

- 1 Q. Ref: Schedule B, Project Title – Replace Substation Transformer, p. B-48.  
2 Please provide a copy of the referenced report; *Economic Analysis’*  
3 *Operating Load Forecast Hydro Rural Systems 2002-2007.*  
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6 A. See attached.



# **OPERATING LOAD FORECAST**

## **HYDRO RURAL SYSTEMS**

2002 – 2007



**Economic Analysis Section**  
**System Planning**  
**Newfoundland & Labrador Hydro**

December 2002



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## 1.0 Introduction

Hydro's primary mandate in the Province's electric power sector rests with its bulk generation, wholesale transmission, and system operation functions. Hydro also has direct distribution and customer service responsibilities for approximately 35,000 domestic and general service customers located in the more rural and remote areas of the Province. These service areas are generally referred to as Hydro Rural Systems and can be grouped into of three principal planning entities: Island Interconnected, Labrador Interconnected (Happy Valley-Goose Bay, Labrador City and Wabush) and Isolated (Island isolated, Labrador isolated, and L'Anse au Loup).

Of the 35,000 end-use customers, some 4,500 customers are situated in 25 electric power systems individually isolated from the Island or Labrador interconnected grids. Hydro operates diesel electricity generation plants in these isolated service regions and exclusively provides distribution services. While on the Island interconnected grid, Hydro shares distribution responsibilities with Newfoundland Power, all electricity distribution in Labrador comes under Hydro's purview. In total, Hydro has distribution and related responsibility for about 15% of the Province's domestic and general service customer base. Table 1 provides Hydro's end-use customer distribution by rural area.

<b>Table 1</b>				
<b>HYDRO Distribution Customers in 2001</b>				
Service Area	Domestic Customers	General Service Customers	Total Customers	As a % of Customer Base
Island Interconnected	18,995	2,826	21,821	62%
Labrador Interconnected	7,671	1,134	8,805	25%
Isolated	3,648	833	4,481	13%
Totals	30,314	4,793	35,107	100%

As part of its ongoing corporate planning process, Hydro undertakes a five-year, medium term load forecast for all of its rural systems. This analysis is undertaken through the fall of each year, with a review of systems normally carried out in the following spring. The first two years of the medium term forecast are separately detailed on a monthly basis. These load projections facilitate various system planning and operational requirements, such as:

- Rural distribution capital assessment
  - Voltage level evaluation
  - Substation loading level
  - Voltage regulation
- Rural generation capital assessment
  - Adequacy of diesel plant firm generating capability, fuel storage, diesel plant electrical equipment, evaluation of alternative generation sources, interconnection studies, etc.
- External wheeling services
- Input for reservoir management and operations scheduling (interconnected Island)
- Emission permitting
- Revenue and cost budgeting, etc.

The methodology for the rural systems' load forecast is a combination of analytical judgment and statistical analysis. Generally, the principle rate classes for each individual system are reviewed and projected separately, with larger general service customer accounts individually evaluated. To facilitate distribution and generation planning, the focus is on system peak demand. At a more aggregate level, energy and rate class detail are important for budget and regulatory related functions.

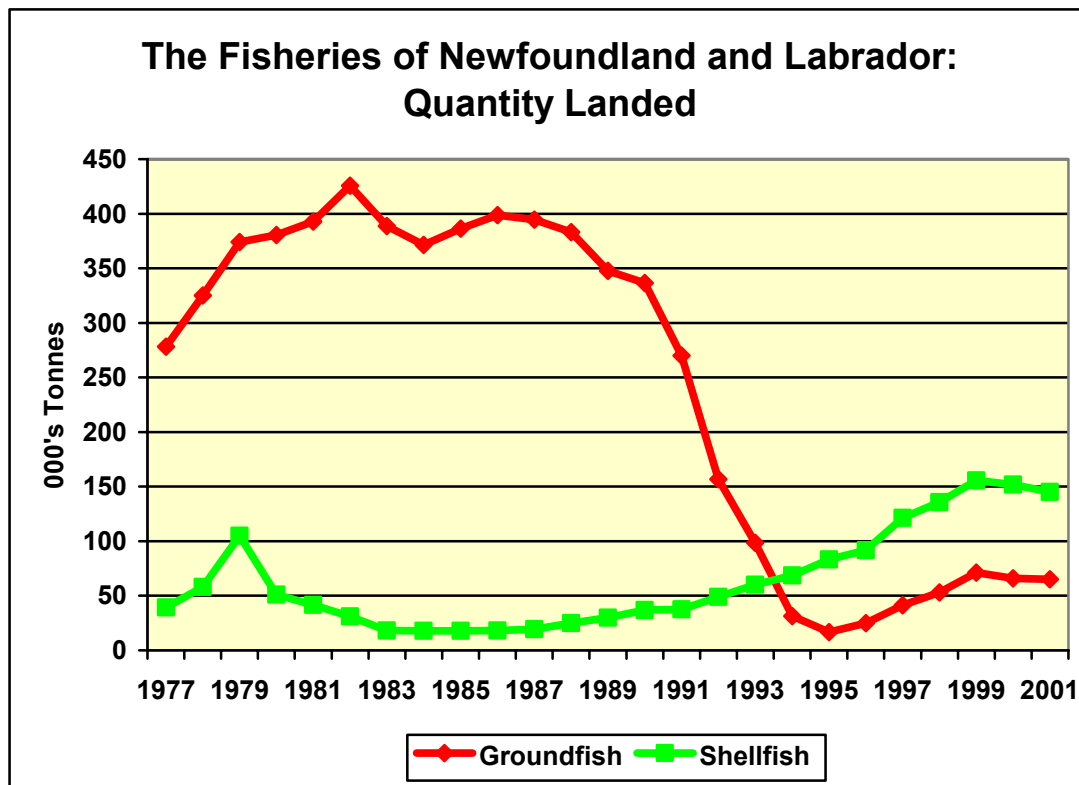
Through direct customer contact, communication with regional offices, and media monitoring, Hydro maintains an information base for all its rural systems. More generally, as economic activity and electricity utilization are highly correlated, variation in Hydro's customer and billing accounts themselves tend to be strong indicators of changes in economic activity, local income flows, and/or weather impacts.

