

Blake Williams

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Our File No.: 12276-98

November 17, 2016

VIA EMAIL

Yukon Utilities Board

Box 31728

Whitehorse, YK

Y1A 6L3

Att: Mr. Robert Laking
Board Chair

Dear Mr. Laking:

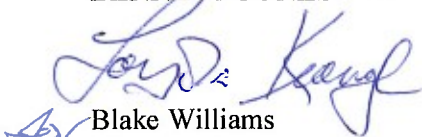
Re: ATCO Electric Yukon 2016-2017 General Rate Application
Responses to Undertakings

Please find attached ATCO Electric Yukon's ("AEY") response to information requests from Mr. John Maissan, dated November 11, 2016, and the Yukon Utilities Board, dated November 14, 2016.

We trust the foregoing is satisfactory. Should you have any questions or concerns do not hesitate to contact the undersigned.

Yours truly,

BENNETT JONES LLP


Blake Williams

cc: Interested Parties

JM-AEY-2-1

Reference: Response to undertakings November 9, 2016, PDF page 2 of 48 in response to undertaking on November 2, 2016 transcript Page 301, lines 2-7 regarding delivered LNG cost for Watson lake.

Request:

Please complete the calculations to provide the July 2016 cost (in Canadian dollars) of delivered LNG cost in \$ per diesel litre equivalent sourced from (a) Altagas and (b) Fortis [to be compared to the provided delivered diesel cost of \$0.7804 per litre].

Response:

Please refer to Attachment 1.

	Diesel		AltaGas	
	HHV	LHV		
Energy Content (MJ/kg)	45.575	42.612	Transport	0.161
Density (g/gal)	3,206	3,206	Liquefaction	0.271
Density (kg/L)	0.85	0.85	Liquefact 15%	15%
Energy Content (MJ/L)	38.6	36.1	BC Tax	1.4898

Month	Diesel	LNG		LNG	Ratio
	(Delivered)	(B.C. Westcoast Station 2)		(Delivered)	
	<u>\$/L Actual</u>	<u>\$/MMbtu</u>	<u>\$/GJ</u>	<u>\$/DLE</u>	
Jan-11	0.890	3.68	3.49	0.584	65.6%
Feb-11	0.889	3.65	3.46	0.583	65.6%
Mar-11	0.971	3.24	3.07	0.567	58.3%
Apr-11	0.993	3.31	3.14	0.570	57.3%
May-11	0.932	3.30	3.13	0.569	61.1%
Jun-11	0.939	3.64	3.45	0.582	62.0%
Jul-11	0.939	3.72	3.53	0.586	62.4%
Aug-11	0.931	3.31	3.14	0.570	61.2%
Sep-11	0.948	3.23	3.06	0.566	59.7%
Oct-11	1.018	3.27	3.10	0.568	55.8%
Nov-11	1.073	3.07	2.91	0.560	52.2%
Dec-11	0.997	3.28	3.11	0.568	57.0%
Jan-12	0.977	2.94	2.79	0.555	56.8%
Feb-12	0.985	2.39	2.27	0.534	54.2%
Mar-12	1.016	2.08	1.97	0.521	51.3%
Apr-12	1.006	1.80	1.71	0.510	50.7%
May-12	0.952	1.60	1.52	0.502	52.8%
Jun-12	0.903	2.08	1.97	0.521	57.7%
Jul-12	0.893	1.96	1.86	0.516	57.8%
Aug-12	0.955	2.35	2.23	0.532	55.7%
Sep-12	0.985	2.20	2.09	0.526	53.4%
Oct-12	0.982	2.38	2.26	0.533	54.3%
Nov-12	0.942	3.30	3.13	0.569	60.4%
Dec-12	1.008	3.43	3.25	0.574	57.0%
Jan-13	0.976	3.06	2.90	0.560	57.3%
Feb-13	1.035	2.87	2.72	0.552	53.4%
Mar-13	1.009	2.86	2.71	0.552	54.7%
Apr-13	0.973	3.24	3.07	0.567	58.3%
May-13	0.972	3.48	3.30	0.576	59.3%
Jun-13	0.959	3.37	3.20	0.572	59.7%
Jul-13	0.947	2.88	2.73	0.553	58.4%
Aug-13	0.971	2.55	2.42	0.540	55.6%
Sep-13	1.010	2.73	2.59	0.547	54.1%
Oct-13	1.045	3.22	3.05	0.566	54.2%
Nov-13	1.065	3.22	3.06	0.566	53.2%
Dec-13	1.114	3.81	3.61	0.589	52.9%
Jan-14	1.134	4.10	3.88	0.600	52.9%
Feb-14	1.183	7.03	6.66	0.716	60.5%
Mar-14	1.141	4.75	4.50	0.626	54.9%
Apr-14	1.139	4.43	4.20	0.613	53.8%
May-14	1.094	4.18	3.96	0.604	55.2%
Jun-14	1.063	4.53	4.29	0.617	58.1%
Jul-14	1.013	3.86	3.66	0.591	58.3%
Aug-14	1.011	3.66	3.47	0.583	57.7%
Sep-14	1.005	3.73	3.53	0.586	58.3%
Oct-14	0.990	3.38	3.20	0.572	57.8%
Nov-14	1.084	3.68	3.49	0.584	53.9%

