Q. Please provide the pre-filed evidence of Ron Crane as provided in Cost of Capital hearings and Capital Budget hearings for the period 1996 to forecast.

A. Attached are copies of the pre-filed testimony and exhibits of Ronald Crane as filed with the Public Utilities Board during the period 1996 to 1998 inclusive. The attachments are as follows:

1. 1996 General Rate Proceeding, Testimony and Exhibits (Attachment A).
2. 1997 Capital Budget hearing, Exhibit (Attachment B).
3. 1998 Capital Budget hearing, Exhibit (Attachment C).
4. 1998 General Rate Proceeding, Testimony and Exhibits (Attachment D).

Mr. Crane has not testified in a proceeding before the Board since 1998.

**Pre-filed Testimony and Exhibits of Ron Crane
for 1996 General Rate Proceeding**

NP 1996 100-RGC-045

NEWFOUNDLAND LIGHT & POWER CO. LIMITED

DIRECT TESTIMONY OF R. G. CRANE

Q. Please state your name, address and occupation.

A. My name is Ronald Crane. I live in St. John's and I am employed as Director of Forecasts with Newfoundland Light & Power Co. Limited.

Q. What is the nature of your testimony?

A. In my testimony, I will provide an historical overview of customer and energy sales growth and identify the key factors that have influenced growth during this period. I will also review the key assumptions used in preparing the customer and energy sales forecast, and present the results for 1996 and 1997.

Q. Please provide an overview of Customer and Energy Sales growth over the last ten years.

A. Exhibit RGC-1 shows customer and energy sales by rate category for 1985, 1990 and 1995. Exhibit RGC-2 shows annual customer and energy sales growth for domestic, general service, street and area lighting, and the total company for the past ten years.

During this period, customer and energy sales growth has shifted dramatically from a period of high growth to a period of low growth. From 1985 to 1990, total customers grew at an annual rate of 2.2% while energy sales for the same period grew at an annual rate of 5.3% . This is significantly higher than the 1990 to 1995 period when total customers and energy sales grew at annual rates of only 1.6% and 0.9% , respectively. Similar declines in customer

and energy sales growth were experienced in both domestic and general service categories during this period.

Q. **What factors are responsible for this change in the growth of the Company's sales?**

A. There are many factors which affect growth, however, the two main factors responsible for the recent decline in growth are the downturn in the provincial economy and the increased competition in the space heating market.

The most important driver of energy growth is the overall state of the provincial economy. From 1985 to 1990, the Gross Domestic Product (GDP) grew at an annual rate of 1.9% . During the period from 1990 to 1995, however, GDP declined at an annual rate of 0.2% . This dramatic reduction in economic growth is attributable to a number of factors including: the recession in the early 1990's; the collapse of the ground fish stocks and the resulting moratorium; and the implementation of aggressive deficit-reduction programs at all levels of government. As well, many companies in the private sector either closed or reduced their level of operations and restructured to cope with the difficult economic times. The net result was fewer jobs and reduced income levels. The only bright spot in the economy was the Hibernia project which is currently under construction at Bull Arm. Without this project, economic conditions in the province, and energy sales, would have been significantly worse.

The other factor in the decline in the Company's sales growth is competition in the space heating market. Space heating represents the largest end use and accounts for more than half

of the energy consumed in the home. The change in the growth of the electric space heating market is primarily a result of electric space heating customers converting to other fuels.

Historically, significant numbers of oil and wood customers converted to electric space heating. However, in recent years the number has dwindled. In the past, very few customers converted from electricity to other fuels. However, in recent years these numbers have grown. Customer data indicates that in 1985 conversions resulted in an additional 1,428 electric space heating customers or 22.0 GWh of energy sales. However, in 1994 conversions resulted in a net loss of 688 electric space heating customers or a loss of 10.6 GWh in energy sales.

This change in the conversion patterns is reflected in the changing pattern of customer and energy sales growth. Prior to 1992, domestic energy sales growth exceeded customer growth. Since that time, customer growth has exceeded energy sales growth. This is a clear indication of the loss of electric space heating customers.

The combination of these two factors is principally responsible for the reduced customer and energy sales growth experienced by the Company over the past few years.

