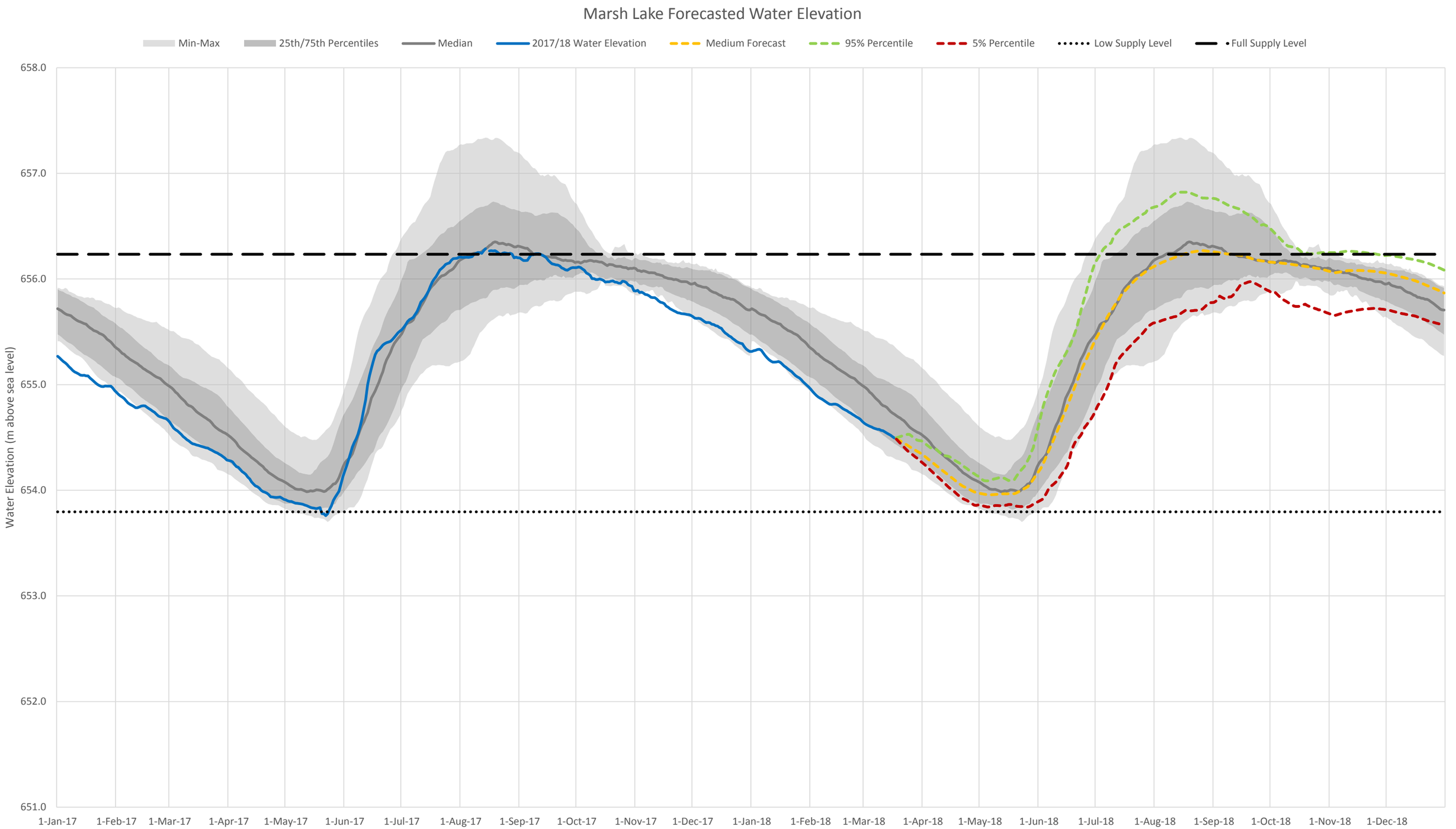
The current level of Aishihik Lake is 913.79m which is 1.37m below Full Supply Level. The spring low in May is expected to be approximately 913.55m. The spring low forecasted is less than the Fisheries Act Authorization rolling average level of 913.7m and spring levels such as forecast have not been experienced since the start of the decade. Using a median forecast water year, Aishihik Lake is not expected to fully refill by fall. The fall peak level for Aishihik Lake is forecast to be in the range of 914.65m.

