

Planning Load Forecast

This review utilizes the 2010 Planning Load Forecast (PLF) as prepared by the Market Analysis section of the NLH System Planning department. NLH maintains econometric models for utility electricity demand on the Island of Newfoundland which are updated and reforecast every year. Utility demand represents the requirements of Newfoundland Power and NLH's island rural interconnected customers. Econometric analysis consists of multivariate regression equations that model various domestic and commercial electricity requirements as a function of population, income or gross domestic product (GDP), prices, housing and commercial stock, weather, and efficiency gains. Modeling for the Island grid encompasses a 35 year historical period from the late 1960s to the present using historical data. Each year, a 20 year forecast for the provincial economy is provided by Department of Finance, Government of NL and consists of projections on GDP, population, personal income, housing starts, etc. An important consideration for local electricity demand forecasting purposes is that NLH has the Department of Finance adjust total provincial GDP to exclude resource revenues accruing to interests external to the Province (i.e. the gross value (and swings) of oil production are essentially excluded from GDP.

Electricity prices are generated through an internal iterative analysis of generation expansion analysis and projected NLH revenue requirements to derive wholesale and retail prices based on the expansion sequence. Local fuel oil prices for NL, including residential fuel and Holyrood heavy fuel oil, are derived from services received under a retainer contract with the PIRA Energy Group. In contrast with econometric based utility forecasts, NLH's direct industrial customers (North Atlantic Refining, Kruger, Teck, IOC, Vale) are contacted directly and production expectations and associated power requirements both short and long term are evaluated.

The Island load forecast is extended beyond the 20 year forecast horizon based initially on the average growth in energy for the last five years in the forecast. For the 2010 PLF, this is the period from 2024 to 2029 and primarily reflects ongoing basic economic growth. The annual growth in energy is subsequently reduced in 5 to 10 year intervals to reflect growing and maturing market saturation for electricity in heating markets but with an underlying modest economic growth.

2010 Planning Load Forecast
Primary Forecast Assumptions and Island Interconnected Utility Impacts

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
<i>ECONOMIC FORECAST</i>																				
Gross Domestic Product (2002\$, MM) ¹	15,683	15,993	16,052	16,178	16,441	16,778	16,742	16,631	16,666	16,812	16,919	17,071	17,183	17,372	17,468	17,557	17,708	17,875	18,044	18,278
Growth Rate . . . (%)	2.8	2.0	0.4	0.8	1.6	2.0	-0.2	-0.7	0.2	0.9	0.6	0.9	0.7	1.1	0.6	0.5	0.9	0.9	0.9	1.3
Personal Disposable Income (2002\$, MM)	11,487	11,779	11,908	12,029	12,195	12,367	12,392	12,383	12,443	12,536	12,641	12,763	12,841	12,965	13,073	13,158	13,242	13,388	13,534	13,695
Growth Rate . . . (%)	1.3	2.5	1.1	1.0	1.4	1.4	0.2	-0.1	0.5	0.8	0.8	1.0	0.6	1.0	0.8	0.7	0.6	1.1	1.1	1.2
Commercial Bldg. Investment (2002\$, MM)	454	472	431	419	400	412	398	382	397	427	430	431	438	437	438	434	433	427	420	414
Growth Rate . . . (%)	7.6	3.8	-8.6	-2.8	-4.5	2.9	-3.5	-4.0	4.0	7.6	0.6	0.4	1.5	-0.1	0.2	-0.9	-0.3	-1.5	-1.5	-1.5
Housing Starts	2721	2656	2578	2497	2421	2360	2294	2233	2177	2125	2067	2015	1967	1926	1886	1847	1799	1753	1709	1665
Population (000's)	511	513	513	514	515	515	514	513	511	510	509	508	508	507	507	507	506	506	507	507
<i>INTERCONNECTED ISLAND UTILITY IMPACTS²</i>																				
Domestic Customers (000's)	229.4	232.2	234.9	237.5	240.1	242.6	245.0	247.3	249.5	251.7	253.9	256.0	258.0	260.0	261.9	263.9	265.7	267.6	269.4	271.1
Domestic Sales (GWh)	3482	3562	3575	3655	3704	3722	3712	3721	3768	3808	3837	3896	3952	4020	4049	4073	4119	4170	4215	4258
Growth Rate . . . (%)	2.7	2.3	0.4	2.3	1.3	0.5	-0.3	0.2	1.3	1.1	0.8	1.6	1.4	1.7	0.7	0.6	1.1	1.2	1.1	1.0
Electric Heat Market Share (%)	59.0	59.6	60.0	60.5	60.9	61.3	61.6	61.9	62.2	62.6	62.9	63.3	63.7	64.1	64.5	64.8	65.2	65.5	65.8	66.2
General Service Customer Sales (GWh)	2245	2288	2320	2351	2384	2417	2443	2466	2484	2510	2540	2569	2600	2632	2662	2692	2723	2755	2786	2819
Growth Rate . . . (%)	2.5	1.9	1.4	1.3	1.4	1.4	1.1	0.9	0.7	1.0	1.2	1.2	1.2	1.2	1.1	1.1	1.2	1.2	1.1	1.2
Street & Area Lighting Sales (GWh)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
Distribution Losses (GWh) ³	349	356	358	365	369	372	373	375	378	382	385	390	395	401	404	407	411	416	420	425
Total Utility Requirements (GWh)	6115	6244	6292	6410	6496	6551	6567	6601	6670	6739	6800	6894	6986	7091	7154	7211	7293	7381	7461	7540
Growth Rate . . . (%)	2.7	2.1	0.8	1.9	1.3	0.8	0.2	0.5	1.0	1.0	0.9	1.4	1.3	1.5	0.9	0.8	1.1	1.2	1.1	1.1
Utility Peak Demand (MW)⁴	1342	1360	1385	1400	1423	1440	1452	1461	1471	1486	1501	1514	1533	1552	1571	1585	1598	1614	1631	1646
Growth Rate . . . (%)	3.8	1.3	1.8	1.1	1.6	1.2	0.8	0.6	0.7	1.0	1.0	0.9	1.2	1.2	1.2	0.9	0.8	1.0	1.0	0.9