Q. Please comment on the assumptions used in preparing the Customer and Energy Sales Forecasts for 1996 and 1997.

A. The economic assumptions used in preparing the Customer and Energy sales forecasts were provided by the Conference Board of Canada and, with some minor exceptions, were used

without any modifications. While the medium to long term prospects for the provincial economy are good, short term growth in the economy will be negatively impacted by the slowing of the Hibernia project in 1996 and its completion in 1997, and the combined federal and provincial restraint programs.

The general assumptions on which these forecasts have been prepared are as follows:

1. Gross Domestic Product, in real dollars, will decline by 1.3% in 1996 and will grow by 1.0% in 1997.
2. Personal income, in real dollars, will grow by 0.2% in 1996 and 1.0% in 1997.
3. The Consumer Price Index will grow by 1.8% in 1996 and 2.0% in 1997.
4. Construction activity at the Hibernia project peaked in 1995 and will decline in 1996 and 1997.
5. The moratorium on ground fish will remain in effect during 1996 and 1997.
6. Population in our service area will decline by 0.7% in 1996 and 0.6% in 1997.
7. Housing starts will be 1,600 units in 1996 and 1,750 units in 1997.
8. The Company will continue to face aggressive competition from other fuels.
9. The Company will continue its marketing program in an effort to maintain sales.

Q. **Please comment on the Customer and Energy Sales Forecasts for 1996 and 1997.**

A. Exhibit RGC-3 shows our customer and energy sales forecast for 1996 and 1997. Overall, total customers are forecast to grow by 1.1% in both 1996 and 1997 while energy sales are forecast to increase by 0.7% in 1996 and decline by 0.3% in 1997. Over this period, energy sales in the

domestic sector are forecast to increase, while energy sales in the general service and street and area lighting sectors are forecast to decline.

Q. Please comment on the Domestic Customer and Energy Sales Forecast for 1996 and 1997.

A. Growth in the domestic sector is a function of the number of customers, and the amount of energy consumed by each customer. Domestic customer growth is mainly determined by change in population and the number of homes that must be constructed to meet that demand. While total population is projected to decline over the forecast period, primarily due to out-migration, the population of individuals 20 years of age and older is forecast to increase by 0.4% annually. Consequently, housing starts are forecast to be 1,600 units in 1996 and 1,750 units in 1997. Since housing starts account for the majority of all new domestic customers, the number of domestic customers is forecast to grow by 1.0% in 1996 and 1.1% in 1997.

The graph in Exhibit RGC-4 shows total domestic average use over the past ten years, along with the forecast for 1996 and 1997. Total domestic consumption is dependent on a number of factors including: the number of customers using electricity for space and water heating; the saturation of major electrical appliances; improvements in the overall insulation levels in electrically heated homes; and efficiency improvements in major appliances.

By far the most important factor influencing changes in the total domestic average use is the number of customers using electricity for space and water heating.

The number of customers using electricity for space heating is affected by both conversions and new construction. As previously discussed, significant numbers of customers have converted from electric space heating to other fuels in recent years. During this time, the percentage of new homes installing electric space heating has remained fairly stable at approximately 70% . However, the significantly lower number of housing starts has resulted in fewer new electric space heating customers. These factors explain why the domestic average use in Exhibit RGC-4 increased from 12,590 kWh per year in 1985 to 15,152 kWh per year in 1991 but gradually declined to 14,724 kWh per year in 1995. With growth in the number of new electric space heating customers slowing and the increase in the number of customers converting from electric space heating to other fuels, the decline in average use was inevitable.

The percentage of new customers installing electric space heating is forecast to remain at its current level, conversions to electric space heating will increase slightly, and conversion from electric space heating will decline slightly. The Company will continue to record a net loss on conversions to and from electric space heating, although at lower levels.

The second largest consumer of energy in the home is water heating. Statistics Canada survey data in Exhibit RGC-5 indicates saturation of electric hot water heating and other major appliances. Although this survey covers the entire province, the results should reasonably reflect saturation levels present in the Company's service area. Over the past ten years the electric hot water market share has grown from 80% in 1985 to 86% in 1990 to

87% in 1995. Based on our analysis of the percentage of new homes installing electric hot water heating and the numbers of conversions to and from electric hot water heating, we believe that this appliance has reached full saturation. In addition, other major appliances as shown in Exhibit RGC-5 have also reached, or are close to saturation. The only major appliance that may increase its saturation significantly is the automatic dishwasher.

