Summary of Newfoundland and Labrador Hydro

2010 Long Term Planning Load Forecast

System Planning Department
Newfoundland and Labrador Hydro

newfoundland labrador hydro
a nalcor energy company

EXECUTIVE SUMMARY

The purpose of load forecasting at Newfoundland and Labrador Hydro (Hydro) is to project electric power demand and energy requirements through future periods to ensure that sufficient utility generation resources are provided consistent with approved reliability operating standards. The load forecast is segmented by Island and Labrador interconnected systems, and rural isolated systems, as well as distinguished by utility load (i.e., domestic and general service loads of Newfoundland Power and Hydro) and industrial load (i.e., larger direct customers of Hydro such as Corner Brook Pulp & Paper Ltd, North Atlantic Refining Ltd, and Iron Ore Company of Canada). The load forecast process entails translating a long-term economic forecast for the Province into corresponding electric demand and energy requirements for the electric power systems. For distribution utility load, this is largely accomplished through standard statistical modeling techniques of historical loads and various economic and energy price indicators. The large industrial loads are evaluated individually in consultation with the customers in question.

Resource developments factor prominently in the economic forecast. The Province's fourth offshore oil resource development is in the planning stages; the Vale Inco nickel processing facility has been committed, and the shellfish fishery remains significant for the economy. Coming on top of an overall improving economic base in recent years, a stage appears set for continued economic growth and corresponding utility electricity requirements. For the electricity demands of the larger industrial customers, electricity forecasts essentially reflect contractual arrangements with Hydro. While some uncertainty exists for the Province's traditionally developed resource industries, this forecast assumes no additional contraction for such mature industries and once the hydrometallurgical industrial facility located at Long Harbour commences, no further large scale industrial load is assumed for the Island grid.

Across the 20 year forecast horizon, the results of the long-term planning load forecast projects a period of overall load growth for the Island interconnected system. The compound annual growth rate between 2009 and 2029 is 1.3 percent. The isolated diesel load on the

Island is forecast to decline while the isolated diesel load in Labrador is forecast to grow by 1.5% per year. At the Provincial level, electricity load is projected to grow in line with Island interconnected requirements at 1.3% per year. The following tables' present growth rates for the extended provincial economic outlook and forecast provincial energy requirements in the 2010 Planning Load Forecast.

Provincial Economic Indicators – 2010 PLF			
	2009-2014	**2009-2019**	**2009-2029**
Adjusted Real GDP at Market Prices* (% Per Year)	1.5%	1.0%	0.9%
Real Disposable Income (% Per Year)	1.5%	1.0%	0.9%
Average Housing Starts (Number Per Year)	2575	2400	2135
End of Period Population ('000s)	515	510	507
*Adjusted GDP excludes income that will be earned by the non-resident owners of Provincial resource developments to better reflect growth in economic activity that generates income for local residents.			

Annual Growth Rate Summary for the 2010 PLF				
	History	Forecast		
Load Growth[1]	1999-2009	2009-2014	2009-2019	2009-2029
Island Utility	2.0%	1.8%	1.2%	1.2%
Island Industrial	-7.0%	7.1%	3.8%	1.9%
Island System	-0.4%	2.7%	1.7%	1.3%
Labrador System	0.1%	4.4%	2.2%	1.1%
Isolated Island	-2.1%	-0.1%	-0.2%	-0.2%
Isolated Labrador	3.3%	2.2%	1.8%	1.5%
Provincial Load	-0.2%	3.1%	1.8%	1.3%

1. Compound annual growth rates are based on actual, non-weather adjusted energy consumption.

TABLE OF CONTENTS

1.0 INTRODUCTION

The majority of the capacity and production for the Province's electric power industry rests with Newfoundland and Labrador Hydro (Hydro), which monitors the demand and supply balance and schedules production and transmission[1]. Hydro is required to have resources in place to serve the electrical energy needs as well as whatever power requirement households, businesses and industries may simultaneously demand from the power grid. As electricity cannot be withdrawn or rationed except in emergency situations, simultaneous customer demand must be matched by producer supply at each and every point throughout any given day. The purpose of load forecasting at Hydro is to project electric power demand and energy requirements through future periods to ensure that sufficient generation resources and adequate and reliability standards are provided for.

Electric power demand changes across time, reflecting the overall growth or decline in economic activity for a region. In addition, market factors relating to competition and pricing have an impact upon demand. The long-term load forecast assists in minimizing the operational risks between inadequate capacity and the financial risks of excessive electricity resource capability, and the economic burdens placed on all consumers in either circumstance. The focus of power system planning in the Province is necessarily directed to the Island's interconnected grid by virtue of its status as a large isolated electric power grid.

