

1 Q. Please update IC-NLH-153 from the 2006 GRA.

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3

4 A. This request was stated in the 2006 GRA as:

5

6 *Please provide all studies, documents, data, calculations and*
7 *workpapers for the 2007 load forecast used in Hydro's COS*
8 *study similar to the response to PUB-3 NLH from the 2003*
9 *GRA.*

10

11 The following tables provide 2015 load information and updated worksheets as
12 provided in IC-NLH-153 from the 2006 GRA. For Hydro's Rural Interconnected
13 Systems, Hydro is providing its system sales forecasts in place of the annual load
14 information that was provided in the 2006 GRA. The Hydro Rural System sales
15 forecasts are the source data used for the COS.

16

17 Note that Hydro's operating load forecast for 2015 is a combination of input from
18 industrial customers, NP and Hydro's analysis for Rural Interconnected and Isolated
19 Systems.

Operating Load Forecast - Transmission and Transformation Loss Rates

Island Interconnected System

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Energy	2.9%	3.0%	2.9%	3.0%	3.2%	4.1%	3.9%	4.1%	4.1%	3.3%	3.0%	3.2%
Demand	3.5%	3.5%	3.5%	3.6%	3.8%	4.8%	4.6%	4.9%	4.8%	3.9%	3.6%	3.5%

Labrador Interconnected System

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Labrador West Energy	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
Labrador East Energy	10.0%	10.0%	9.0%	7.0%	6.0%	5.0%	4.0%	4.0%	6.0%	8.0%	9.0%	10.0%

Note: Labrador Interconnected System demand losses forecast at 12.6% for all months.

NEWFOUNDLAND & LABRADOR HYDRO
CUSTOMER COINCIDENCE FACTORS FOR HYDRO'S INTERCONNECTED ISLAND SYSTEM

SYSTEM WINTER PEAK				COINCIDENT PEAKS			NON-COINCIDENT PEAKS			COINCIDENCE FACTORS		
Year	MW	Date	Time	Newfoundland Power	Hydro Rural	Existing Industrial	Newfoundland Power	Hydro Rural	Existing Industrial	Newfoundland Power	Hydro Rural	Existing Industrial
[]												
[]												
02/03	1402	Feb 15/03	18:03	1118.3	78.9	86.0	1118.3	81.3	86.5	1.000	0.970	
03/04	1405	Feb 16/04	19:18	1093.3	78.2	84.3	1099.5	87.3	86.5	0.994	0.896	
04/05	1402	Dec 6/04	16:46	1162.7	82.1	67.0	1167.3	82.2	86.5	0.996	0.999	
05/06	1276	Jan 23/06	9:44	1124.4	64.4	73.4	1130.9	80.2	87.0	0.994	0.803	
06/07	1323	Jan 18/07	10:01	1121.7	74.1	76.5	1142.3	81.4	89.4	0.982	0.911	
07/08	1289	Jan 22/08	17:23	1176.8	79.3	69.7	1180.7	81.5	72.0	0.997	0.972	0.968
08/09	1390	Jan 26/09	19:16	1217.3	81.3	65.5	1218.8	88.9	75.5	0.999	0.914	0.867
09/10	1305	Feb 5/10	12:07	1195.5	80.3	34.2	1206.0	81.7	39.5	0.991	0.983	0.866
11/12	1398.8	Dec 25/11	10:18	1229.3	90.3	52.4	1240.9	95.5	63.0	0.991	0.946	0.831
12/13	1377.5	Jan 25/13	17:01	1240.0	74.5	51.8	1281.0	92.2	60.0	0.968	0.808	0.864

10 Yr. Median Value	0.994	0.930
5 Yr. Average Value		0.88

Notes:

- Newfoundland Power coincident and non-coincident peaks are NP native demands.
- 09/10 CBP&P not included as of significant changes in demand associated with machine shut-downs.