## 2.0 Hydro Rural Systems

### 2.1 Island Interconnected

This planning area refers to all Hydro distribution systems on the Island of Newfoundland that are interconnected to the Island's power grid. Geographically, these systems are located primarily on the Northern Peninsula, Baie Verte Peninsula, Fogo/Change Islands area, and interconnected portions of the south coast (Burgeo and Bay D'Espoir areas). These distribution systems are largely defined by transmission-distribution substation locations. In total, there are 27 interconnected distribution systems on the Island requiring load forecast analysis.

Across the 1990's, the groundfish moratoria had major impacts on many communities in Hydro's rural service areas of the Province, particularly on the Island. The figure below provides the recent historical fishing harvest for the Province.



In 2001, the population of Hydro's Island interconnected service region was about 46,000 persons, representing some 9 percent of the provincial population. Out-migration in response to economic circumstance was exceptionally strong during the 1990's. Relative to the 1991 Census, the population of the Island's rural interconnected service region was about 20 percent lower in 2001. While the prognosis for provincial groundfish stocks remain poor, the shellfish harvest has proven to be a positive substitute for a number of Hydro's service areas including St. Anthony, Jackson's Arm, and Fogo. No major changes in total seafood landings are foreseen in the short term. However, overall customer growth has been very weak across Hydro's Island rural systems and there is little basis to expect a change in recent trends.

## **2.2 Labrador Interconnected**

This planning area refers to all customer loads interconnected to the Churchill Falls hydroelectric generating station over three distribution systems. These include the community loads of Happy Valley-Goose Bay, North West River, Sheshatshiu, Wabush, Labrador City, and non-designated station service loads located in and around Churchill Falls. In addition, this interconnected region includes the industrial mining-processing loads situated at Wabush Mines and the Iron Ore Company of Canada. This Hydro service area was generally unaffected by the fishery restructuring and its load growth prospects are linked to the continuation of regional mining and service industry activities. The development of nickel and associated minerals in northern Labrador can be expected to have material consequences for the regional service economy. Additional resource development in the area would provide further economic stimulus to the area.

The population of Hydro's Labrador interconnected service region was approximately 20,000 persons in 2001, representing almost 4 percent of the provincial population base. Restructuring in iron ore operations resulted in out-migration from Labrador West during the 1990's leading to about a 10 percent population decline for the service region against the 1991 Census count. The population in Labrador East has tended to be more stable than in Labrador West.



## 2.3 Isolated

For 2001, this planning entity consisted of twenty-five diesel electric generation plants operated by Hydro and located along more remote locations of the Island and Labrador coasts. L'Anse-au-Loup is actually supplied primarily via an interconnection with Hydro-Quebec through a secondary sales contract. For the nine Island diesel systems, prior to Harbour Deep re-location during 2002, the aggregate population estimate was 2,100 persons in 2001. This population base is estimated to have declined by some 30 percent relative to the 1991 Census. The 2001 Census population estimate for the aggregate sixteen Labrador diesel systems was 5,900 persons, essentially stable against the 1991 and 1996 Census counts. The positive impacts of the shellfish industry tend to be more apparent for certain Labrador diesel systems than remote communities on the Island. Shellfish processing is underway at Mary's Harbour, Charlottetown, Black Tickle, St. Lewis, Makkovik, and Cartwright.

Table 2					
Provincial Isolated Electric Systems Year End 2001					
Domestic Customers*					
Island Domestic Customers		Labrador Domestic Customers			
Rencontre East	74	L'Anse-au-Loup	749	Makkovik	127
McCallum	57	Mary's Harbour	211	Postville	80
Francois	57	St. Lewis	107	Hopedale	173
Grey River	59	Port Hope Simpson	174	Davis Inlet	140
Ramea	330	William's Harbour	27	Nain	331
Petites	14	Charlottetown	138	Paradise River	20
Harbour Deep	69	Norman Bay	16	Rigolet	119
Little Bay Islands	116	Black Tickle	82		
St. Brendan's	128	Cartwright	250		
*Excludes church and school accounts.					

## 3.0 Household Equipment

Hydro's rural areas encompass a broad spectrum of production costs and market conditions, ranging from low prices and high market share in competitive end-uses in

Labrador West, to high prices and low market share in competitive end-uses in isolated systems. Internal survey information from 2001 is used for contrasting customer characteristics across Hydro's rural areas.

**Table 3**  
**Hydro's Customer End-use Characteristics 2001**  
(Percentage of Households)

End-Use	Island Inter- connected	Labrador Interconnected		L'Anse au Loup	Island Diesel	Labrador Diesel	Hydro Rural
		East	West				
Electric:							
Heat	19%	92%	92%	6%	11%	<5%	34%
Hot Water	89%	100%	99%	80%	85%	83%	91%
Cooking	98%	100%	100%	99%	99%	98%	98%
Freezers	90%	84%	81%	84%	90%	89%	87%
Refrigerators	96%	98%	99%	94%	97%	87%	96%
Dishwasher	28%	44%	75%	32%	19%	17%	33%
Microwave	90%	91%	91%	88%	87%	74%	88%
Washer	91%	92%	92%	91%	88%	79%	89%
Dryer	93%	94%	91%	90%	90%	80%	91%
TV(s)	99%	99%	99%	98%	100%	100%	99%
Computer	30%	55%	62%	34%	32%	37%	36%

Across the standard appliance end-uses, there is little meaningful variation across households in Hydro's rural service areas. From a load perspective, the principle distinction is whether or not electricity is used for space heating. Customers on the interconnected Labrador system generally enjoy low prices for electricity and as a result the market share for electricity in the competitive end-use of space heating tends to be very high. Electric water heating is a major end-use demand across all of Hydro's service areas, including Isolated. It is also apparent from Table 3 that, excluding the dishwasher, most durable appliance end-use markets are essentially saturated.