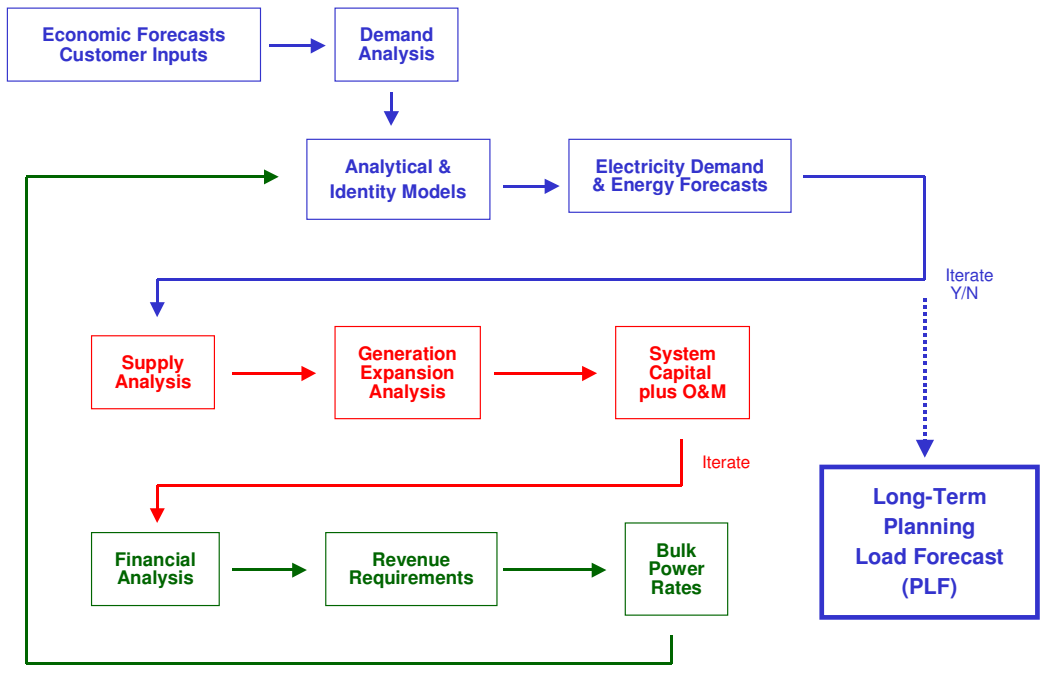
Hydro develops and maintains databases in support of energy modeling and electricity demand forecasting. The long-term Planning Load Forecast (PLF) presents the company's outlook for expected total electricity consumption and peak demand in the Province for the next twenty years. It is conditioned by a forecast of provincial economic activity and market factors. The economic forecasts that ultimately drive the load forecast are prepared, at Hydro's request, by the Provincial Government's Department of Finance.

[1] The exception to this is customer electric power generation for own use and CF(L)Co's deliveries in Labrador.

2.0 LOAD FORECAST CYCLE

There is one load forecast cycle completed each year with the PLF analysis being typically initiated in the last quarter of each year. A review of PLF inputs using an update to the economic forecast is conducted after a six month period as a check against the PLF's provincial outlook. Forecasting electricity requirements in no way implies controlling electricity consumption. Accordingly, the annual development of long-term load forecasts ensures, to the extent possible, that the constantly shifting set of parameters affecting electricity demand in the Province are incorporated into current utility operating plans and investment intentions. Figure 1 shows a flow chart of the load forecast cycle of Hydro which develops the demand, capital, operating cost and rate analysis given a prevailing economic forecast for the Province.

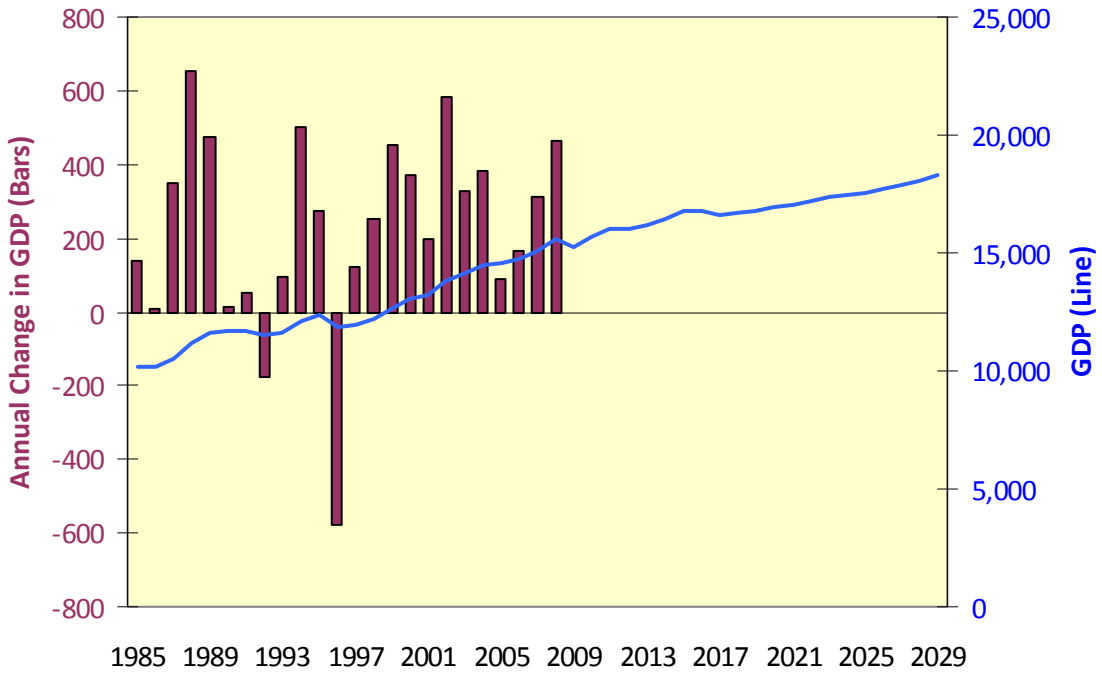
Figure 1: The Load Forecast Cycle



3.0 PROVINCIAL ECONOMIC SETTING

Economic activity in the Province, as measured by the Gross Domestic Product standard of economic accounts (GDP)[2], has been characteristically irregular across the historical period. This is generally attributed to a dependence on international export markets for most primary products, mega-project investment cycles, and on the relatively narrow industrial and manufacturing base of the Province. Figure 2 shows the variability in the annual absolute level of real economic growth over the historical period as well as historical and forecast trends as projected for the 2010 PLF.