Derivation of NP Maximum Monthly Purchase Demands and NP Demand at Hydro's System Peak

Table A

NP Native Peak (MW)

2015	
Jan	1379.500
Feb	1357.405
Mar	1242.526
Apr	1068.441
May	893.393
Jun	757.042
Jul	613.870
Aug	593.299
Sep	673.859
Oct	865.961
Nov	1107.470
Dec	1333.971

Table B

NP Generation (MW)

2015	
Jan	84.5
Feb	84.5
Mar	84.5
Apr	84.5
May	63.0
Jun	44.0
Jul	32.0
Aug	32.0
Sep	30.0
Oct	37.0
Nov	84.5
Dec	84.5

Table C

NP Maximum Purchase Demand (MW)

2015	
Jan	1295.0
Feb	1272.9
Mar	1158.0
Apr	983.9
May	830.4
Jun	713.0
Jul	581.9
Aug	561.3
Sep	643.9
Oct	829.0
Nov	1023.0
Dec	1249.5

Table D

NP Demand from Hydro at Hydro System Peak (MW)

2015	
Jan	1286.7
Feb	1264.8
Mar	1150.6
Apr	977.5
May	825.0
Jun	708.5
Jul	578.2
Aug	557.7
Sep	639.8
Oct	823.8
Nov	1016.3
Dec	1241.5

Notes:

1. Native peaks as per NP peak demand forecast, April 11, 2014.
2. NP generation for Jan-Apr and Nov-Dec is assumed NP hydro capacity available.
3. NP generation for May-Oct based on Hydro's historical EMS data.
4. Table C = Table A - Table B
5. Table D = (Table A * 0.994) - Table B

OPERATING INTERCONNECTED ISLAND LOAD FORECAST

<u>2015</u>	Jan-15		Feb-15		Mar-15		Apr-15		May-15		Jun-15		Jul-15		Aug-15		Sep-15		Oct-15		Nov-15		Dec-15		Annual Energy GWH
	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	
Newfoundland Power	1295.0	729.3	1272.9	662.5	1158.0	657.4	983.9	514.6	830.4	423.0	713.0	348.1	581.9	314.7	561.3	314.5	643.9	337.3	829.0	416.7	1023.0	526.0	1249.5	680.0	5924.1
Hydro Rural Interconnected	95.2	53.3	90.8	46.4	85.5	45.5	77.2	39.0	71.4	37.1	66.6	32.5	58.5	30.6	58.1	30.6	60.4	28.1	66.6	33.4	76.1	38.5	95.2	48.9	463.9
Industrial	81.5	49.0	83.5	45.9	85.5	51.2	87.5	50.5	89.5	53.5	91.5	51.7	86.5	51.9	88.5	53.1	90.5	38.3	92.5	58.8	93.9	57.8	93.9	59.7	621.4
TOTAL NLH SALES	1448.3	831.6	1424.0	754.8	1306.7	754.1	1127.8	604.1	971.7	513.6	852.5	432.3	710.3	397.2	691.3	398.2	777.3	403.7	968.8	508.9	1171.4	622.3	1414.3	788.6	7009.4
Losses	50.7	23.7	49.8	22.8	45.7	22.2	40.6	18.3	36.5	16.2	41.2	17.6	32.8	15.4	33.6	16.3	37.6	16.4	37.9	16.7	41.9	18.7	49.5	25.2	229.5
Required NLH Generation	1499.0	855.3	1473.8	777.6	1352.4	776.3	1168.4	622.4	1008.2	529.8	893.7	449.9	743.1	412.6	724.9	414.5	814.9	420.1	1006.7	525.6	1213.3	641.0	1463.8	813.8	7238.9

NOTES:

1. Newfoundland Power MW are expected MW at average peak conditions.
2. Forecast energy losses based on historical operating history. Forecast peak month demand losses at 3.5%.
3. Required NLH Net Generation does not include NLH station service and MW reflect average peak conditions. MW include customer firm demand requirements only.