## 4.0 Electricity Utilization

The three basic electricity consumption categories are ① basic household use, ② basic household use plus hot water, and ③ basic household use plus hot water plus space heating. Average domestic electricity consumption across Hydro's service regions reflects the primary end-use distinctions outlined previously in section 3.0, as well as other varying factors impacting end-use consumption such as weather, income, and price.

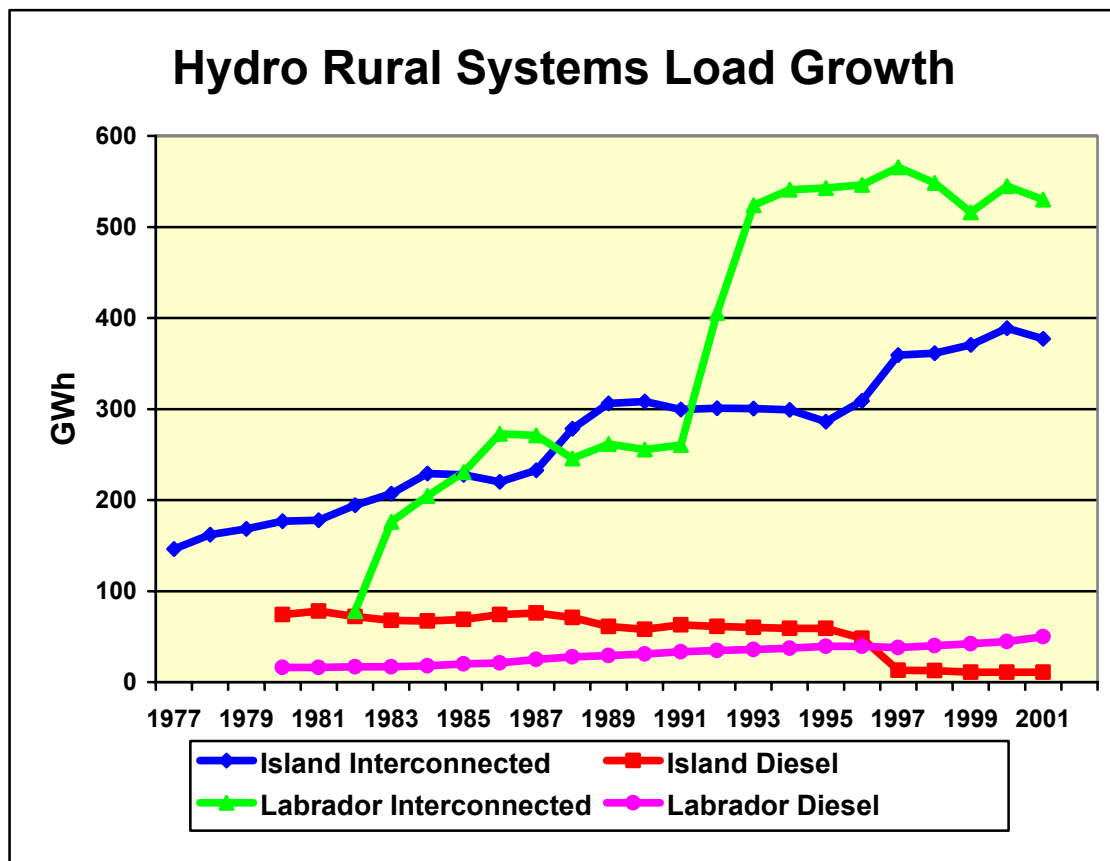
<b>Table 4</b> <b>Hydro Rural Domestic Electricity Consumption Levels</b> <b>(Average kWh per Year per Customer Grouping)</b>							
	Island Inter- connected	Labrador Interconnected		L'Anse au Loup	Island Diesel	Labrador Diesel	Hydro Rural
		East	West				
Regular Household Use	7,375	NA	NA	7,740	6,390	6,840	7,295
Regular use Plus Water Heating	10,860	NA	NA	10,460	8,525	10,190	10,550
Regular use Plus Water Heating Plus Space Heating	21,375	30,635	47,615	18,620	15,990	NA	32,880
Source: Hydro's 2001 Customer Survey. Billing records based on April 2000 to March 2001.							
'NA' refers to insufficient sample returns due to insufficient market share.							

The consumption statistics primarily reflect the contrasting market shares for electric space heating across Hydro's service areas as it interacts with weather factors.

Historical load growth for these areas embodies an extensive number of demographic and economic factors impacting on system load over time. For the isolated systems, the inverted rate structure has limited the market share of electric heat. By contrast, favourable electricity prices on the interconnected Labrador system have resulted in

electricity being the fuel of choice for space heating. Electric hot water heating has strong market share across all Hydro rural areas due to convenience, cost, and few practical alternatives. The market share on the isolated systems has been assisted by the rate structure that provides a “lifeline” block of consumption at Island interconnected rates.

On the Island there have been significant interconnections over time of isolated service areas to the interconnected grid, the largest of which was the St. Anthony region in 1996. Historical growth on the Labrador interconnected grid is linked to sustained customer growth on the HV– GB system, the rise of electric heat, firm and secondary loads linked to the region’s military presence, and service region expansion into western Labrador. The figure below provides a historical view of load growth by service area.



Labrador diesel systems have the highest underlying load growth rates of Hydro’s rural systems due to ongoing customer additions and increasing average consumption. Overall, these particular systems have recorded about 5 % – 6 % average annual growth.

While the Labrador interconnected system represents only 25 percent of Hydro’s rural customer base, it now accounts for over 50 percent of firm or non-secondary rural sales. The Island interconnected system, which accounts for over 60 percent of customers, provided just over 40 percent of rural sales in 2001. Labrador and Island isolated systems account for 6 and 1 percent of rural sales respectively.