Figure 2: Provincial GDP (2002$, MM)

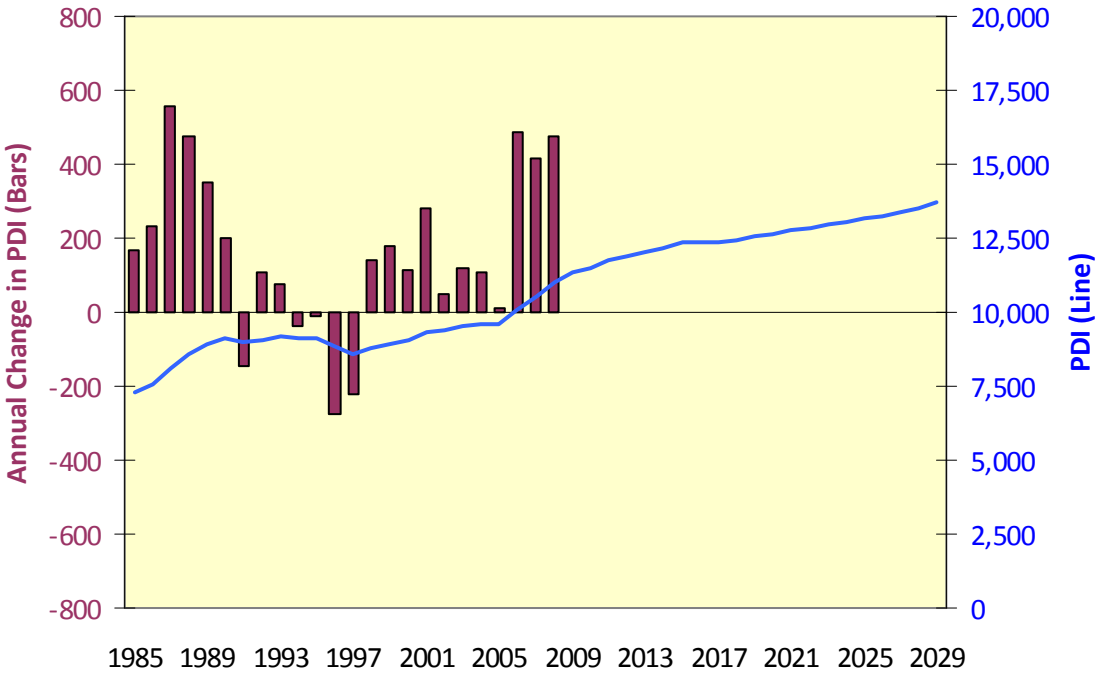


In the forecast period, the major new resource investments are the Hebron offshore oil field, and Vale's expenditures associated with its nickel processing facility at Long Harbour.

[2]GDP is the market value of the unduplicated total of goods and services produced in the Province in a year. GDP can be reported in current dollars but it is more common to express GDP in constant dollars which removes the effect of changing prices in assessing what a real or true change in output has been. For the purposes of forecasting electricity demand, the Department of Finance provides Hydro with a GDP time series which excludes large blocks of income that will be earned by non-resident owners of Provincial mega-projects, specifically offshore oil developments and Voisey's Bay mineral production and processing. This adjusted GDP better reflects growth in overall economic activity that generates income for residents of the Province.

Relative to GDP patterns, personal income flows in the Province have been somewhat more cyclically pronounced, as illustrated in Figure 3. Strong income gains during the second half of the 1980s were followed by material declines in the Province's personal income base during the 1990s. Income growth commenced again in the late 1990s as economic recovery and growth became more broadly based in the Provincial economy.

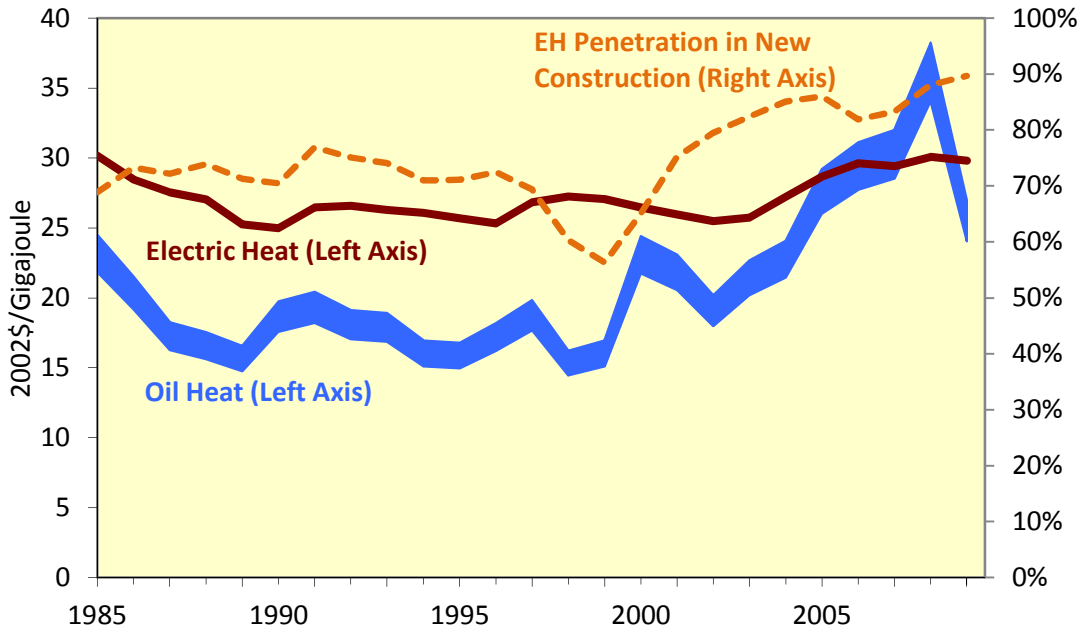
Figure 3: Provincial Personal Disposable Income (2002$, MM)



4.0 ENERGY PRICES

While the level of economic activity in the Province generally drives the demand for electric power, energy prices also have a role to play, especially with respect to space heating fuel choice. Figure 4 presents the history of representative real domestic electricity and furnace oil prices, expressed in thermally equivalent units[3] as well as the penetration rate of electric heat in new home construction. Coinciding with the increased real cost of oil heating has been an increased preference for electric based heating systems and in contrast to the extended historical period, a relative price advantage for electricity in the longer term is projected and is expected to sustain the preference for electric heat.