	Diesel	
	HHV	LHV
Energy Content (MJ/kg)	45.575	42.612
Density (g/gal)	3,206	3,206
Density (kg/L)	0.85	0.85
Energy Content (MJ/L)	38.6	36.1

AltaGas	
Transport	0.161
Liquefaction	0.271
Liquefact 15%	15%
BC Tax	1.4898

<u>Month</u>	Diesel (Delivered)	LNG (B.C. Westcoast Station 2)	LNG (Delivered)	<u>Ratio</u>	
	<u>\$/L Actual</u>	<u>\$/MMbtu</u>	<u>\$/GJ</u>		<u>\$/DLE</u>
Dec-14	0.921	2.58	2.44	0.541	58.7%
Jan-15	0.842	2.44	2.32	0.535	63.6%
Feb-15	0.820	2.32	2.20	0.531	64.7%
Mar-15	0.800	1.82	1.73	0.511	63.9%
Apr-15	0.711	1.75	1.66	0.508	71.5%
May-15	0.759	2.32	2.20	0.530	69.9%
Jun-15	0.747	2.29	2.17	0.530	70.9%
Jul-15	0.725	2.35	2.23	0.532	73.4%
Aug-15	0.707	1.59	1.51	0.502	71.0%
Sep-15	0.730	1.48	1.40	0.497	68.2%
Oct-15	0.771	0.98	0.93	0.478	62.0%
Nov-15	0.740	0.88	0.83	0.474	64.1%
Dec-15	0.663	1.48	1.40	0.497	75.0%
Jan-16	0.648	1.87	1.77	0.513	79.2%
Feb-16	0.621	1.39	1.32	0.494	79.6%
Mar-16	0.640	0.96	0.91	0.477	74.6%
Apr-16	0.654	0.95	0.90	0.477	72.9%
May-16	0.764	0.92	0.87	0.476	62.3%
Jun-16	0.813	1.75	1.66	0.508	62.5%
Jul-16	0.780	2.20	2.09	0.526	67.4%
Aug-16	0.769	1.82	1.72	0.511	66.4%
Sep-16	0.760	1.98	1.88	0.517	68.1%
Oct-16	0.831				

	Diesel		Fortis	
	HHV	LHV		
Energy Content (MJ/kg)	45.575	42.612	Transport	0.322
Density (g/gal)	3,206	3,206	Liquefaction	0.179
Density (kg/L)	0.85	0.85		
Energy Content (MJ/L)	38.6	36.1		