Finally, overall improvements in the insulation levels in electrically heated homes, combined with the replacement of old appliances with new more energy efficient ones, will result in reduced electrical consumption.

Based on these assumptions, total domestic average use is forecast to end its decline and level off at the 1995 level. This would indicate growth in domestic energy sales of 1.1% in 1996 and 0.9% in 1997.

Q. **Please comment on the General Service Customer and Energy Sales Forecast for 1996 and 1997.**

A. In the general service sector, it is important to recognize that 84% of all energy sales are to customers in the service-producing sector of the economy. These are organizations which provide goods and services to the residential sector and to other businesses in the public and private sector. Only 16% of general service sales are to customers in the goods-producing sector, such as those in fishing, forestry , mining, manufacturing, construction, and other goods-producing industries. Therefore, when forecasting general service sales it is important

to exclude the effect of the goods-producing sector from the forecast of Gross Domestic Product. While total Gross Domestic Product is forecast to decline in 1996 by 1.3% and increase by 1.0% in 1997, the Gross Domestic Product in the service sector is forecast to decline by 0.6% in 1996 and increase by only 0.5% in 1997. In the service sector, the number of customers and energy sales will decline in 1996 and increase in 1997.

In the goods-producing sector, the primary factor influencing sales is the Hibernia project. This project, which is the Company's second largest customer, peaked in 1995. Its energy requirement is forecast to decline slightly in 1996 and drop significantly in 1997. Given the size of this customer and the fact there is nothing in the short term that can offset the negative impact that the completion of this project will have, general service energy sales will increase by 0.2% in 1996 and decline by 2.1% in 1997. In addition, the number of general service customers will decline by 0.2% in 1996 and will increase by only 0.3% in 1997.

Q. **Please comment on the Street and Area Lighting Customer and Energy Sales Forecast for 1996 and 1997.**

A. The number of street and area lighting customers is forecast to grow by 4.2% in 1996 and 3.7% in 1997. These growth figures are deceptive and mask a decline in the growth rate in the number of fixtures. If a municipality removes 25 fixtures , and 15 of those are picked up by residents, the Company statistics will show a gain of 15 new customers even though there are 10 fewer fixtures in service.

The Company is still experiencing growth in the number of street and area lighting fixtures in service, though at a dramatically-reduced rate. Yet, while the number of fixtures continues to grow, street and area lighting energy sales are forecast to decline. This reduction is largely a reflection of the Company's effort to replace mercury vapour with high pressure sodium fixtures which are more energy efficient. Under this program the Company is planning to replace up to 2,000 fixtures in both 1996 and 1997. Consequently, street and area lighting energy sales are forecast to decline by 1.5% in 1996 and by 3.4% in 1997.

Q. **How does this forecast compare to the one presented to the Board at the Capital Budget Hearing on December 11, 1995?**

A. The current forecast is slightly different from that presented to the Board on December 11, 1995. The December forecast was completed on September 22, 1995 and indicated customers would grow by 1.2% in 1996 and 1.3% in 1997 while energy sales would grow by 0.5% in 1996 but decline by 0.1% in 1997.

There are two reasons for the difference between these forecasts. First, the current forecast includes actual customer numbers and energy sales for 1995 while the previous forecast presented 8 months actual figures and 4 months forecast. Second, the current forecast uses the Conference Board of Canada's latest economic projections.

Q. **How have actual energy sales compared to your forecasts?**

A. Exhibit RGC-6 shows the energy sales forecasts and weather-adjusted energy sales for each of the past ten years. The forecast sales figures are from the annual forecasts prepared in the

fall of the previous year and were part of the Capital Budget presentations made to the Board in those years. Additionally, the 1986, 1987, 1990, and 1991 forecasts were the bases for the revenue requirement determinations presented as part of the Company's rate applications in 1986, 1987, 1989, and 1991 respectively. Over the past ten years, variances from forecast have ranged from a high of 2.9% to a low of 0.1%.