Date: June 25, 2014

Prepared By: Market Analysis Section, System Planning Department

OPERATING INTERCONNECTED LABRADOR LOAD FORECAST

<u>2015</u>	Jan-15		Feb-15		Mar-15		Apr-15		May-15		Jun-15		Jul-15		Aug-15		Sep-15		Oct-15		Nov-15		Dec-15		Annual Energy GWH
	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	MW	GWH	
PROVINCIAL MARKET																									
HYDRO RURAL INTERCONNECTED																									
- Goose Bay	78.4	46.0	75.9	39.5	67.8	37.9	51.6	27.3	43.3	21.6	36.6	15.9	27.0	13.8	27.0	13.6	34.7	15.8	45.0	22.9	59.7	30.3	74.4	40.8	325.4
- Churchill Falls	0.3	0.2	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.3	0.2	1.5
- Wabush	22.6	14.2	22.6	12.3	20.4	11.7	15.4	8.6	12.0	6.5	9.0	4.2	5.9	3.3	5.9	3.4	9.0	4.8	13.1	7.4	17.6	10.0	21.0	13.6	100.0
- Labrador City	58.7	36.3	58.7	31.3	53.4	30.0	41.1	22.2	32.3	17.0	23.5	11.5	16.7	9.4	17.6	9.4	24.4	13.1	33.5	19.1	45.8	25.6	54.6	36.3	261.2
Subtotal	160.0	96.7	157.5	83.3	141.8	79.7	108.3	58.2	87.8	45.2	69.3	31.7	49.8	26.6	50.7	26.5	68.3	33.8	91.8	49.5	123.3	66.0	150.3	90.9	688.1
DEPT. OF NATIONAL DEFENCE (Secondary)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	1.5	6.1	1.8	3.7	1.2	3.7	1.2	6.4	2.0	9.6	2.5	0.0	0.0	0.0	0.0	10.2
Industrial																									
Firm Demand	270.0		270.0		270.0		270.0		270.0		270.0		270.0		270.0		270.0		270.0		270.0		270.0		
Interruptible Demand	9.5		9.5		4.5		1.5		0.0		0.0		0.0		0.0		0.0		1.5		2.5		4.5		
Energy Requirement		165.4		149.3		161.5		147.2		150.1		135.8		138.5		140.9		132.8		152.5		156.0		160.0	1790.0
TOTAL LABRADOR SALES		262.1		232.6		241.2		205.4		196.8		169.3		166.3		168.6		168.6		204.5		222.0		250.9	2488.3
LOSSES to CF	48.3	20.8	48.0	18.4	46.1	18.7	41.9	15.3	36.5	14.4	25.8	12.2	19.2	11.9	19.1	12.1	22.1	12.4	32.9	15.5	44.4	17.1	47.0	19.8	188.6
LABRADOR INTERNAL REQ'D (at CF)	431.8	282.9	429.3	251.0	412.2	259.9	374.3	220.7	326.3	211.2	231.0	181.5	171.7	178.2	171.2	180.7	197.6	181.0	294.0	220.0	396.6	239.1	420.2	270.7	2676.9

NOTES:

- Forecast utility energy and peak demands reflect historical average weather conditions.
- Labrador industrial requirements reflect total industrial customer energy and demand requirements.
- LABRADOR INTERNAL REQ'D megawatts are system coincident and exclude secondary and interruptible.