<u>Month</u>	<u>Diesel</u>	<u>LNG</u>		<u>LNG</u>	<u>Ratio</u>
	<u>(Delivered)</u>	<u>(B.C. 30-day Spot</u>	<u>Sumas)</u>	<u>(Delivered)</u>	
	<u>\$/L Actual</u>	<u>\$/MMbtu</u>	<u>\$/GJ</u>	<u>\$/DLE</u>	
Jan-11	0.890	4.18	3.96	0.644	72.3%
Feb-11	0.889	4.04	3.83	0.639	71.9%
Mar-11	0.971	3.72	3.53	0.628	64.7%
Apr-11	0.993	3.86	3.66	0.633	63.7%
May-11	0.932	3.87	3.67	0.633	67.9%
Jun-11	0.939	3.93	3.73	0.635	67.7%
Jul-11	0.939	3.82	3.62	0.631	67.2%
Aug-11	0.931	3.89	3.69	0.634	68.1%
Sep-11	0.948	3.72	3.53	0.628	66.2%
Oct-11	1.018	3.78	3.58	0.630	61.9%
Nov-11	1.073	3.75	3.56	0.629	58.6%
Dec-11	0.997	4.04	3.83	0.639	64.1%
Jan-12	0.977	3.50	3.32	0.621	63.5%
Feb-12	0.985	2.76	2.62	0.595	60.5%
Mar-12	1.016	2.46	2.33	0.585	57.6%
Apr-12	1.006	1.94	1.84	0.567	56.4%
May-12	0.952	1.86	1.76	0.564	59.3%
Jun-12	0.903	2.29	2.17	0.579	64.2%
Jul-12	0.893	2.47	2.34	0.585	65.5%
Aug-12	0.955	2.72	2.58	0.594	62.2%
Sep-12	0.985	2.39	2.27	0.583	59.2%
Oct-12	0.982	2.87	2.72	0.599	61.0%
Nov-12	0.942	3.92	3.72	0.635	67.4%
Dec-12	1.008	3.95	3.75	0.636	63.1%
Jan-13	0.976	3.55	3.37	0.622	63.8%
Feb-13	1.035	3.62	3.43	0.625	60.3%
Mar-13	1.009	3.54	3.36	0.622	61.7%
Apr-13	0.973	4.01	3.80	0.638	65.6%
May-13	0.972	4.00	3.79	0.638	65.6%
Jun-13	0.959	3.66	3.47	0.626	65.3%
Jul-13	0.947	3.54	3.36	0.622	65.7%
Aug-13	0.971	3.20	3.03	0.610	62.8%
Sep-13	1.010	3.55	3.37	0.622	61.6%
Oct-13	1.045	3.95	3.75	0.636	60.9%
Nov-13	1.065	4.14	3.92	0.642	60.3%
Dec-13	1.114	5.33	5.06	0.683	61.3%
Jan-14	1.134	5.03	4.76	0.673	59.3%
Feb-14	1.183	8.33	7.89	0.786	66.4%
Mar-14	1.141	5.27	4.99	0.681	59.7%
Apr-14	1.139	4.90	4.64	0.668	58.7%
May-14	1.094	4.72	4.47	0.662	60.6%
Jun-14	1.063	4.76	4.51	0.664	62.4%
Jul-14	1.013	4.21	3.99	0.645	63.6%
Aug-14	1.011	4.13	3.91	0.642	63.5%
Sep-14	1.005	4.15	3.94	0.643	63.9%
Oct-14	0.990	3.92	3.72	0.635	64.1%
Nov-14	1.084	4.61	4.37	0.658	60.7%

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Density (kg/L)	0.85	0.85		
Energy Content (MJ/L)	38.6	36.1		