Figure 4: Northeast Avalon Residential Heating Prices
Thermal Equivalent Costs



Note: 1. Oil heat annual fuel utilization efficiency (AFUE) range of 74-83%.
2. Electricity pricing is Island interconnected energy rate.

[3] Wood fuel is an important source of space heating in Newfoundland and Labrador, but pricing cannot readily be tracked due to the high incidence of homeowner procurement.

5.0 PROVINCIAL POWER SYSTEMS

5.1 Island Interconnected System

Domestic customers on the Island's interconnected system represent about 90 % of the Province's total customer base. Accordingly, provincial economic indicators are used in modeling and forecasting these electricity requirements as they tend to be highly correlated with the pattern of electricity sales for retail utility customers.

5.1.1 Utility Domestic Load

Utility domestic load refers to the electricity requirements for all residential customer accounts of Newfoundland Power (NP)[4] and Hydro on the Island Interconnected system. Domestic sales presently account for some sixty percent of total utility sales.

Strong historical growth in domestic sales is correlated with personal income growth, which in turn was reflected in sustained customer growth and increasing electric appliance and equipment stocks. Across all households, regardless of space heating equipment, there is a common level of basic electricity reflective of typical appliance stocks and lighting use. What distinguishes a household with respect to its electricity consumption from this common point is, on average, the presence or absence of an electric hot water heater, and then in turn, the presence or absence of electric heating. Electric space heat is the largest end-use component of utility domestic sales and is expected to remain the heating system of choice in new construction. Many of the more traditional end-use domestic markets are now at, or nearing, saturation. Of the more energy intensive appliance end-uses, the dishwasher remains as an end-use with increased market saturation potential. Residential air-conditioning has yet to become a measurable end-use demand in the Province owing to the temperate summer climate. The table below provides the Provincial appliance saturation data as tracked over time by Statistics Canada residential surveys.

[4] NP is an investor owned utility responsible for the distribution of electricity to eighty-five percent of the retail electricity customers in the Province. NP's retail distribution is confined to the Island portion of the Province. About ninety percent of the energy required to service these customers is generated and transmitted to NP bulk delivery points by Hydro.

Saturation of Electric Appliance Equipment - Newfoundland and Labrador (Percentage of All Households)			
Electric Equipment	**1978**	**1993**	**2008**
Fridge	96%	100%	100%
Cooking	69%	95%	98%
Washers	39%	73%	92%
Dryers	43%	77%	92%
Freezers	60%	78%	77%
Dishwasher	8%	23%	48%
Hot Water	**59%**	**84%**	**89%**
Space Heat	**28%**	**43%**	**60%**
Source: Statistics Canada Survey of Household Spending and Cat. 64-202			

5.1.2 Utility General Service Load

Provincial economic activity establishes the demand for and the supply of the products and services of general service customers (i.e. manufacturing, retail trade, public administration, education, accommodation and food services, health care etc.). Electricity sales to these customers account for about forty percent of total utility sales and are highly dependent on real changes in provincial GDP, building stock and heating degree days. As in the domestic sector, a preference for electric space heating has existed, with virtually all new general service facilities relying on electricity based heating systems. In contrast to domestic customers and owing to their diverse make-up, general service customers, and their use of electricity, are very heterogeneous.

5.1.3 Hydro Industrial Load

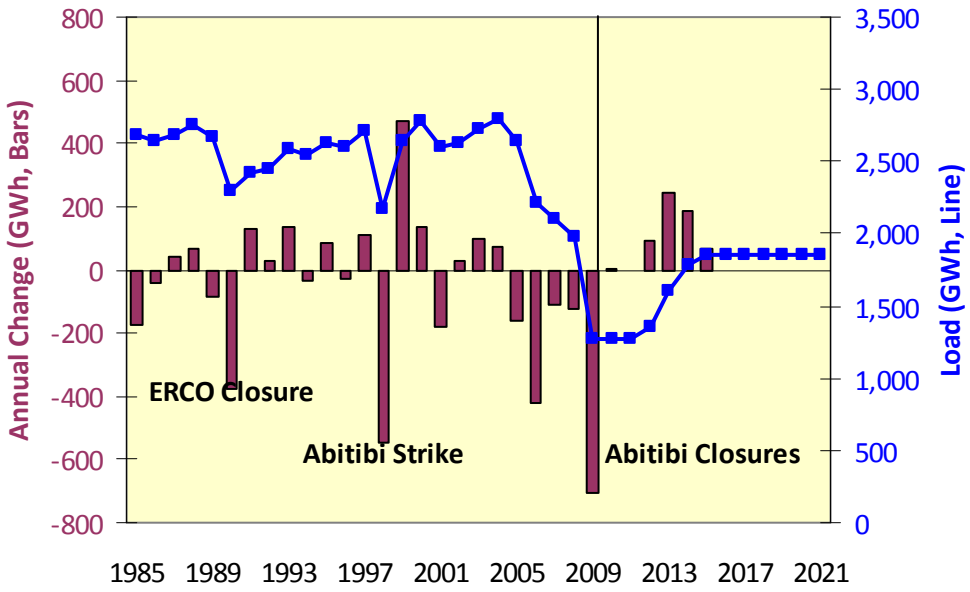
Up until recently the pulp and paper industry dominated the Island's industrial sector - inclusive of their own generation, the collective electricity requirements of the three newsprint mills made up about 30 percent of the Island interconnected load. With the closure of the newsprint mills in Stephenville and Grand Falls and the reduction in paper production at the Corner Brook mill, demand and energy requirements are less than half of what they once were.