Marsh Lake reservoir is presently 654.24m which is 1.99m below Full Supply Level. The spring low in May is expected to be near low supply level. The level of Marsh Lake is expected to be at full supply level by October 2018 if summer temperatures and precipitation are at or above normal. Winter drawdown of Marsh Lake will begin in November and continue through to May 2019. Energy and capacity at Whitehorse Rapids will be constrained by the decreasing flow in the Yukon River as the winter progresses. This decrease in generating capability is the normal operating situation for Whitehorse Rapids. Scheduled hydro maintenance is not expected to impact the 2018/19 winter generating capability of Whitehorse Rapids Generating Station.

Mayo Lake is currently 663.32m which is 2.52m below Full Supply Level. The spring low in May is expected to be approximately 663.25m or near the low supply level. With the low snowpack Mayo Lake is not expected to fully refill by fall unless significant summer precipitation occurs. As such, YEC forecasts the lake level to be less than the median forecast water year, approximately 0.6m below Full Supply Level by fall 2018.

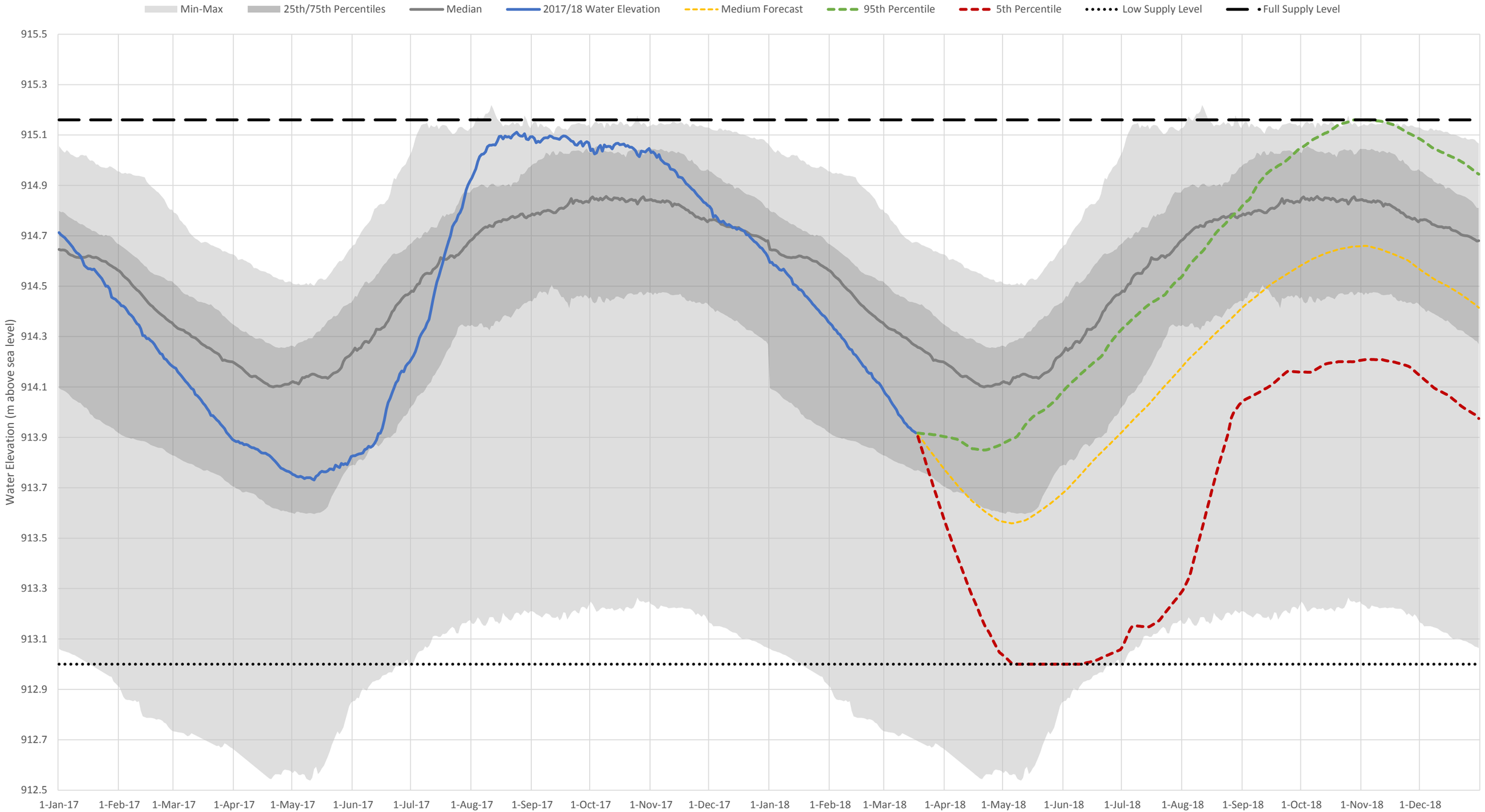
In summary, Marsh Lake is forecast to be at or near full supply by October 2018 while Aishihik and Mayo do not reach operational full supply level. Water level graphs for the three reservoirs are attached. As Aishihik Lake is a multi-year reservoir, not reaching full supply does not impact the energy capability during the winter of 2018/19 but energy from Mayo GS will likely be constrained by spring of 2019.