Across rural systems, domestic sales dominate over general service. Hydro has only 10 customers at 1,000 kVa service and above and, except for two customers in Happy Valley – Goose Bay, they are primarily located on the Island interconnected system (a notable exception being the shrimp plant on the Charlottetown diesel system). Medium sized general service accounts (i.e. 110 – 1,000 kVa) are an important customer group for Hydro since, despite accounting for 1 – 2 percent of the general service customer base, they command in the order of 45 percent of general service sales. Table 5 provides the relative sales profile by customer class and rural service area in 2001.

<b>Table 5</b> <b>Hydro Rural Electricity Sales 2001</b> <b>GWh (Non-Secondary)</b>					
	Domestic	General Service	Lighting	Total Sales	%
Island Interconnected	210	133	3	346	41%
Island Isolated	7	3	<1	10	1%
Labrador Interconnected	245	188	1	434	52%
Labrador Isolated	26	20	<1	46	6%
Total Sales	488	344	4	836	100%
%	58%	41%	<1%	100%	-

During 2001 Hydro undertook to code its general service customers into industry classifications as per the North American Industry Classification System (NAICS) in use by Statistics Canada. NAICS enables Hydro to group customers according to the their similarity of production or services. Thus the classification system is a lens through which to view the industry characteristics of otherwise aggregated general service sales.

As detailed below, six industries account for over 75 percent of general service sales across Hydro's rural service regions. The single largest general service industry grouping is direct public administration consisting of municipal, provincial, and federal general service accounts. Such accounts generate almost 30 percent of Hydro rural commercial sales. Retail trade and manufacturing industry sectors each account for about 15 percent of general service sales. Note that some 90 percent of manufacturing sales are in fact electricity sales to the numerous seafood processing establishments located in Hydro Rural service regions. The remaining three main industry groupings each accounting for about 7 percent of general service sales are accommodation and food service, educational services, and health care. Educational and health care services could technically be aggregated with public administration because of their source funding. In such a case, government based general service accounts can be seen to generating in excess of 40 percent of general service electricity sales across Hydro's rural service regions.

**Table 6 - Hydro Rural 2001 General Service Sales Distribution**

NAICS Group	Island Intercon- nected	Happy Valley	Labrador City	Wabush	Labrador Diesel	L'Anse au Loup	Island Diesel	Total Hydro Rural
Public Admin	15%	59%	13%	26%	24%	15%	26%	29%
Retail Trade	17%	12%	23%	10%	14%	21%	13%	16%
Manufacturing	28%	1%	0%	1%	35%	23%	26%	13%
Education	8%	2%	11%	9%	8%	4%	16%	7%
Accom./Food	7%	7%	8%	6%	6%	15%	1%	7%
Health Care	7%	7%	12%	0%	3%	4%	3%	7%
All Other	18%	12%	32%	48%	10%	17%	15%	21%
Total	100%	100%	100%	100%	100%	100%	100%	100%
GS Sales GWh	133	102	59	27	15	5	3	344

## **5.0 Hydro Rural Systems Load Forecasts**

Table 7 provides the peak demand load forecast detail for Hydro's rural interconnected systems. For the Island interconnected system the majority of the rural distribution systems now exhibit a stable peak demand from one year to the next. In the absence of new service requests of a material nature, the forecast is presented as the historical average or representative system peak of recent years. The energy requirements for the Island interconnected distribution systems are analyzed and forecast in aggregate as part of the long-term provincial load forecast.

In tables 8 and 9 the demand and energy projections for Hydro's individual isolated systems in the Province are presented. Table 10 provides a summary of load growth for Hydro Rural service areas.

Table 7 Interconnected Hydro Rural Distribution System Peaks - HROPLF Nov/02 (Winter Season Peak Demand kW)						
<b>Great Northern Peninsula</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Rocky Harbour	4,510	4,541	4,573	4,604	4,636	4,667
Wiltondale	135	135	135	135	135	135
Glenburnie	2,167	2,167	2,167	2,167	2,167	2,167
Hawkes Bay	7,146	7,146	7,146	7,146	7,146	7,146
Daniel's Harbour	1,120	1,120	1,120	1,120	1,120	1,120
Cow Head	1,864	1,864	1,864	1,864	1,864	1,864
Plum Point	3,917	4,191	4,197	4,204	4,210	4,210
Bear Cove	5,029	5,029	5,029	5,029	5,029	5,029
Parsons Pond	889	889	889	889	889	889
St. Anthony	7,509	7,509	7,509	7,509	7,509	7,509
Roddickton	3,068	4,003	4,007	4,016	4,023	4,025
Main Brook	625	625	625	625	625	625
<b>Baie Verte Peninsula</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
South Brook	6,474	6,474	6,474	6,474	6,474	6,474
Ming's Bight	7,136	7,127	7,111	6,545	6,599	6,583
Little Bay	654	651	650	649	648	647
Coachman's Cove	651	647	644	641	640	638
Westport	456	464	472	478	484	491
King's Point	2,751	2,775	2,798	2,821	2,123	2,123
White Bay (summer peak)	3,240	3,240	3,240	3,240	3,240	3,240
<b>Fogo/Change Islands</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Farewell Head	5,272	5,361	6,444	6,565	6,632	6,700
<b>South Coast</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Monkstown	269	269	269	269	269	269
Petite Forte	175	175	175	175	175	175
Hermitage	12,361	12,361	12,361	12,361	12,361	12,361
St. Alban's	5,903	5,903	5,903	5,903	5,903	5,903
Hope Brook	700	700	700	305	305	305
Burgeo	3,799	3,807	4,075	4,070	4,064	4,059
Long Harbour	76	76	76	76	76	76
<b>Labrador</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Labrador East	54,323	56,838	58,271	59,712	61,161	62,618
Labrador West	63,658	64,926	65,114	65,305	65,493	65,682