Date: June 26, 2014

Prepared By: Market Analysis Section, System Planning Department

Hydro Rural System Sales Forecast for 2015

Island Interconnected														Customers
Monthly System Sales in MWs														
Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
1.10	11616	10482	9884	9436	8528	7958	7516	7719	7746	8447	9502	10900	109735	11523
1.12	17550	16216	14716	13105	10941	8792	7195	6701	7328	9786	12497	15691	140519	8273
1.30	49	44	42	30	23	16	8	13	19	26	32	43	345	1
2.20	8568	6848	7398	5689	6295	5623	5775	5900	4580	5340	5740	7926	75684	2912
2.30	6816	5448	5885	4526	5008	4473	4594	4693	3643	4248	4566	6305	60203	93
2.40	4089	3269	3531	2715	3005	2684	2756	2816	2186	2549	2740	3783	36122	8
Lighting	234	234	234	232	233	234	234	234	234	234	233	232	2800	947
Total Sales	48922	42541	41690	35734	34033	29779	28077	28077	25737	30629	35309	44881	425409	23757
Company Use	132	127	121	94	71	54	42	40	47	65	90	117	1000	35
Monthly Demand in kW/kVa														
2.20	20959	19544	18809	17319	17247	16205	15821	15861	15686	16294	16454	20881		
2.30	16822	16223	15653	15499	15244	13615	12585	12859	13751	14548	15256	16610		
2.40	7469	7462	6910	6763	7622	10211	10787	11022	9982	10380	10152	12183		

L'Anse au Loup														Customers
Monthly System Sales in MWs														
Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
1.10	460	394	361	350	327	301	284	280	288	312	354	420	4131	405
1.12	1246	1244	1072	947	806	683	505	459	575	778	984	1277	10576	390
210/220	651	632	577	536	495	473	485	469	462	486	557	635	6458	210
2.30	107	89	121	79	135	148	349	276	214	147	119	128	1912	5
Lighting	11	11	11	11	11	11	11	11	11	11	11	15	136	33
Total	2475	2370	2142	1923	1774	1616	1634	1495	1550	1734	2025	2475	23213	1043
Company Use	7	6	6	5	3	2	1	1	2	4	4	7	48	2
Monthly Demand in kW/kVa														
2.20	2272	1916	2118	1986	2035	1892	2145	2024	2001	2051	2119	2291		
2.30	407	326	511	318	777	536	1389	987	1091	702	371	428		

Hydro Rural System Sales Forecast for 2015

Labrador Diesel	Monthly System Sales in MWht													Customers
	Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
D120	2098	1861	1817	1686	1627	1535	1414	1423	1451	1630	1801	2053	20396	2051
G120	60	55	52	46	40	37	28	28	31	39	46	56	518	26
S210	44	40	35	28	27	20	16	16	22	26	33	43	350	39
S220	133	125	132	122	121	99	68	76	108	131	131	130	1376	13
D210	345	337	307	280	257	238	229	234	231	262	300	336	3356	342
D220	887	824	804	745	739	738	755	769	713	726	759	823	9282	105
G210	56	52	51	43	41	32	31	31	32	36	43	54	502	35
G220	89	80	80	69	62	50	45	46	51	62	73	82	789	19
I220	5	4	4	5	20	33	23	9	10	7	3	3	126	4
I230	78	65	66	150	289	508	595	469	264	175	121	82	2862	6
I240	55	40	41	45	84	309	484	555	440	264	102	38	2457	1
Lighting	24	24	24	24	24	24	24	24	24	25	25	27	293	80
Gov't Lighting	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	8	4
Total	3875	3508	3414	3244	3332	3624	3713	3681	3378	3384	3438	3727	42314	2725
Company Use	14	13	13	15	8	5	4	4	5	9	10	18	118	13
Monthly Demand in kW/kVa														
S220	424	395	426	411	399	399	282	308	323	366	383	393		
D220	2572	2608	2510	2524	2674	2792	2835	2759	2669	2817	2712	2681		
G220	271	268	257	245	232	228	203	197	219	246	258	259		
2.20	8	12	7	14	94	96	76	29	36	18	14	7		
2.30	358	260	296	449	1695	2083	2707	1996	1509	1286	800	546		
2.40	92	100	70	158	425	1047	1020	1087	1063	969	244	98		