<u>Month</u>	<u>Diesel</u>	<u>LNG</u>		<u>LNG</u>	<u>Ratio</u>
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Dec-14	0.921	3.85	3.65	0.632	68.7%
Jan-15	0.842	3.28	3.10	0.613	72.8%
Feb-15	0.820	2.92	2.77	0.601	73.2%
Mar-15	0.800	2.76	2.62	0.595	74.4%
Apr-15	0.711	2.65	2.51	0.592	83.2%
May-15	0.759	2.90	2.75	0.600	79.0%
Jun-15	0.747	2.80	2.66	0.597	79.9%
Jul-15	0.725	2.93	2.78	0.601	83.0%
Aug-15	0.707	3.24	3.07	0.612	86.5%
Sep-15	0.730	3.34	3.16	0.615	84.3%
Oct-15	0.771	2.81	2.66	0.597	77.4%
Nov-15	0.740	2.89	2.74	0.600	81.1%
Dec-15	0.663	2.98	2.83	0.603	90.9%
Jan-16	0.648	3.21	3.04	0.611	94.2%
Feb-16	0.621	2.28	2.16	0.579	93.2%
Mar-16	0.640	1.87	1.77	0.565	88.3%
Apr-16	0.654	1.67	1.58	0.558	85.4%
May-16	0.764	1.79	1.70	0.562	73.6%
Jun-16	0.813	2.57	2.44	0.589	72.4%
Jul-16	0.780	3.01	2.85	0.604	77.4%
Aug-16	0.769	3.28	3.11	0.613	79.7%
Sep-16	0.760	3.48	3.30	0.620	81.6%
Oct-16	0.831				

Table 6
Historical Natural Gas, Natural Gas Liquids and Sulphur Prices
\$Cdn/MMbtu

<u>Month</u>	B.C. Westcoast Station 2* \$/MMbtu	B.C. 30 day Spot Sumas* \$/MMbtu
Jan-11	3.68	4.18
Feb-11	3.65	4.04
Mar-11	3.24	3.72
Apr-11	3.31	3.86
May-11	3.30	3.87
Jun-11	3.64	3.93
Jul-11	3.72	3.82
Aug-11	3.31	3.89
Sep-11	3.23	3.72
Oct-11	3.27	3.78
Nov-11	3.07	3.75
<u>Dec-11</u>	<u>3.28</u>	<u>4.04</u>
Jan-12	2.94	3.50
Feb-12	2.39	2.76
Mar-12	2.08	2.46
Apr-12	1.80	1.94
May-12	1.60	1.86
Jun-12	2.08	2.29
Jul-12	1.96	2.47
Aug-12	2.35	2.72
Sep-12	2.20	2.39
Oct-12	2.38	2.87
Nov-12	3.30	3.92
<u>Dec-12</u>	<u>3.43</u>	<u>3.95</u>
Jan-13	3.06	3.55
Feb-13	2.87	3.62
Mar-13	2.86	3.54
Apr-13	3.24	4.01
May-13	3.48	4.00
Jun-13	3.37	3.66
Jul-13	2.88	3.54
Aug-13	2.55	3.20
Sep-13	2.73	3.55
Oct-13	3.22	3.95
Nov-13	3.22	4.14
<u>Dec-13</u>	<u>3.81</u>	<u>5.33</u>
Jan-14	4.10	5.03
Feb-14	7.03	8.33
Mar-14	4.75	5.27
Apr-14	4.43	4.90
May-14	4.18	4.72
Jun-14	4.53	4.76
Jul-14	3.86	4.21
Aug-14	3.66	4.13
Sep-14	3.73	4.15
Oct-14	3.38	3.92
Nov-14	3.68	4.61
<u>Dec-14</u>	<u>2.58</u>	<u>3.85</u>
Jan-15	2.44	3.28
Feb-15	2.32	2.92
Mar-15	1.82	2.76
Apr-15	1.75	2.65
May-15	2.32	2.90

Table 6
Historical Natural Gas, Natural Gas Liquids and Sulphur Prices
\$Cdn/MMbtu