April 17, 2018

TAB-2018-03-18-Reservoir Level Forecast with Block-ADM5050\Fig. Marsh Lk

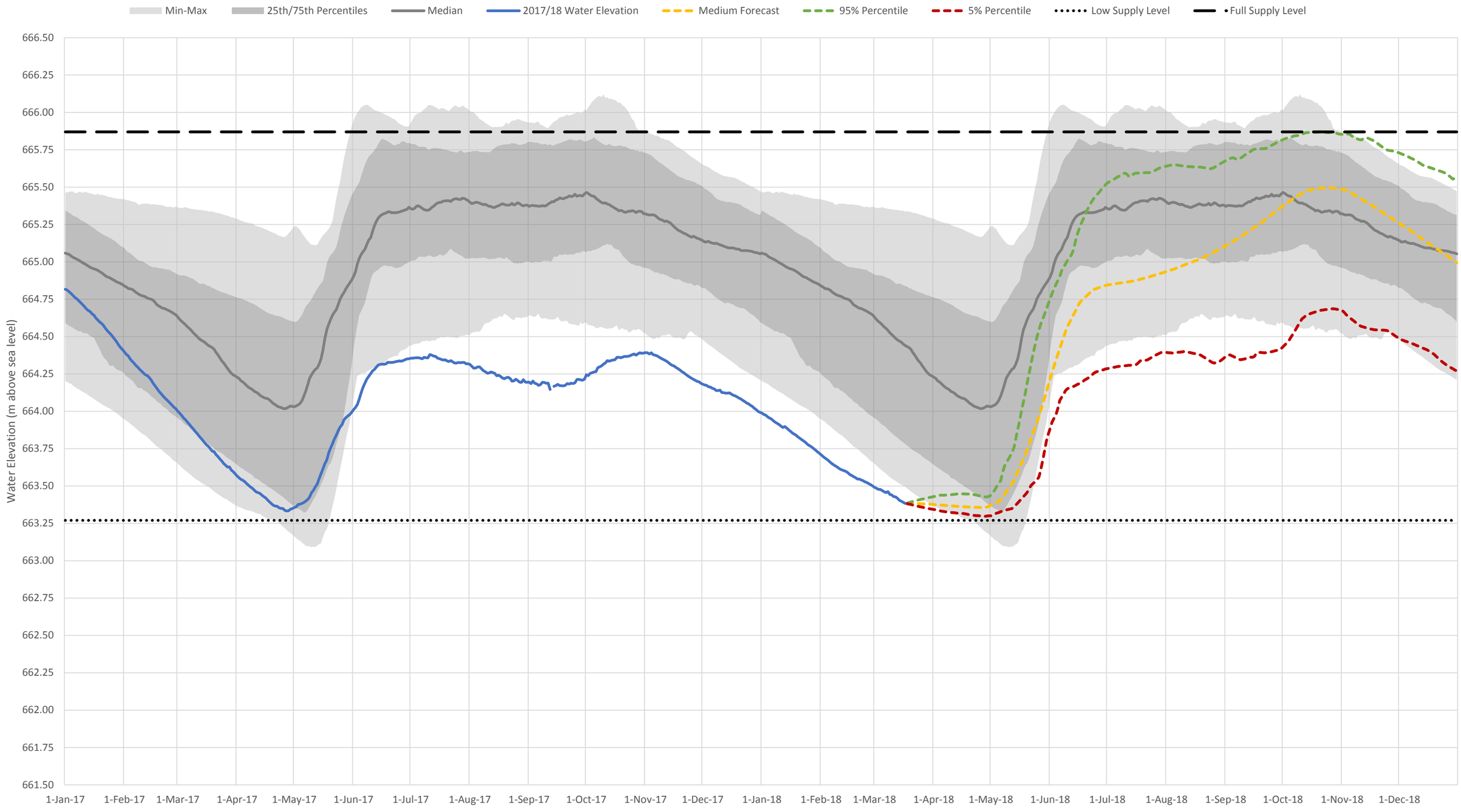
Aishihik Lake Forecasted Water Elevation