Q. Do you have any concluding comments?

A. The forecast presented in this application, reflects the economic conditions and growth prospects that prevailed while the forecast was being developed. Should these change, so will the forecast. A good example of how quickly economic and competitive conditions can change can be seen by reviewing the forecast of energy sales presented to the Board at the 1991 hearing. At that time energy sales were forecast to grow by 4.6% to 4,425.5 GWh in 1992. Today, the forecast of energy sales for 1997 is 4,400.5 GWh, 25.0 GWh lower than the 1991 forecast for 1992.

Overall, customer and energy sales growth for 1996 and 1997 are forecast to be relatively low in comparison to growth over the past 20 years but consistent with that experienced by the Company over the past four.

NP 1996 100-RGC-055

Exhibit RGC-1
Page 1 of 1

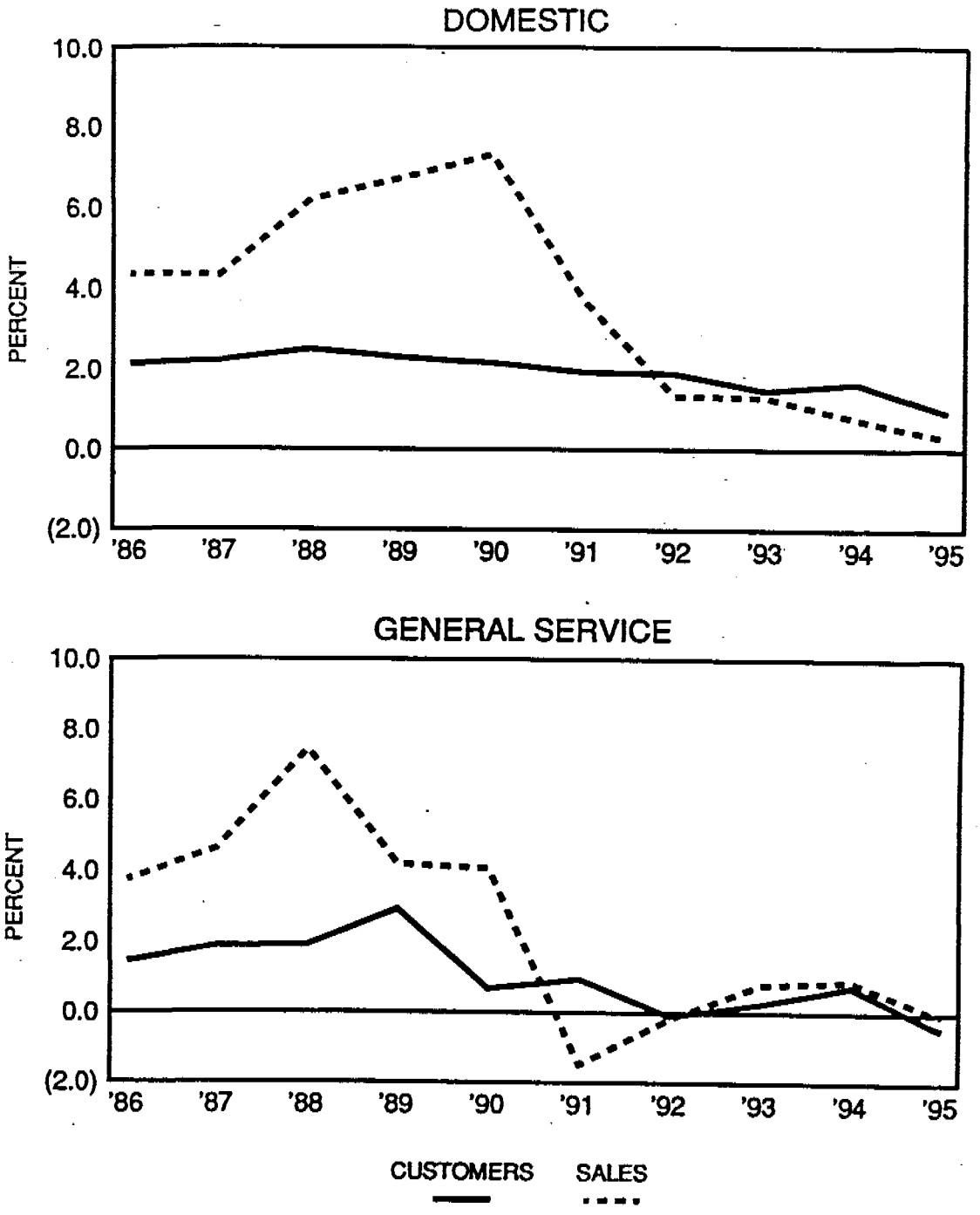
NEWFOUNDLAND LIGHT & POWER CO. LIMITED

COMPARISON OF HISTORICAL CUSTOMER AND ENERGY SALES