<u>Month</u>	B.C. Westcoast Station 2* <u>\$/MMbtu</u>	B.C. 30 day Spot Sumas* <u>\$/MMbtu</u>
Jun-15	2.29	2.80
Jul-15	2.35	2.93
Aug-15	1.59	3.24
Sep-15	1.48	3.34
Oct-15	0.98	2.81
Nov-15	0.88	2.89
<u>Dec-15</u>	<u>1.48</u>	<u>2.98</u>
Jan-16	1.87	3.21
Feb-16	1.39	2.28
Mar-16	0.96	1.87
Apr-16	0.95	1.67
May-16	0.92	1.79
Jun-16	1.75	2.57
Jul-16	2.20	3.01
Aug-16	1.82	3.28
Sep-16	1.98	3.48
Oct-16		
Nov-16		
Dec-16		

YUB-YECL-2-1

Reference: YECL Undertaking 17, Schedules 9.1 and 9.2

Issue: Capital Expenditures

Preamble: With respect to Schedule 9.2 forming part of YECL's 2016-17 GRA Schedules, the Board notes that actual 2015 generation capital expenditures totaled \$3,060K (Line 67). This figure was carried over to Schedule 9.1 (Line No 4) and comprises part of actual capital expenditures totaling (\$10,694K) for 2015 (Line 28). A portion of these costs were transferred to rate base as used and required to be used capital additions.

Request:

- (a) Please confirm that all capital expenditures subsequently capitalized and transferred to rate base were associated with completed capital projects and provide a list, by project name, of the assets completed and transferred to rate base.
- (b) Please provide details of the end of year 2015 total work in progress (\$1,561K) by project name.

Response:

- (a) Confirmed, please refer to Attachment 1.
- (b) Please refer to Attachment 2.

ATCO Electric Yukon
Additions to Rate Base
For the Year Ended December 31, 2015
(\$000s)

<u>Line No</u>	<u>Project Name</u>	<u>Cross Ref.</u>	<u>Actual 2015</u>
1	Generation		
2	Fish Lake Unit 1 Turbine and Building Replacement		49
3	Fish Lake Unit 1 Needle Detach Failure		21
4			
5	Watson Lake Replace ABB 5HK Breakers		220
6	Watson Lake Unit 1 Major Overhaul		278
7			
8	Old Crow Plant Expansion	Attachment 11.2	1,313
9	Old Crow Unit 4 Addition		108
10	Old Crow Unit 2 Replacement	Attachment 11.7	161
11			
12	Beaver Creek Unit 1 Replacement		260
13	Beaver Creek Fuel Line Upgrade		77
14			
15	Destruction Bay Unit 3 Replacement	Appendix 11	18
16			
17	Stewart Crossing - Spare Fuel Injector		28
18			
19	500kW Mobile Generator		25
20	Other Projects Less Than \$20,000		26
21	Generation Total		2,584
22			
23	New Extensions		
24	New General Overhead Services - Various Subdivisions	Attach. 9.1 pg 2, 9.2 pg 3	841
25	New Underground Line Extensions	Attach. 9.1 pg 2, 9.2 pg 3	871
26	Annual Land Rights	Attach. 9.1 pg 2, 9.2 pg 3	121
27	General Drafting and Mapping		34
28			
29	Whistle Bend Subdivision Stage 1 & 2	Attachment 11.8	102
30	Whistle Bend Underground Residential Service	Attachment 11.9	116
31			
32	Other Projects Less Than \$20,000		78
33	New Extensions Total		2,163
34			
35	Distribution Improvements		
36	Annual Right of Way Widening	Attach. 9.1 pg 3, 9.2 pg 4	402
37	General Pole Replacements	Attach. 9.1 pg 3, 9.2 pg 4	111
38	PCB Identification and Transformer Change Outs	Attachment 9.1, pg 3	101
39	Vault Replacements	Attachment 9.2, pg 5	21
40	General Clearance Upgrades/Fixes		20
41			
42	McIntyre Subdivision Rebuild	Attach. 11.4, Appendix 8	379
43	Downtown Whitehorse 25kV Conversion	Appendix 9	482
44	Hillcrest Subdivision Conversion	Attachment 9.2, pg 4	314
45			
46	Tagish 5L600 Rebuild		184
47	Whitehorse Asset Management		73
48	Takhini/Marwell 4L315 Upgrades		71
49	Deep Creek Subdivision Connection	Attachment 11.5	31
50	Lewes Lake Substation Conversion		157
51	Azure Road Extension	Attachment 11.12	151
52	Teslin Sawmill Road Feeder Upgrade		130
53	2nd Ave Relocation	Attachment 11.13	115