Hydro Rural System Sales Forecast for 2015

Monthly System Sales in MWhs														Customers
Island Diesel	Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
D120	593	540	528	466	414	368	347	355	332	383	453	573	5352	696
S210	15	15	13	11	8	8	7	7	8	9	10	14	125	15
S220	26	26	29	24	26	23	16	14	22	24	25	25	280	4
D210	58	55	54	47	42	40	41	41	39	39	43	51	550	69
D220	25	24	24	22	21	20	20	20	20	20	20	24	260	6
G210	8	7	7	6	5	5	4	4	4	5	6	6	67	12
G220	14	14	15	14	11	11	10	10	10	11	14	13	147	2
G230	49	41	43	30	20	16	13	12	16	25	36	49	350	1
I220	0	0	0	0	0	0	0	0	0	0	0	0	0	1
I230	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lighting	8	8	8	8	8	8	8	8	8	8	8	8	96	34
Gov't Lighting	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4	4
Total Sales	796.3	730.3	721.3	628.3	555.3	499.3	466.3	471.3	459.3	524.3	615.3	763.04453	7230	844
Company Use	6	6	6	5	3	2	1	1	2	3	4	7	46	4
Monthly Demand in kW/kVa														
S220	121	118	118	105	104	96	69	68	92	104	102	106		
D220	84	81	80	78	73	88	65	79	74	90	73	88		
G220	45	43	43	38	35	31	30	29	30	36	39	37		
G230	142	136	140	114	87	89	56	55	86	125	154	136		
I220	0	0	0	0	0	0	0	0	0	0	0	0		
I230	0	0	0	0	0	0	0	0	0	0	0	0		

Hydro Rural System Sales Forecast for 2015

Happy Valley-Goose Bay														Customers
Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
1.10	146	134	111	89	68	54	44	42	49	71	97	121	1026	124
1.12	19428	18550	15130	11832	8593	6378	4707	4338	5633	8675	12176	16269	131709	4428
2.10	477	452	389	304	245	212	179	186	177	238	323	408	3592	290
2.20	5081	4647	4186	3250	2364	2068	1759	1765	1844	2533	3267	4224	36989	386
2.30	4796	4290	3984	3323	2488	2157	1812	2006	2062	2865	3469	4268	37520	56
2.40	12571	12107	11317	8622	6424	6331	5222	5408	5338	6903	8615	10424	99282	3
Lighting	80	80	82	82	82	82	83	83	83	83	81	82	983	252
Total	42579	40260	35199	27502	20264	17282	13806	13828	15186	21368	28028	35796	311101	5539
Company Use	217	204	174	151	84	55	62	47	46	102	134	180	1456	4
Monthly Demand in kW/kVa														Customers
2.20	12887	11864	12688	12017	10452	8764	7502	7402	8119	10036	11231	12407		
2.30	12134	11149	11656	11470	10505	8909	7925	7335	9150	10721	10558	12647		
2.40	21526	19744	21532	18748	17119	12762	11922	12347	12187	14548	16220	20803		

Labrador West														Customers
Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
1.10	173	157	130	95	72	53	40	41	53	80	110	147	1151	232
1.12	26685	24410	20532	15767	11699	8305	5934	6210	8472	13617	18141	23532	183304	5104
2.10	383	316	311	287	255	209	177	174	184	205	263	309	3073	229
2.20	4947	4646	4369	3497	2609	1952	1696	1584	1867	2522	3319	4308	37316	348
2.30	10249	9451	8983	6950	5071	3767	3217	3269	4028	5705	7331	9179	77200	109
2.40	4504	4000	3699	3473	3359	3272	2749	3360	3048	3070	3102	4334	41970	3
Lighting	67	67	67	67	67	67	67	67	67	67	67	67	804	137
Total	47008	43047	38091	30136	23132	17625	13880	14705	17719	25266	32333	41876	344818	6162
Company Use	43	48	45	38	25	18	16	15	14	20	24	32	338	6
Monthly Demand in kW/kVa														Customers
2.20	12074	12107	12006	10761	10240	8441	6955	7168	8264	10158	10494	12090		
2.30	22455	22103	21603	19729	17737	14816	11880	12643	15498	18649	19836	21826		
2.40	7911	7519	6215	8193	8397	8125	7942	7913	8212	8430	7448	9571		