Table 8						
Isolated Hydro Rural Distribution System Demand Forecasts - HROPLF Nov/02						
<b>Island - kW (Gross)</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Francois	283	287	286	285	284	284
Grey River	240	243	243	241	240	239
Harbour Deep	135	Re-located during 2002 and de-commissioned.				
Little Bay Islands	657	798	798	797	796	795
McCallum	244	252	253	255	256	257
Petites	56	56	54	53	52	50
Ramea	1,311	1,327	1,320	1,307	1,294	1,282
Rencontre East	309	315	318	321	324	327
St Brendans	427	427	425	424	422	421
<b>Labrador kW (Gross)</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Black Tickle	504	521	522	523	524	526
Cartwright	953	985	996	1,009	1,022	1,035
Charlottetown	1,376	1,384	1,399	1,413	1,425	1,438
Davis Inlet/Natuashish	821	1,319	1,354	1,390	1,430	1,435
Hopedale	786	807	863	878	893	908
L'Anse au Loup	3,594	3,774	3,915	4,045	4,165	4,277
Makkovik	750	774	788	802	817	831
Mary's Harbour	888	974	987	1,005	1,024	1,043
Nain	1,441	1,547	1,596	1,678	1,762	1,831
Norman Bay	56	57	59	60	62	63
Paradise River	60	56	47	48	48	49
Port Hope Simpson	686	712	743	770	798	827
Postville	320	348	374	384	393	401
Rigolet	528	538	552	565	577	590
St. Lewis	534	551	550	553	558	562
Williams Harbour	96	96	97	98	98	99

Table 9							
Isolated Hydro Rural Distribution System Energy Forecasts - HROPLF Nov/02							
<b>Island MWh (Gross)</b>	<b>2001A</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Francois	818	840	851	849	846	844	843
Grey River	716	723	731	731	727	723	719
Harbour Deep	772	568	Re-located during 2002 and de-commissioned.				
Little Bay Islands	1,825	1,973	1,948	1,948	1,944	1,941	1,938
McCallum	624	665	687	691	694	697	700
Petites	158	155	153	149	146	142	139
Ramea	4,574	4,596	4,651	4,628	4,583	4,538	4,493
Rencontre East	947	1,007	1,025	1,034	1,043	1,052	1,061
St Brendans	1,136	1,136	1,136	1,133	1,129	1,126	1,122
<b>Total Island</b>	11,570	11,663	11,183	11,163	11,112	11,062	11,015
<b>Labrador MWh (Gross)</b>	<b>2001A</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Black Tickle	1,633	1,593	1,604	1,612	1,619	1,627	1,635
Cartwright	4,332	4,251	4,392	4,444	4,501	4,559	4,617
Charlottetown	4,905	5,117	5,198	5,279	5,349	5,414	5,481
Davis Inlet/Natuashish	3,136	3,410	3,754	4,486	4,629	4,787	4,810
Hopedale	3,102	3,467	3,565	3,824	3,893	3,962	4,032
L'Anse au Loup	14,316	15,433	16,207	16,810	17,369	17,880	18,360
Makkovik	3,066	3,133	3,232	3,289	3,349	3,408	3,468
Mary's Harbour	4,100	4,156	4,549	4,609	4,690	4,778	4,867
Nain	5,964	6,320	6,783	6,995	7,355	7,721	8,021
Norman Bay	151	161	165	169	173	177	181
Paradise River	196	167	157	134	137	138	139
Port Hope Simpson	2,420	2,605	2,738	2,851	2,951	3,054	3,160
Postville	1,269	1,329	1,448	1,555	1,595	1,633	1,665
Rigolet	1,880	2,031	2,070	2,125	2,175	2,224	2,274
St. Lewis	2,106	2,110	2,160	2,159	2,171	2,196	2,214
Williams Harbour	403	397	396	398	401	403	407
<b>Total Labrador</b>	52,980	55,680	58,419	60,741	62,356	63,962	65,331
Labrador less L'Anse au Loup	38,664	40,247	42,212	43,931	44,987	46,082	46,970

<b>Table 10 - Hydro Rural Systems</b> <b>HROPLF Nov/02 - Load Growth Summary</b>								
<b>Total Energy</b>	<b>1997-2002</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2001-2007</b>
Interconnected Island	2.2%	6.0%	0.6%	0.6%	0.2%	-2.1%	0.4%	0.9%
Island Isolated	-3.7%	0.8%	-4.1%	-0.2%	-0.5%	-0.5%	-0.4	-0.8%
Labrador West	1.5%	7.6%	-0.1%	1.0%	0.3%	0.3%	0.3%	1.5%
Labrador East	0.9%	6.7%	3.5%	3.4%	2.5%	2.4%	2.4%	3.5%
L'Anse-au-Loup	8.1%	7.8%	5.0%	3.7%	3.3%	2.9%	2.7%	4.2%
Labrador Isolated	5.7%	4.1%	4.9%	4.1%	2.4%	2.4%	1.9%	3.3%
<b>Aggregate Rural Energy</b>	<b>1997-2002</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2001-2007</b>
Total Hydro Rural Areas	1.8%	6.5%	1.2%	1.6%	0.9%	-0.0%	0.9%	1.8%

## **6.0 Systems Notes**

The following notes highlight any significant factor or observation that is influencing the load on a given rural distribution system. Weather conditions and the capacity utilization rate of seafood processing facilities have a strong influence on the rural sales from one year to the next.

### **6.1 Island Interconnected**

#### **Great Northern Peninsula**

Wiltondale:	No material load changes anticipated.
Glenburnie:	Parks Canada has new load on this system for its Gros Morne Discovery Center in Woody Point.
Rocky Harbour:	<p>A Bonne Bay Heath Centre at Norris Point officially opened in June 2002.</p> <p>The Bonne Bay Marine Research Center (MUN) at Norris Point was completed in February 2002. This center utilizes a salt-water heat exchange system for space heating purposes..</p> <p>Holland's Memorial in Norris Point will likely close as a school facility due to the fact that Rocky Harbour Elementary is being expanded to an all grades school. Connected load will increase to 800 kW.</p>
Bear Cove:	Viking Sea Products Ltd seafood processing operations at Anchor Point are active at about 2 GWh per year. Possible new ice making equipment may increase this facility's summer peak.
Cow Head:	A seafood processing plant has not secured crab or shrimp licensing and activity is limited.
Parson's Pond:	The school reorganization called for the closing of St. Francis Elementary School and bussing of students to Cow Head.
Daniel's Harbour:	Norland Aquaculture Ltd salmon and rainbow trout fish farm is active. This facility is now a feeder facility for Bay D'Espoir facilities that bring the fish to market size.
Hawke's Bay:	This now includes previously separate distribution systems of Hawke's Bay and Port Saunders.

