Q. Further to the response to Request for Information NP-NLH-069 (Revision 1, Dec 3-14):
Please conduct a 10-year regression analysis for the Holyrood fuel conversion factor.

A. Further to Hydro's response to NP-NLH-069 (Revision 1, Dec 3-14) a ten-year regression analysis (2005-2014) for the Holyrood fuel conversion factor is presented in the following tables and chart. As in Hydro's Amended Application, the averages for Holyrood station service and fuel heating content for the five-year period June 2009 to May 2014 are used in calculation of fuel conversion rate.

Table 1 (Part 1 of 4)
Holyrood Fuel Conversion Rate
Data Used in the Regression Analysis

Month	Year	Total Unit Operating Hours	Gross Average Unit Loading (kW)	Running Heat Content (BTU/US gal)	Gross Consumption Rate (bbl/Hr)
1	2005	2232	114,830	154,005	170.0
2	2005	1869	135,930	154,433	199.0
3	2005	2185	118,112	154,618	177.0
4	2005	1299	84,756	154,920	131.6
5	2005	288	69,411	154,994	111.7
6	2005	81	99,877	154,994	151.3
7	2005	643	115,827	154,994	173.0
8	2005	376	99,757	155,188	151.7
9	2005	678	92,637	155,241	144.4
10	2005	1165	91,479	155,062	139.3
11	2005	1420	82,662	153,319	126.4
12	2005	1655	65,648	153,957	105.5

Table 1 (Part 2 of 4)
Holyrood Fuel Conversion Rate
Data Used in the Regression Analysis

Month	Year	Total Unit Operating Hours	Gross Average Unit Loading (kW)	Running Heat Content (BTU/US gal)	Gross Consumption Rate (bbl/Hr)
1	2006	1573	70,555	154,588	110.5
2	2006	1344	73,482	154,318	114.2
3	2006	1735	72,752	154,735	115.3
4	2006	1389	89,576	154,404	136.4
5	2006	813	77,455	154,488	120.8
6	2006	108	58,509	154,438	94.6
7	2006	0	0	154,438	0.0
8	2006	0	0	154,438	0.0
9[(1)]	2006	11	39,010	154,119	169.8
10	2006	883	81,488	154,585	124.6
11	2006	1355	55,340	154,569	92.9
12	2006	2052	59,589	153,543	95.1
1	2007	2232	60,211	153,602	94.6
2	2007	1977	77,925	153,710	117.3
3	2007	1680	106,138	154,273	160.2
4	2007	1478	99,247	153,815	150.5
5	2007	1475	94,494	152,885	146.0
6	2007	1311	86,219	153,490	130.2
7	2007	721	112,542	153,533	173.0
8[(1)]	2007	105	91,196	153,592	169.5
9	2007	0	0	153,827	0.0
10	2007	1031	100,023	153,837	149.6
11	2007	1430	82,957	154,003	126.7
12	2007	1783	90,872	154,218	138.0
1	2008	1,920	111,252	154,604	164.2
2	2008	1,386	136,750	155,321	200.9
3	2008	1,810	83,646	155,290	128.0
4	2008	1,526	72,108	155,021	110.9
5	2008	949	93,441	155,009	141.2
6	2008	247	70,173	154,792	107.4
7	2008	0	0	154,792	0.0
8	2008	0	0	154,792	0.0
9	2008	0	0	154,792	0.0
10	2008	660	99,852	155,323	155.4
11	2008	1,314	110,537	155,143	163.9
12	2008	1,750	97,051	153,608	145.8

Table 1 (Part 3 of 4)
Holyrood Fuel Conversion Rate
Data Used in the Regression Analysis