At Corner Brook Pulp and Paper, on-going operations are forecast to be in the order of 26 MW in addition to their own significant generation capability at Deer Lake. The other key industrial account on the Island is North Atlantic Refining Ltd., which operates an oil refinery at Come-By-Chance. North Atlantic Refining has a peak demand of 31 MW. A third and smaller industrial account is the copper-zinc mine and mill operated by Teck Resources Limited near Millertown. It is expected to remain in operation through 2013. An 80 MW hydrometallurgical industrial load is provided for the Vale Inco nickel processing facility.

Industrial load forecasts are based on consultations with each of the individual industrial customers and generally reflect existing contractual arrangements with the customer. While business cycle risk exists for Hydro's sales to its direct industrial customers, it is more of a short-term operational risk for Hydro than a longer-term system planning risk. The PLF does not exercise judgment respecting the longer-term viability for established industry in the Province unless definitive notices have been provided to the Province.

Provision for further large, unforeseen industrial load locating on the Island's power system in the forecast period has not been included. Figure 5 provides historical and forecast industrial load for the Island.

Figure 5: Island Industrial Customer Load

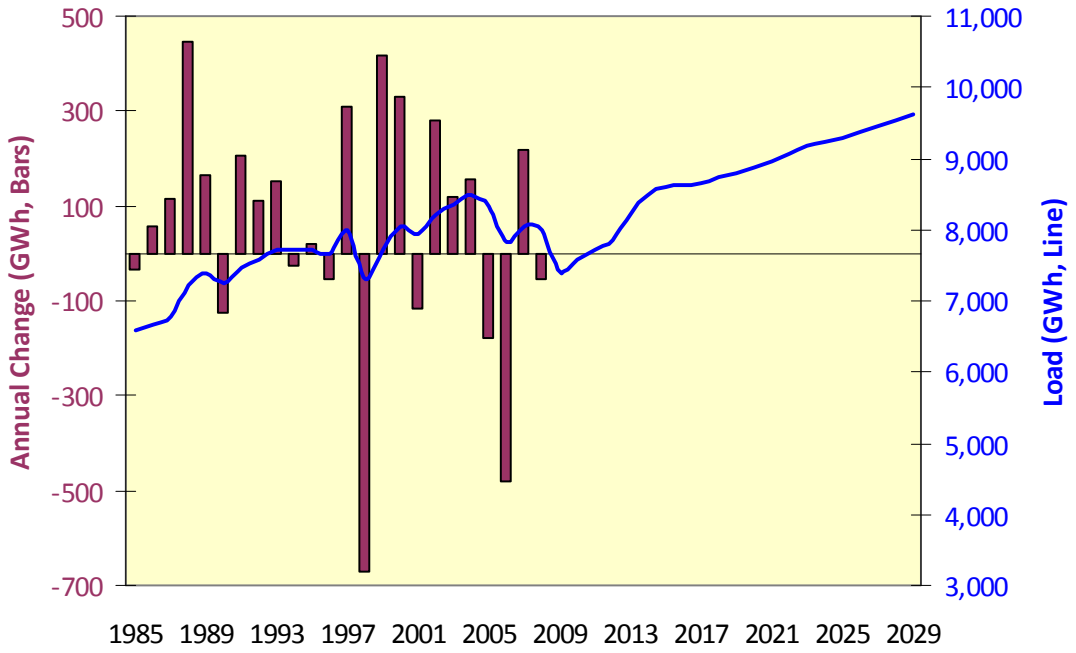


5.1.4 Island Interconnected Load

Total Island load is the summation of interconnected utility load, industrial customer loads, as well as various transmission and distribution power and energy losses incurred serving the customer load requirements.

Figure 6 presents the historical and forecast total Island load and annual changes in the absolute level of historical load. Of note is the unevenness of historical growth in electricity where such large annual changes can be linked to operating circumstances of large industrial customers, weather conditions, etc. The noticeable feature of the 2010 PLF is the significant increase in load associated with the Island nickel processing facilities. This new industrial load combined with projected increases in utility load offsets the recent declines in industrial load where total Island requirements are forecast to surpass 2004's historic peak energy requirements by 2016.

Figure 6: Interconnected Island Electricity Forecast



5.2 Labrador Interconnected System

Labrador interconnected load refers to all electricity loads connected to the Churchill Falls hydroelectric generating station. These include the community loads of Happy Valley / Goose Bay (including North West River and Sheshatshiu), Wabush, Labrador City, and Churchill Falls town site.