Port au Choix council is seeking \$ 1.7 MM for water system improvements.

The FPI shrimp plant at Port au Choix operates with an average consumption of about 4 GWh.

Plum Point: James Doyle & Sons seafood plant at New Ferrolle has been disconnected since September 2001.

The Black Duck Cove shrimp plant is not forecast to be in operation.

A new 33,000 sq ft K-12 school opened in September 2002.

St. Anthony: St. Anthony Seafoods Ltd local shrimp plant operations are operating at an aggregate average load approaching 5 GWh. Chianti Food Processors Inc. has been purchased by St. Anthony Seafoods following receivership. The processing previously at Chianti has been terminated. To date, St. Anthony Seafoods have been unsuccessful in obtaining a crab processing license.

A new \$8 MM stadium is being discussed for St. Anthony.

There have been media reports of a 90,000 square feet iceberg bottling plant planned for St. Anthony by 2004.

A prospective regional cruise line, Transboreale Cruise Inc, will include St. Anthony in its ports of call.

Main Brook: New sawmill load started up in 2000. Additional sawmill loads are possible.

Roddickton: Englee Seafoods crab processing plant is forecast with an expected average load of over 0.7 GWh. There have been media reports of crab supply problems for this facility. During 2002 a replacement processing plant commenced.

The fish plant at Bide Arm is disconnected.

Canada Bay Lumber is forecast to operate through the forecast period.

In the fall of 2002 North Chip operations were disconnected. Operations may or may not re-commence depending on resource

availability. For now, North Chip have been excluded in the forecast period.

Canada Bay Lumber has constructed a particleboard plant originally for start-up in 2002, but now delayed until 2003, with a diversified peak demand estimated at 900 kW. This is expected to be a 10-month operation, 24 hrs x 7 days, providing 75–80 jobs. Plant will use by-products of lumber production. Load at this facility has the potential to increase significantly should the owners decide to proceed with a laminating plant.

A new 28,000 sq ft school opened in September 2002.

### **Baie Verte Peninsula**

**White Bay:** Recent strong sales are attributed to the new shrimp plant at Jackson's Arm operated by RJP Seafoods Ltd. which began operations in 1999. The annual aggregate load for this operation plant is about 2 GWh.

White Bay Ocean Products operations, also in Jackson's Arm, are operating with an average load also of about 2 GWh annually.

A fishing-tourism lodge will open at Sop's Arm.

**South Brook:** The FPI crab plant at Triton is operating at an average load of about 3 GWh per year.

In the fall 2001 Triton Ocean Products completed construction of a mussel processing plant at Triton.

The closure of South Brook Academy has been postponed.

**King's Point:** Development of Hammerdown gold property is underway. This reserve adds five years to the milling operations at Nugget Pond. The expected energy for this mine load is 3.3 GWh annually until terminated in December 2005.

**Little Bay:** Island Treasure Mussel Processing is not operating.

**Westport:** Modest growth following recent interconnection.

**Coachman's Cove:** The seafood operations at Fleur de Lys are not active at present. The system peak has switched back to the winter period.

The Fleur de Lys water supply was expanded in 2001.

Ming's Bight: La Scie Fisheries operates at reduced levels. The status of ownership and operations became more uncertain during 2002.

Brent's Cove school closed in 2001 and students are bussed to La Scie.

The Nugget Pond mill temporarily shut down in March 2001 due to limited ore material from the Nugget property and pending commercial production at Hammerdown. The Nugget Pond milling load would be extended for 5 years with the Hammerdown development. Reserves at Nugget Pond were, as expected, at or near depletion. Hammerdown production commenced in July 2001 with 500 tonnes of ore trucked to Nugget Pond for milling. Normal expected loads at Nugget Pond are 7 GWh and terminate December 2005. This mill is now a seasonal load.

### **Fogo Change Islands**

Farewell Head: Fogo Island Co-Op Society Ltd operations at Fogo and Joe Batt's Arm, Fogo Island Shrimp Inc at Seldom, and operations of Breakwater Fisheries Ltd at Change Islands are operating with a regional processing load in excess of 3 GWh annually.

The new hospital on Fogo Island is scheduled to be in operation in the Fall 2003. The peak demand estimate for this new facility increased dramatically in 2002 following a heating design change to electric heat. Demand is now projected to be in the order of 1,000 kW.

### **South Coast**

Hope Brook: The Grand Bruit and LaPoile distribution systems are now included under the Hope Brook system. No material changes in distribution load are expected for those two small distribution systems. Hope Brook site loads associated with environmental restoration have been assumed to be completed by the end of 2004.

Burgeo: Seafreez Foods Inc. operations in Burgeo are forecast to be less than 1 GWh per year assuming recent fishmeal operations are typical of expected loads. A seal processing plant proposed for the facility will not be proceeding.

Canadian Coast Guard is constructing a new lifeboat station with a maximum demand of 81 kW by 2002.

A water treatment plant was under construction during 2002.

A new all grade school is being constructed for the 2004 school year and has a connected load of about 350 kW.

St. Albans: S.C.B. Fisheries has been sold to NLDC – Aquaculture Corp and has been raising capital to increase production at the fish farm. Feedstock is presently sourced to the Daniel's Harbour facility. Loads are presently in the order of 1.8 GWh in aggregate. Aquaculture operations also commenced at Pool's Cove during 2002.