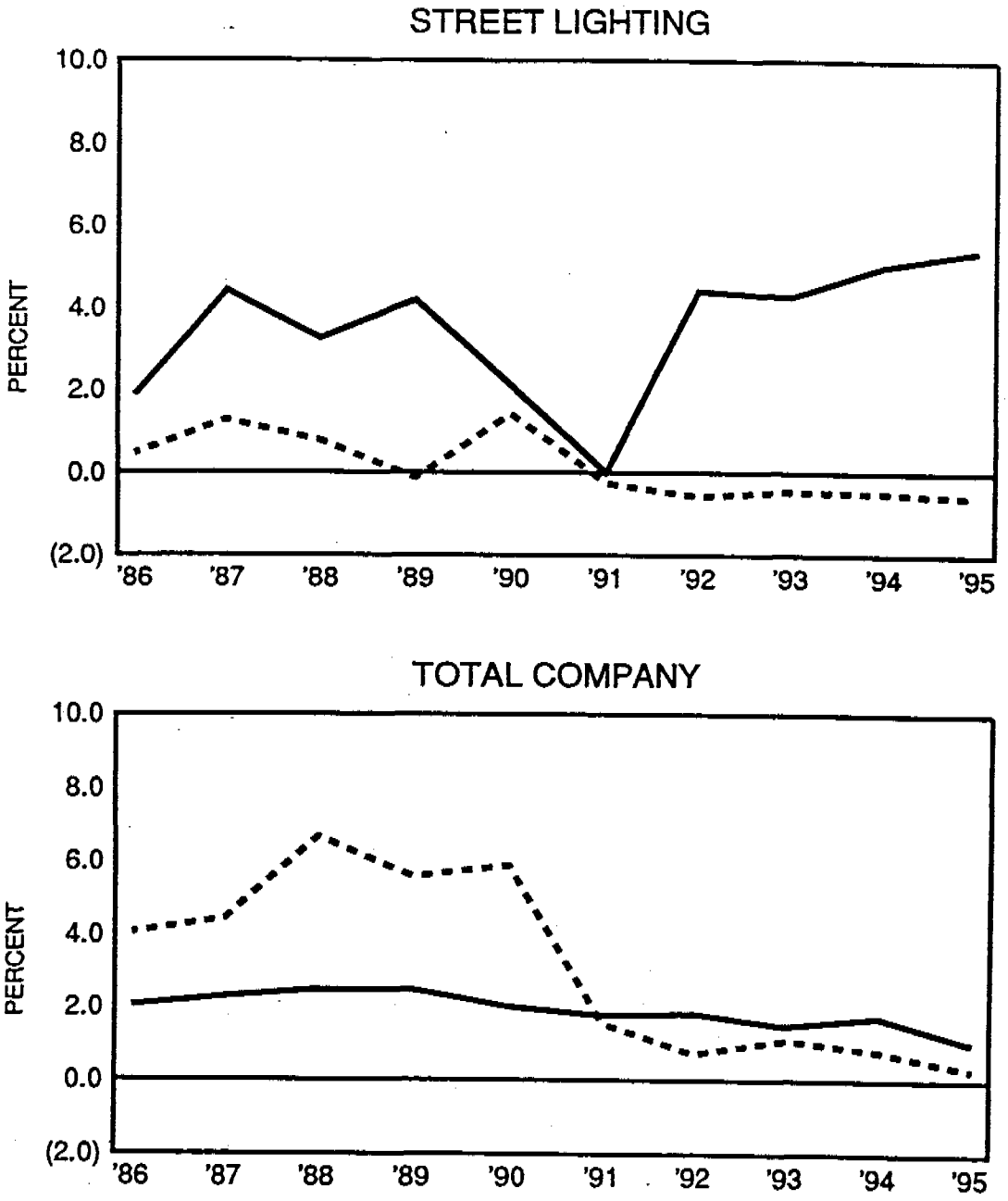
Customers		1985	1990	Average Annual Growth Rate 1985-1990	1995	Average Annual Growth Rate 1990-1995
Domestic	1.1	146,655	164,019	2.3%	177,431	1.6%
General Service						
0-10 kW	2.1	10,378	10,704	0.6%	11,117	0.8%
10-100 kW	2.2	6,933	8,076	3.1%	7,956	-0.3%
110-1000 kVA	2.3	753	930	4.3%	926	-0.1%
Over 1000 kVA	2.4	37	40	1.6%	31	-5.0%
Total Gen. Service		18,101	19,750	1.8%	20,030	0.3%
Street Lighting	4.1	7,363	8,596	3.1%	10,319	3.7%
Total Customers		172,119	192,365	2.2%	207,780	1.6%
Energy Sales (GWh)[1]						
Domestic	1.1	1,823.7	2,415.8	5.8%	2,600.0	1.5%
General Service						
0-10 kW	2.1	76.5	86.3	2.4%	89.5	0.7%
10-100 kW	2.2	444.2	548.4	4.3%	542.0	-0.2%
110-1000 kVA	2.3	548.6	714.1	5.4%	778.7	1.7%
Over 1000 kVA	2.4	305.0	388.3	4.9%	333.0	-3.0%
Total Gen. Service		1,374.3	1,737.1	4.8%	1,743.2	0.1%
Street Lighting	4.1	38.4	39.8	0.7%	38.9	-0.5%
Total Energy Sales		3,236.4	4,192.7	5.3%	4,382.1	0.9%