ATCO Electric Yukon
Additions to Rate Base
For the Year Ended December 31, 2015
(\$000s)

<u>Line No</u>	<u>Project Name</u>	<u>Cross Ref.</u>	<u>Actual 2015</u>
54	Distribution Improvements Continued		
55	MacDonald Road Pole Change		103
56	Watson Lake Underground Subdivision Replacement		78
57	McLintock Substation Upgrade		76
58	Spirit Lake Substation Upgrade		70
59	Upper Liard – Replace Liard River Crossing		70
60	Takhini/Marwell Completion of Mountain Air Subdivision		67
61	Lane Rebuild - 30 Tagish Road		31
62	Install Interface Metering for 5L655		28
63	Whitehorse Hotsprings Road 3 Phase Conversion		20
64	Other Projects Less Than \$20,000		85
65	Distribution Improvements Total		3,370
66			
67	Street and Sentinel Lighting		
68	General Streetlight Replacements	Attach. 9.1 pg 5, 9.2 pg 6	178
69	New Customer Streetlight Installations	Attach. 9.1 pg 5, 9.2 pg 6	172
70	Other Projects Less Than \$20,000		48
71	Street and Sentinel Lighting Total		398
72			
73	Meters		
74	Replacement of Meters and New Installations	Attach. 9.1 pg 6, 9.2 pg 7	239
75	Meters Total		239
76			
77	Transformers & Regulators		
78	General Capitalizable Transformers	Attach 9.1 pg 7, 9.2 pg 8	108
79	Transformers & Regulators Total		108
80			
81	GP&E		
82	Old Crow Staff Accommodations	Attachment 11.6	41
83			
84	Communication Equipment		86
85	AEY SCADA Upgrades		57
86			
87	Office Furniture & Equipment		3
88			
89	Miscellaneous Tools and Instruments	Attach. 9.1 pg 8, 9.2 pg 9	110
90			
91	Transportation Equipment	Attach. 9.1 pg 8, 9.2 pg 9	1,064
92			
93	Other Projects Less Than \$20,000		29
94	GP&E Total		1,390
95			
96	Grand Total	S.9.1 L.31	<u>10,252</u>

**ATCO Electric Yukon
Projects in Work in Progress
As at December 31, 2015
(\$000s)**

<u>Line No</u>	<u>Project Name</u>	<u>Cross Ref.</u>	<u>Actual 2015</u>
1	Replacement of Unit 989 - 1995 Hot Line Bucket Truck	S.9.2 L.216	406
2	Watson Lake Bi-Fuel	S.9.2 L.22	362
3	Old Crow Unit 3 Replacement	S.9.2 L.31	213
4	Destruction Bay Unit 2 Replacement	S.9.2 L.43	136
5	Fish Lake Ditch 3 Diversion Replacement	S.9.2 L.12	134
6	Destruction Bay Programmable Logic Controller Upgrade	S.9.2 L.42	109
7	Old Crow Original Plant Rebuild	S.9.2 L.34	90
8	Downtown Whitehorse 25kV Conversion		37
9	New General Overhead Services - Various Subdivisions		28
10	New Underground Line Extensions		26
11	Other Under \$20,000		20
12	Grand Total	S.9.1 L.35	<u>1,561</u>