Month	Year	Total Unit Operating Hours	Gross Average Unit Loading (kW)	Running Heat Content (BTU/US gal)	Gross Consumption Rate (bbl/Hr)
1	2009	2232	92,576	155,328	139.1
2	2009	1952	86,745	154,506	131.3
3	2009	2006	77,566	154,731	118.8
4	2009	1376	77,201	153,867	119.0
5	2009	503	74,694	154,143	118.5
6	2009	200	71,091	154,143	116.4
7	2009	0	0	154,143	0.0
8	2009	0	0	154,143	0.0
9	2009	0	0	155,195	0.0
10	2009	644	75,298	154,237	117.0
11	2009	1440	75,700	155,105	115.0
12	2009	2032	78,024	154,415	118.6
1	2010	2107	81,906	152,392	128.3
2	2010	1549	82,415	152,868	127.2
3	2010	1803	75,749	151,918	120.0
4	2010	1247	76,985	151,798	121.6
5	2010	680	72,920	150,544	118.9
6[(1)]	2010	96	83,246	149,172	142.7
7	2010	0	0	0	0.0
8	2010	0	0	0	0.0
9[(1)]	2010	5	38,391	149,172	264.9
10	2010	666	70,184	150,011	113.6
11	2010	1303	73,847	152,752	115.4
12	2010	1727	74,294	152,722	119.3
1	2011	2,037	77,676	153,232	121.7
2	2011	2,000	85,344	153,401	131.9
3	2011	1,799	84,075	155,008	129.9
4	2011	1,205	75,640	156,505	117.2
5	2011	572	72,994	155,126	115.8
6	2011	247	71,342	153,958	113.9
7	2011	0	0	0	0.0
8	2011	0	0	0	0.0
9	2011	0	0	0	0.0
10	2011	659	71,770	153,824	111.5
11	2011	1,306	81,673	153,938	126.1
12	2011	2,040	80,565	154,179	122.6

Table 1 (Part 4 of 4)
Holyrood Fuel Conversion Rate
Data Used in the Regression Analysis

Month	Year	Total Unit Operating Hours	Gross Average Unit Loading (kW)	Running Heat Content (BTU/US gal)	Gross Consumption Rate (bbl/Hr)
1	2012	2,181	84,168	155,071	130.8
2	2012	1,893	85,815	155,043	131.6
3	2012	1,718	88,363	154,738	136.4
4	2012	848	82,420	154,956	129.2
5	2012	529	79,936	153,499	128.5
6	2012	275	80,683	153,380	128.7
7	2012	0	0	0	0.0
8	2012	0	0	115,076	0.0
9	2012	0	0	0	0.0
10	2012	423	68,480	153,380	111.5
11	2012	992	87,972	154,232	135.9
12	2012	1,823	92,417	154,699	145.2
1	2013	1,684	114,417	151,528	176.7
2	2013	1,344	116,354	152,966	180.1
3	2013	1,451	88,437	153,627	139.3
4	2013	1,147	83,883	153,192	134.1
5	2013	536	77,727	153,476	125.4
6	2013	373	73,148	153,388	122.6
7	2013	0	0	0	0.0
8	2013	0	0	0	0.0
9[(1)]	2013	30	67,479	153,123	0.0
10	2013	888	66,210	153,662	108.3
11	2013	1,421	79,103	153,368	124.2
12	2013	2,055	101,525	152,493	156.8
1	2014	2,052	93,026	150,413	152.0
2	2014	1,945	108,111	151,743	169.9
3	2014	2,194	98,353	150,900	153.5
4	2014	1,526	83,670	148,228	134.1
5	2014	1,021	84,570	149,898	137.8
6	2014	600	71,873	150,054	116.3
7	2014	631	69,459	148,672	117.6
8	2014	744	70,242	149,225	115.9
9	2014	758	70,269	152,233	119.6
10	2014	885	73,695	151,903	122.9
11	2014	1,408	86,013	150,550	138.8
12	2014	2,049	93,017	149,736	147.4

Note 1: September 2006, August 2007 June 2010, September 2010, and September 2013 removed from regression analysis as they were outliers.

Table 2

2005-2014 Linear Regression (Gross)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.99403017
R Square	0.98809597
Adjusted R Square	0.98783997
Standard Error	2.40457162
Observations	96