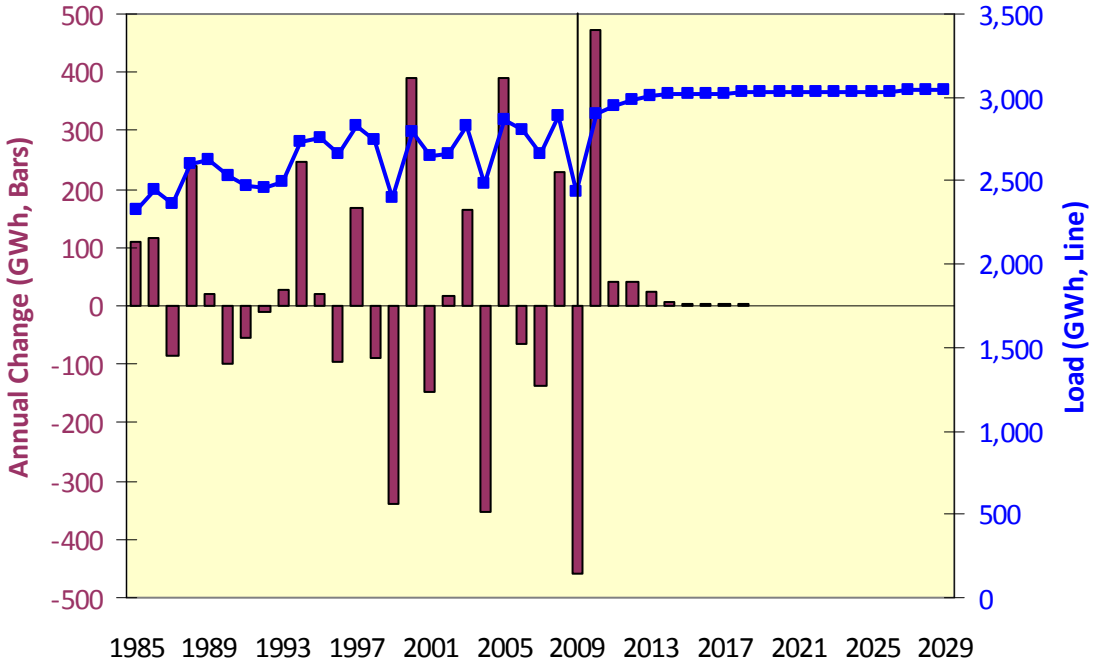
Labrador west is the major load center owing to the large industrial iron ore mining and processing operations situated at Wabush Mines and the Iron Ore Company of Canada (IOC). The majority of this industrial load is met through the Twin Falls Power Company (TwinCo) which is owned by CF(L)Co and the long term customers it serves, namely, Wabush Mines and IOC. TwinCo has an allocation of 225 MW of capacity from CF(L)Co. In addition to this, IOC has increased its power supply to support its operations and has a 62 MW power contract with Hydro. Wabush Mines also has contractual arrangements with Hydro for very small amounts of required power over and above their TwinCo allotment.

In Labrador east, Hydro sells secondary electricity to CFB Goose Bay for its steam-raising boiler that in turn provides heating services to the military base. This load has been in decline since the mid 1990's as a result of base infrastructure rationalization and Labrador east power transfer constraints during core winter periods, however when coupled with firm power sales to the Department of National Defense, electricity sales in this region for military related requirements can represent over thirty-five percent of Hydro requirements for Labrador east.

Community loads on the Labrador interconnected system are quite weather sensitive owing to the high penetration rate for electric space heating and low prices. Despite mixed and uncertain futures in iron ore operations, both the eastern and western regions are expected to experience load growth. Taken together, the Labrador interconnected load is presently about 450 MW and 3,000 GWh per year. The long-term load growth on this system is forecast at 1.1% compound annual growth across the forecast period.

Figure 7 displays historical and forecast energy requirements for the Labrador interconnected system. The large swings can again be linked back to industrial operations, weather, etc. No material change in industrial sales is included in the 2010 PLF and secondary electricity sales to CFB Goose Bay are expected to continue.

Figure 7: Interconnected Labrador Electricity Forecast



5.3 Isolated Systems

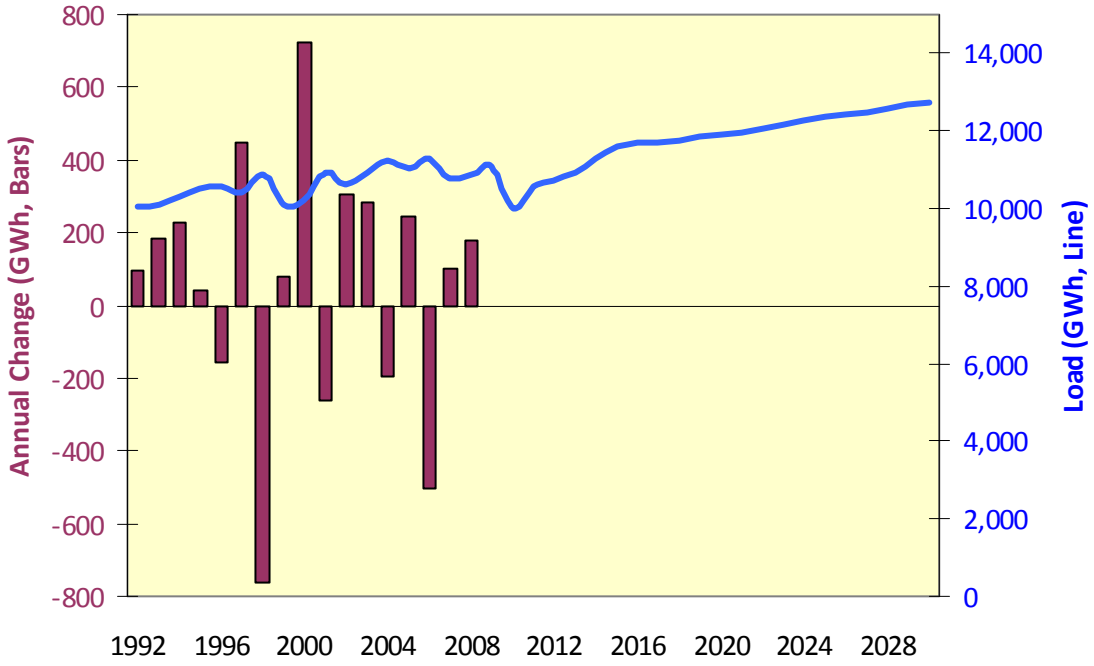
At the end of 2009 Hydro provided electricity generation and distribution services for twenty-one isolated areas of the Province[5], together serving about 4,370 domestic and general service customers. The electrical supply source on isolated systems is primarily diesel generation. The exception is on the L'Anse au Loup system where an interconnection with Hydro-Quebec enables this region's power requirements to be largely met with surplus electricity from a regional Hydro-Quebec hydroelectric plant. Total net consumption on the remaining Island diesel systems is presently about 9 GWh and is forecast to decline marginally. The fifteen Labrador diesel systems have an aggregate net consumption of some 55 GWh and continued load growth is expected through the longer term.