April 17, 2018

TAB-2018-03-18-Reservoir Level Forecast with Block-ADM5050\Fig. Aishihik Lk

Mayo Lake Forecasted Water Elevation



ATTACHMENT 4: 2017 ERA FILING

Table 1: ERA Determination for 2017

	2016	2017	
A Wholesales Variance for AEY (MW.h)			
Actual wholesales	301,207	328,426	A1
GRA approved wholesales assuming Fish Lake LTA generation	307,147	309,000	A2 [See note 1]
Fish Lake generation adjustment (expected LTA less actual)	697	1,433	A3 [See note 2]
Change in wholesales for ERA	**(6,637)**	**17,993**	A4=A1-A2-A3
B YEC Cost Impact per kW.h change in Wholesales			
Losses (%)	8.34%	8.06%	B1 [actuals]
Total YEC's actual generation net of secondary, LTA wind & FL (MWh)	411,841	444,992	B2 [See note 2]
GRA approved load forecast, net of expected wind (MWh)	416,148	420,398	B3 [See note 1]
YEC incremental generation relative to GRA approved (MW.h)	(4,307)	24,594	B4=B2-B3
YEC's actual LTA Thermal Generation (MWh)	10,536	27,123	B5 [See note 2]
GRA LTA Thermal Generation (MWh)	11,006	14,146	B6 [See note 1]
YEC Incremental thermal generation relative to GRA approved (MWh)	(470)	12,977	B7=B5-B6
Incremental thermal generation for incremental total generation (%)	10.90%	52.76%	B8=B7/B4
Thermal Generation cost per GRA ($/kW.h)	0.2046	0.1622	B9 [See note 2]
YEC thermal cost change ($/kWh wholesales)	**0.0242**	**0.0925**	B10=B9*B8*(1+B1)
C YEC Revenue Impact per kW.h change in Wholesales			
Rate Schedule 42 Energy Charge ($/kW.h wholesales)	**0.08298**	**0.08298**	C1
Average YEC rider applicable to AEY retails ($/kWh wholesales)	**0.01755**	**0.01634**	C2 [See note 3]
D Net thermal cost impact on YEC ($000)			
Wholesale Change: Cost Impact (YEC thermal generation costs)	**(160)**	**1,665**	D1=A4*B10
Wholesale Change: Revenue Impact (YEC revenues)	**(609)**	**1,906**	D2=A4*(C1+C2)+A3*C1
Cost change>revenue change ("Yes"=1, "No"=0)	**0**	**0**	D3=is D1>D2 (absolute)
ERA Charge (rebate) to AEY [Net added cost (cost saving) for YEC]	**0**	**0**	D4=D3*(D1-D2)

Notes:
1. 2016 is based on Compliance Filing re: Board Order 2013-01, as approved by Board Order 2013-03. 2017 is based on YEC 2017-18 GRA is still being reviewed by the Board. Shows amount as filed.
2. YEC 2017 DCF Annual Report, Table 1 and Table 4 (for YEC final average cost for LTA).
3. YEC Rider J revenues from AEY retail customers divided by wholesales net of Fish Lake adjustments. Estimate per kW.h based on GRA forecasts for AEY grid sales and 11.01% Rider J (actual number will be slihtly higher due to Interim Rider J effective Sept. 1, 2017).