Hermitage: The FPI fish plant at Harbour Breton is operating with a load of some 5 GWh per year.

Con Aqua opened a new blue mussel processing plant in Harbour Breton in 2001. Secondary processing expected beyond first year of primary operations.

Sea Crest Corporation of Canada has an operation at Hermitage with a load of about 0.5 GWh.

Falcon Seafoods Ltd operations at Gaultois are operating with about a 0.5 GWh load.

A new wellness clinic opened at Conne River.

Carter Holdings Inc have replaced their Southern Port Hotel with a new and expanded facility.

The Harbour Breton Cottage Hospital closed down in September 2000 in favour of the Connigre Peninsula Community Health Care Center. Annual load is about 0.7 GWh.

A nine hole golf course is being studied for the Harbour Breton area.

Petite Forte: No material load changes anticipated.

Monkstown This system now includes South East Bight. No material load changes anticipated.

Long Harbour: Site loads are modest.



## 6.2 Labrador Interconnected

HV-GB: Owing to the incidence of electric heat, domestic consumption reflects normal weather conditions going forward.

The new hospital opened in September 2000. It is forecast with a peak demand of 2,100 kVa and energy of 6 GWh. The Melville Hospital has been torn down. The Goose Hilton, a large abandoned American barracks, was demolished during 2002.

CFB 5 Wing Goose Bay is active. Energy sales to the general service account of Department of National Defense are increasing due to ongoing conversion of some facilities from steam to electric heat. In November 2001 the RAF announced a major restructuring of its operations at 5 Wing that will lead to a decline of about 75 personnel in 2002. The Dutch forces are reviewing their Goose Bay operations and the Italian Air Force has scaled back original intentions. Notwithstanding, no material declines in energy use are anticipated. As it stands, there is ongoing uncertainty regarding the re-signing of the NATO MOU for 2006.

Planning and funding efforts are underway for a 350 seat business, educational, and cultural theatre to be called the Harry Baikie Centre.

A sewage treatment plant is possible by 2005. The water treatment plant should experience increased loads.

A new 7 –12 school, capable of accommodating up to 900 students is under construction at a cost of \$10 MM. It should be available for occupancy by Sept 2003 and have a load exceeding 1 MW. The extent of offsetting facility closures is not clear at present.

A new school has been announced for Mud Lake for occupancy by the fall 2002 school year.

A new golf club – recreational facility is under construction.

The Johnny Hill subdivision has been extended to provide a potential for 135 building lots.

A new arena is planned for the Sheshatshiu to be in service by late 2003.

Goose Bay will be a regional port of call for a prospective new regional cruise ship industry.

The federal government has announced the creation of the Mealy Mountain National Park.

As per the VBN EIS, Happy Valley-Goose Bay is expected to be a major staging area for the development and operation of the Voisey's Bay mine and milling operations. The forecast makes basic provision for VBN impacts.

There have been extensive media reporting on a potential deal to develop the Gull Island hydroelectric project.

#### Wabush

Domestic consumption reflects normal weather conditions going forward – an important consideration owing to the high market share for electric heat.

Iron ore concentrate production at Wabush Mines is presently about 4.5 million tonnes annually against a capacity of 7 million tonnes, due primarily to operational problems with the mines. In particular, there are production problems arising from water flows into the mining pits. During 2002 Wabush Mines reportedly made good progress on addressing operational problems.

#### Labrador City:

Domestic consumption reflects normal weather conditions going forward – an important consideration owing to the high market share for electric heat.

IOC capacity is increasing from 18 million to 21 million tonnes of concentrate largely in support of the Sept Isles pellet plant re-development (which was suspended in September 2001 due to market conditions). It should be noted that IOC is now more directly impacted by market developments than when it held delivery contracts with shareholders. While production was high for most of 2001, concentrate sales were down (13.2 MM tonnes) and inventories were rising. Downtime is occurring for a 5 week summer period in 2002. In late 2001 IOC announced a termination of the concentrate upgrade project pending further testing of upgrade investment results to date. IOCC have embarked on a major cost cutting initiative that could result in a considerable cut back of staff.

An oil-to-electric retrofit at the hospital will increase demand in the order of 1,000 kW.

The Government and Labrador City have begun a promotional campaign aimed at attracting a silicon smelter to Labrador West.

Quartzite production actually under way with ores shipped to Quebec for processing.

There have been reports of a school closure for Labrador West by the 2003/04 school year that are not yet incorporated into the forecasts due to uncertainty over the exact facility and subsequent facility use.

As per the VBN EIS, Labrador West is expected to be a major staging area for the development and operation of the Voisey's Bay mine and milling operations.

### **6.3 Island Diesel**

St. Brendan's:	Modest decline in customer base.
Little Bay Islands:	<p>The fish plant re-commenced operation in July 2000 after being shut down during 1999. Eveleigh's Seafoods operations added new motor and compressor loads in 2001, which when coupled with sustained operations, resulted in a peak demand of about 600 kVa. Operations commenced in April of 2002.</p> <p>The modest decline in customer base that has been evident in the underlying community load may be temporarily halted by renewed sustained seafood processing operations.</p>
Harbour Deep:	With the assistance of Government, this community re-located during 2002 and Hydro has terminated operations.
Petites:	During 2002 this community took steps to address the merits of resettling to larger regional communities. There has been a large decline in the customer base in recent years.
Ramea:	No fish plant operations are included for the forecast period. The customer base has been declining since the groundfish moratoria.
Grey River:	Modest decline in customer base. Some electric heat load has become apparent in the past couple of years.
Francois:	Modest decline in customer base.
McCallum:	Modest decline in customer base.
Rencontre East:	Only Island diesel system without declines in its customer base.

## 6.4 Labrador Diesel

### General

In 2002 Phase II of the Trans Labrador Highway from Red Bay to Cartwright will be completed. Phase III from Cartwright to Goose Bay has been announced by the Government in 2002 at a cost of \$100 million over a six year period. The southern marine terminal will be established at Cartwright from Lewisporte. Trucking will largely replace marine shipping for most southern Labrador coastal communities. Port Hope Simpson will become a regional airport with airport phase-outs at Charlottetown, St. Lewis and Mary's Harbour by the end of 2003. Various other airport and marine infrastructure improvements have been announced for coastal Labrador.