5 Hydro also operates a diesel generating plant for the community of Natuashish under contract with Aboriginal Affairs and Northern Development Canada.

5.4 Total Provincial Load

The total Provincial electricity load is the summation of Island and Labrador interconnected loads as well as Island and Labrador isolated loads. Non-coincident Provincial demand is currently about 2,000 MW with associated energy of 10 TWh per year. The long-term Provincial load forecast is presently forecast at 1.3% compound annual growth.

Figure 8: Provincial Electricity Forecast



APPENDIX A

2010 PLF Load Forecast Tables

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

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
ECONOMIC FORECAST																				
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
INTERCONNECTED ISLAND UTILITY IMPACTS[2]																				
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.

May 2010

2010 Planning Load Forecast
Island Interconnected Load and NLH Sales Summary

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
INTERCONNECTED ISLAND FORECAST																				
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.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
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.

May 2010

2010 Planning Load Forecast
Provincial Load Summary

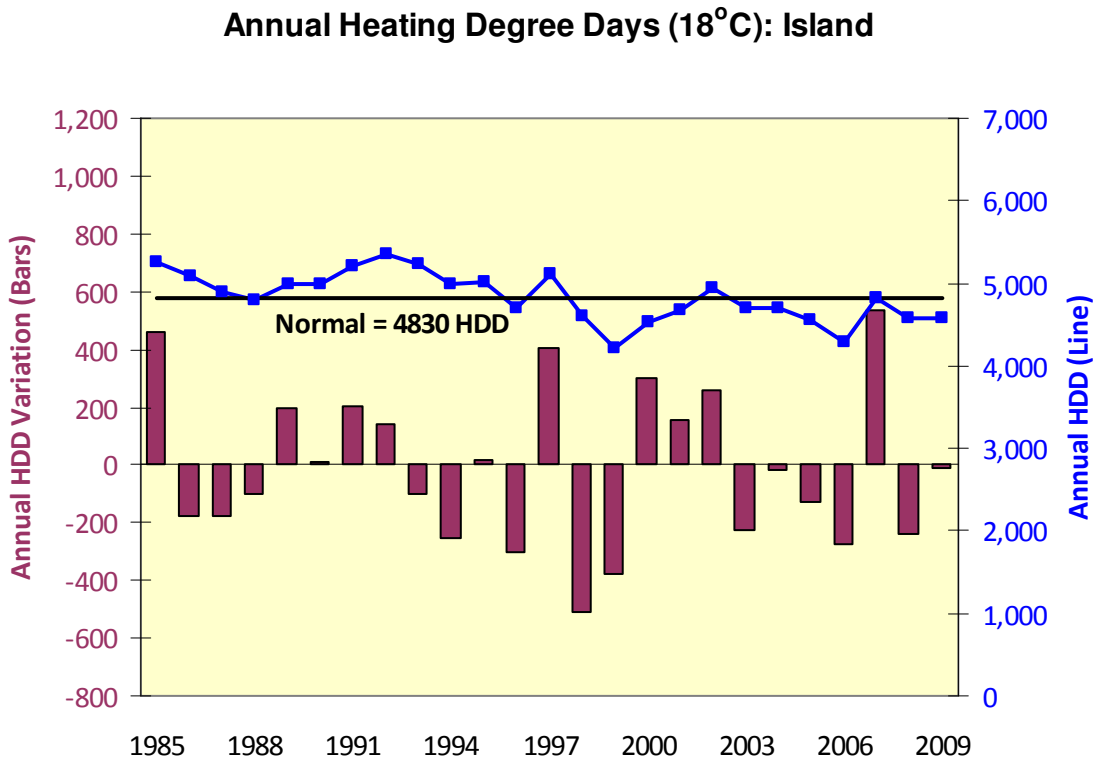
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
INTERCONNECTED ISLAND FORECAST																				
Total Requirements (GWh)	7585	7709	7850	8214	8488	8608	8626	8666	8735	8806	8872	8967	9065	9171	9235	9293	9375	9464	9545	9626
Growth Rate . . . (%)	2.2	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
Peak Demand (MW)[1]	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
Load Factor	57%	57%	57%	59%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%
INTERCONNECTED LABRADOR FORECAST																				
Total Requirements (GWh)	2904	2944	2985	3010	3016	3020	3023	3026	3028	3029	3031	3032	3033	3035	3036	3037	3038	3039	3041	3042
Growth Rate . . . (%)	19.4	1.4	1.4	0.8	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peak Demand (MW)[1]	457	458	459	460	461	461	462	463	464	464	465	465	466	467	467	468	468	469	469	470
Growth Rate . . . (%)	3.6	0.2	0.3	0.3	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Load Factor	73%	73%	74%	75%	75%	75%	75%	75%	75%	75%	74%	74%	74%	74%	74%	74%	74%	74%	74%	74%
ISOLATED ISLAND FORECAST																				
Total Requirements (GWh)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Growth Rate . . . (%)	0.0	0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Peak Demand (MW)[2]	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Growth Rate . . . (%)	6.8	0.0	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
ISOLATED LABRADOR FORECAST[3]																				
Total Requirements (GWh)	60	62	63	64	65	66	67	68	68	69	70	71	72	73	74	75	76	77	78	79
Growth Rate . . . (%)	3.2	3.4	1.6	1.5	1.4	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2
Peak Demand (MW)[2]	14	15	15	15	15	15	16	16	16	16	16	17	17	17	17	18	18	18	18	18
Growth Rate . . . (%)	3.6	2.7	1.5	1.5	1.4	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2
PROVINCIAL LOAD FORECAST																				
Total Requirements (GWh)	10558	10724	10906	11296	11578	11703	11725	11768	11840	11913	11982	12080	12179	12288	12353	12413	12498	12589	12672	12755
Growth Rate . . . (%)	6.4	1.6	1.7	3.6	2.5	1.1	0.2	0.4	0.6	0.6	0.6	0.8	0.8	0.9	0.5	0.5	0.7	0.7	0.7	0.7
Peak Demand (MW)[2]	1992	2013	2047	2078	2145	2162	2175	2186	2196	2212	2228	2242	2261	2281	2300	2315	2329	2346	2362	2379
Growth Rate . . . (%)	-3.2	1.0	1.7	1.5	3.2	0.8	0.6	0.5	0.5	0.7	0.7	0.6	0.9	0.9	0.9	0.6	0.6	0.7	0.7	0.7