ANOVA

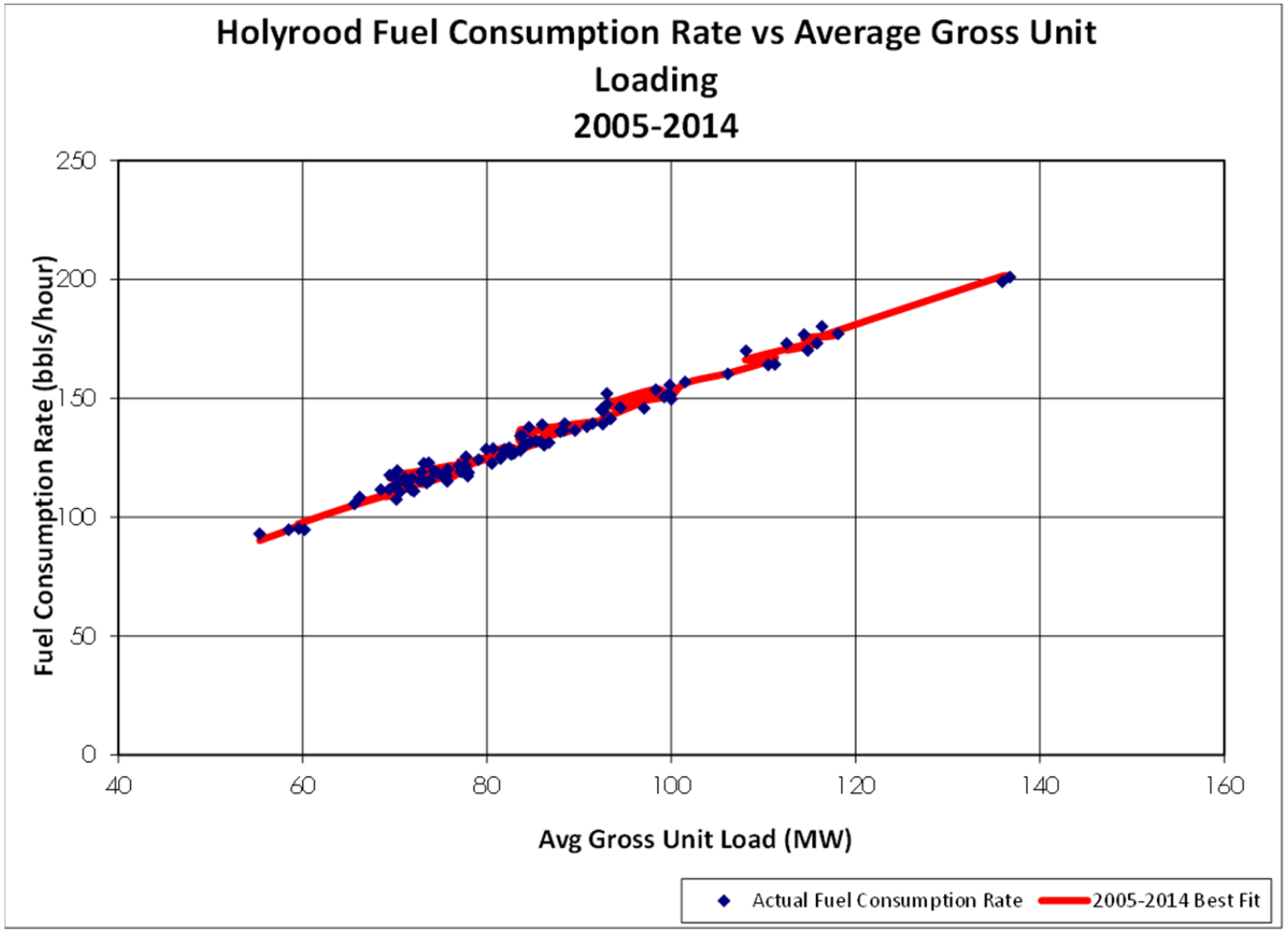
	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	44633.77945	22316.8897	3859.74163	3.30951E-90
Residual	93	537.7227143	5.78196467		
Total	95	45171.50216			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	201.658707	22.90754532	8.80315653	6.9538E-14	156.1688622	247.148552	156.168862	247.149
Unit Load (KW) - Gross	0.00137785	1.56918E-05	87.8070074	2.9053E-91	0.001346691	0.00140901	0.00134669	0.00141
Content (BTU/bbl)	-0.0012145	0.000150021	-8.0953053	2.1422E-12	-0.001512379	-0.0009166	-0.0015124	-0.00092

Calculation of Fuel Conversion Rate:

1	Unit net average loading (kW)	109,570	
2	Fuel Heating Content (BTU/US gal)	152,400	
3	Station Service Factor	6.61%	
4	Unit gross average loading (kW)	117,330	Line 1/(1-Line 3)
5	Coefficient 1	0.00138	(from regression equation)
6	Coefficient 2	-0.00121	(from regression equation)
7	Intercept	201.6587	(from regression equation)
8	Fuel consumption rate (bbls/hour)	178.24	Line 7 + (Line 4 x Line 5) + (Line 2 x Line 6)
9	Net fuel conversion factor (kWh/bbl)	**615**	Line 1/Line 8

Chart 1


Holyrood Fuel Consumption Rate vs Average Gross Unit Loading
2005-2014
Fuel Consumption Rate (bbls/hour)
250
200
150
100
50
0
40
60
80
100
120
140
160
Avg Gross Unit Load (MW)
Actual Fuel Consumption Rate
2005-2014 Best Fit