In 2000, Government announced a \$23 million Northern Coastal Labrador Strategic Initiative (NCLSI) to provide infrastructure for the communities of Nain, Hopedale, Rigolet, Makkovik, and Postville. Over a two to three year period \$8 million will be spent on new housing and major renovations to existing homes, \$6 million will be spent upgrading community roads, and \$9 million will be spent on full water and sewer servicing. During 2002 various details took shape regarding subdivision development for the targeted communities.

In 2002 a Five Year Destination Labrador Tourism Initiative was announced.

In June 2002 an agreement in principle was announced with INCO and the Government to facilitate the development of the VBN resource in northern Labrador.

### L'Anse au Loup:

This system has seen strong growth in sales since its interconnection to Hydro Quebec's Lac Robertson hydro electric generating station coupled with the provision of Island Interconnected rates. Electric heat has been increasing in market share. General service loads have materially increased.

The Labrador Fisherman's Union Shrimp Company Ltd (LFUSC) operations are forecast to average 0.9 GWh.

A new K-6 school for L'Anse au Loup has been announced for the 2002 school year. It will include a 4,000 sq ft gymnasium.

### Mary's Harbour:

The LFUSC crab plant operations are forecast to average 0.6 GWh.

There has been and will be general impacts associated with the

Trans Labrador Highway.

Government is spending \$1.4 mm to construct a personal home care facility expected to be operational by 2003. It will be 14,300 sq ft and have an expected peak demand of 75 kW.

Silica deposits in the area have been investigated.

St. Lewis: Coastal Labrador Fisheries seafood plant is forecast to average 0.22 GWh.

Trans Labrador Highway can be expected to have some impacts.

St Lewis has been selected as the location for a new regional fire training facility.

A \$300,000 has been announced for construction of a community center.

Port Hope Simpson: Trans Labrador Highway can be expected to have some impacts.

In 2002 a service request for a new sawmill load was approved and commenced operations.

William's Harbour: No material change in load anticipated.

Charlottetown: The Labrador Fisherman's Union Shrimp Company and SeaFreeze started up a new shrimp plant in the spring of 2001 under the name Labrador Choice Seafoods. Following first year operations it now has an expected peak demand of 1,000 kVa and associated energy of 2.4 GWh. This operation has not been impacted by closures of the Provincial shrimp fishery. The parties have earlier also noted their intentions to build a crab processing facility, but no commitments have been given to date and this second seafood processing load is not yet incorporated.

LFUSC has some small fishery operations in Pinsent's Arm. A 20 km road connection to the Trans Labrador Highway has been announced.

Trans Labrador Highway expected to have some impacts.

Norman Bay: The new school opened in January 2000 and has added 13 MWh to the system sales.

Some additional take-up of electric hot water heating can be

expected.

**Black Tickle:** Labrador Sea Products began operations at its modernized seafood plant began operations in the summer of 2000. The plant load is forecast at 0.36 GWh. The community peak is forecast to shift back from a winter peak to a summer or fall peak.

**Cartwright:** LFUSC operations are forecast to average 0.35 GWh. A busy crab season is generally being reported.

This community will become a regional marine shipping terminal. In addition the next phase of the Trans Labrador Highway can be expected to impact local loads.

A major sawmill operator from the Island is reportedly considering setting up an operation in Cartwright but in the absence of commitments, such a load has yet to be provided for.

**Paradise River:** Road construction related load expected to decrease. Road access may limit the decline of this isolated system.

**Rigolet:** Torngat Fish Producers Co-op Society (TFPCS) has advised they are actively considering Rigolet for a new cooked shrimp processing plant. In the absence of firm commitments, this processing load has not yet been included in the community load forecast.

Infrastructure impacts from NCLSI: a 14-lot subdivision is under development.

ACOA funding has been announced for a regional dimension store staging and marine shipping point associated with Nain quarry operations.

The historic Net Loft Building is being upgraded at a cost of \$204,000.

In 2002, the Northern store added material new loads.

**Makkovik:** TFPCS operations are forecast to average about 0.5 GWh per year.

There are community infrastructure impacts from NCLSI.

**Postville:** Infrastructure impacts from NCLSI - a 21-lot subdivision is under development.

A new \$2.0 - \$2.5 million dollar school was announced in April 2001. A new 2,400 sq ft community centre has also been announced for completion in 2002.

Hopedale: Infrastructure impacts from NCLSI – the latest is a development for another 15 serviced building lots during 2002.

There will be funding for preservation of Moravian Mission Complex sites at Hopedale.

LIDC will open a stone processing plant in 2002 in utilizing undersized materials from the Nain anorthosite quarries for manufacturing custom products. This is expected to add 0.6 GWh of load but full operation has been delayed.

Davis Inlet: Growth in load has increased strongly in the late 1990s due to a surge of Government funding. Davis Inlet load is assumed to terminate during 2003 with the full re-location of this community to Natuashish.

Natuashish Community loads build through 2003 as Davis Inlet is fully relocated. Fund raising initiatives have been underway for a recreational complex for the new community.

Nain: Spin-off activity from Voisey's Bay and related exploration activity impacted upon the overall community load. A review of the VBN EIS indicates relatively modest in-migration potential owing to the higher potential for local labour force participation rates and the fly in – fly out structure of VBN operations. However, it is worthy to note however that during construction, the VBN mine and mill complex will require 500 workers. During operations, some 400 personnel will be required.

TFPCS operations are forecast to average 0.16 GWh annually.

Infrastructure impacts from NCLSI.

LIDC anorthosite stone quarries in the Nain area are enjoying successful operations.

LIDC has undertaken building renovations and added electric space heating to offices. Incremental load to date has been under 50 kW.