- Notes:
1. Adjusted GDP excludes income earned by non-resident owners of Newfoundland mega-projects.
 2. Includes Newfoundland Power and Hydro Rural.
 3. Includes company use.
 4. Non-coincident demand.

**2010 Planning Load Forecast
Island Interconnected Load and NLH Sales Summary**

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>
<u>INTERCONNECTED ISLAND FORECAST</u>																				
Total Utility Requirements (GWh)	6115	6244	6292	6410	6496	6551	6567	6601	6670	6739	6800	6894	6986	7091	7154	7211	7293	7381	7461	7540
Growth Rate . . . (%)	2.7	2.1	0.8	1.9	1.3	0.8	0.2	0.5	1.0	1.0	0.9	1.4	1.3	1.5	0.9	0.8	1.1	1.2	1.1	1.1
Utility Peak Demand (MW) ¹	1342	1360	1385	1400	1423	1440	1452	1461	1471	1486	1501	1514	1533	1552	1571	1585	1598	1614	1631	1646
Growth Rate . . . (%)	3.8	1.3	1.8	1.1	1.6	1.2	0.8	0.6	0.7	1.0	1.0	0.9	1.2	1.2	1.2	0.9	0.8	1.0	1.0	0.9
Total Industrial Requirements (GWh)	1278	1271	1362	1604	1789	1853	1853	1853	1853	1853	1853	1853	1853	1853	1853	1853	1853	1853	1853	1853
Growth Rate . . . (%)	0.4	-0.5	7.1	17.8	11.6	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial Peak Demand (MW) ¹	190	195	228	276	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269
Growth Rate . . . (%)	-33.7	2.6	16.9	21.1	-2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Losses (GWh)	193	194	196	200	203	204	205	211	212	214	219	220	225	227	227	228	229	230	231	232
Total Island Requirements (GWh)*	7585	7709	7850	8214	8488	8608	8626	8666	8735	8806	8872	8967	9065	9171	9235	9293	9375	9464	9545	9626
Growth Rate . . . (%)	2.2	1.6	1.8	4.6	3.3	1.4	0.2	0.5	0.8	0.8	0.8	1.1	1.1	1.2	0.7	0.6	0.9	0.9	0.9	0.8
Island Peak Demand (MW)²	1519	1538	1571	1601	1666	1683	1695	1704	1714	1729	1744	1757	1776	1794	1813	1827	1840	1856	1872	1888
Growth Rate . . . (%)	-5.1	1.2	2.1	1.9	4.1	1.0	0.7	0.5	0.6	0.9	0.8	0.8	1.1	1.0	1.1	0.8	0.7	0.9	0.9	0.8

* Includes interruptible energy of 3 GWh associated with Vale.

NLH SALES & GENERATION SUMMARY

NLH Energy Deliveries (GWh)	6095	6216	6353	6713	6985	7104	7120	7154	7222	7291	7353	7447	7539	7644	7707	7764	7845	7933	8014	8093
NLH Transmission Losses (GWh)	193	194	196	200	203	204	205	211	212	214	219	220	225	227	227	228	229	230	231	232
(MW)	45	46	47	48	49	49	50	50	50	50	51	51	51	52	52	52	52	53	53	53
NLH Net Generation (GWh)	6287	6410	6549	6913	7187	7308	7325	7365	7435	7505	7572	7667	7764	7871	7934	7992	8075	8163	8245	8325
Expected Peak Demand (MW) ²	1351	1370	1404	1434	1500	1517	1529	1539	1549	1564	1579	1593	1612	1631	1650	1665	1678	1694	1711	1727
NLH System Annual Load Factor (%)	53	53	53	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55

Notes:

1. Non-coincident demand.
2. System coincident peak demand.

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