Notes:
1. System coincident peak demand.
2. Non-coincident demand.
3. Excludes Natuashish and Vale Inco loads.

May 2010

Appendix B

Weather Variation on the Island and in Labrador

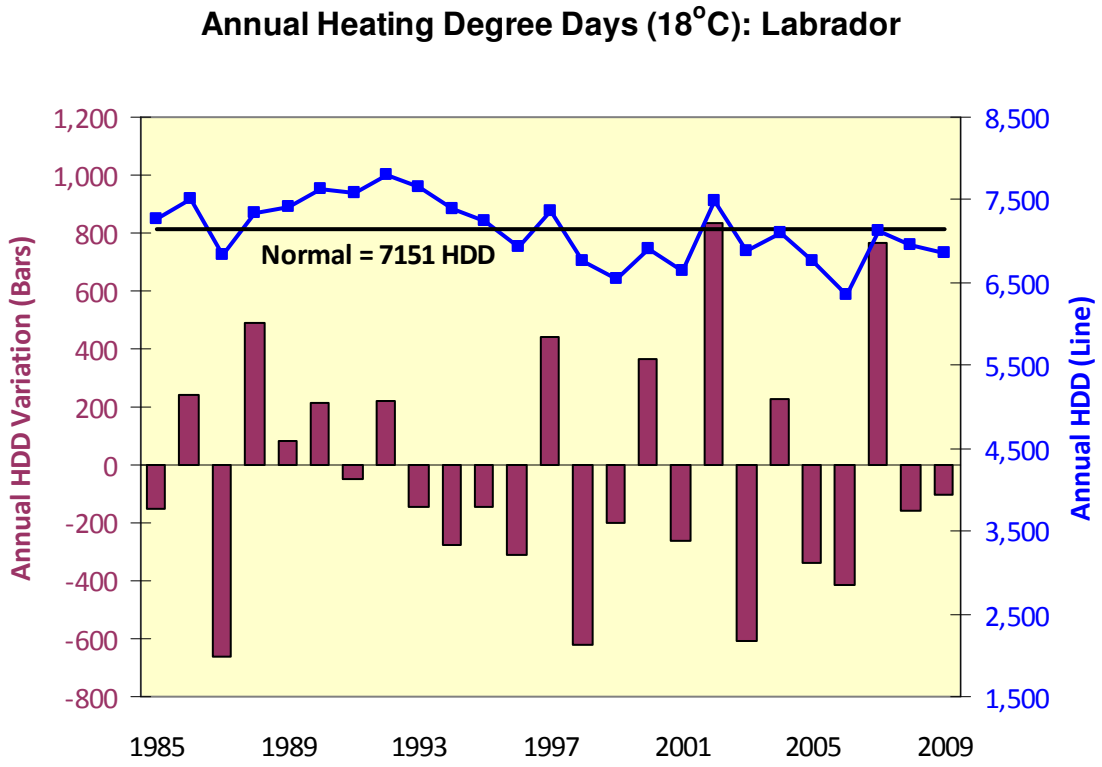


Since electricity has a prominent share in the space heating end-use market in the Province, electricity demand and utilization is very weather sensitive. Weather impacts the amount of energy used over the duration of a heating season: the greater the number of heating degree days, the greater the energy requirement to maintain a temperature/comfort standard. Weather also affects the demand at any given point in time during the heating season in that adverse windchill conditions results in an incremental loss of diversity across customers. Electric utility companies meet demand on an ongoing basis taking into account an expected diversity of demand across customers. The power system is planned on the basis of "normal" heating degree day requirements and windchill conditions, and not extremes.

Utilizing Environment Canada data for St. John's, Gander, and Stephenville, the average weighted heating degree days for the Island are approximately 4,830 based on an 18°C heating standard. The Island has experienced years more than 13 percent warmer than this normal and over 12 percent colder. In the past decade, the peak day windchill conditions have ranged from a high of –16°C to a low of –31°C. For eight of the past ten years and including 2008,

heating degree days for the Island were less than normal.

Electricity loads on the interconnected Labrador system are more weather sensitive than on the Island grid owing to the higher market shares for electric space heating.



Utilizing Environment Canada data for Wabush and Goose Bay, the average weighted heating degree days for Labrador is approximately 7,155 based on an 18°C heating standard. This normal is about 50 percent higher than the Island's heating degree day normal. Within Labrador, the normal heating degree days for Labrador west are some 15 percent higher than in Happy Valley – Goose Bay. Labrador has experienced years more than 11 percent warmer than the normal and over 9 percent colder and similarly with the Island, Labrador has experienced a warmer than normal period since the mid-1990's. Peak day windchill conditions are typically colder than –40°C.