(1) Energy sales are weather adjusted using the methodology approved by the Board in 1995.

NEWFOUNDLAND LIGHT & POWER CO. LIMITED



NEWFOUNDLAND LIGHT & POWER CO. LIMITED



NP 1996 100-RGC-058

NEWFOUNDLAND LIGHT & POWER CO. LIMITED

CUSTOMER AND ENERGY SALES (GWH) FORECAST[1]

			Forecast			
Customers		Actual 1995	1996	% Increase Over 1995	1997	% Increase Over 1996
Domestic	1.1	177,431	179,259	1.0%	181,207	1.1%
General Service						
0-10 kW	2.1	11,117	11,063	-0.5%	11,057	-0.1%
10-100 kW	2.2	7,956	7,970	0.2%	8,020	0.6%
110-1000 kVA	2.3[2]	926	933	0.8%	938	0.5%
Over 1000 kVA	2.4[2]	31	33	6.5%	40	21.2%
Total Gen. Service		20,030	19,999	-0.2%	20,055	0.3%
Street Lighting	4.1	10,319	10,757	4.2%	11,151	3.7%
Total Customers		207,780	210,015	1.1%	212,413	1.1%
Energy Sales (GWh)						
Domestic	1.1	2,600.0	2,628.6	1.1%	2,653.3	0.9%
General Service						
0-10 kW	2.1	89.5	89.9	0.4%	90.0	0.1%
10-100 kW	2.2	542.0	541.0	-0.2%	543.4	0.4%
110-1000 kVA	2.3[2]	778.7	773.4	-0.7%	752.0	-2.8%
Over 1000 kVA	2.4[2]	333.0	343.1	3.0%	324.8	-5.3%
Total Gen. Service		1,743.2	1,747.4	0.2%	1,710.2	-2.1%
Street Lighting	4.1	38.9	38.3	-1.5%	37.0	-3.4%
Total Energy Sales		4,382.1	4,414.3	0.7%	4,400.5	-0.3%

(1) Forecast dated January 20, 1996. The forecast for 1996 has been updated to include three months actuals.

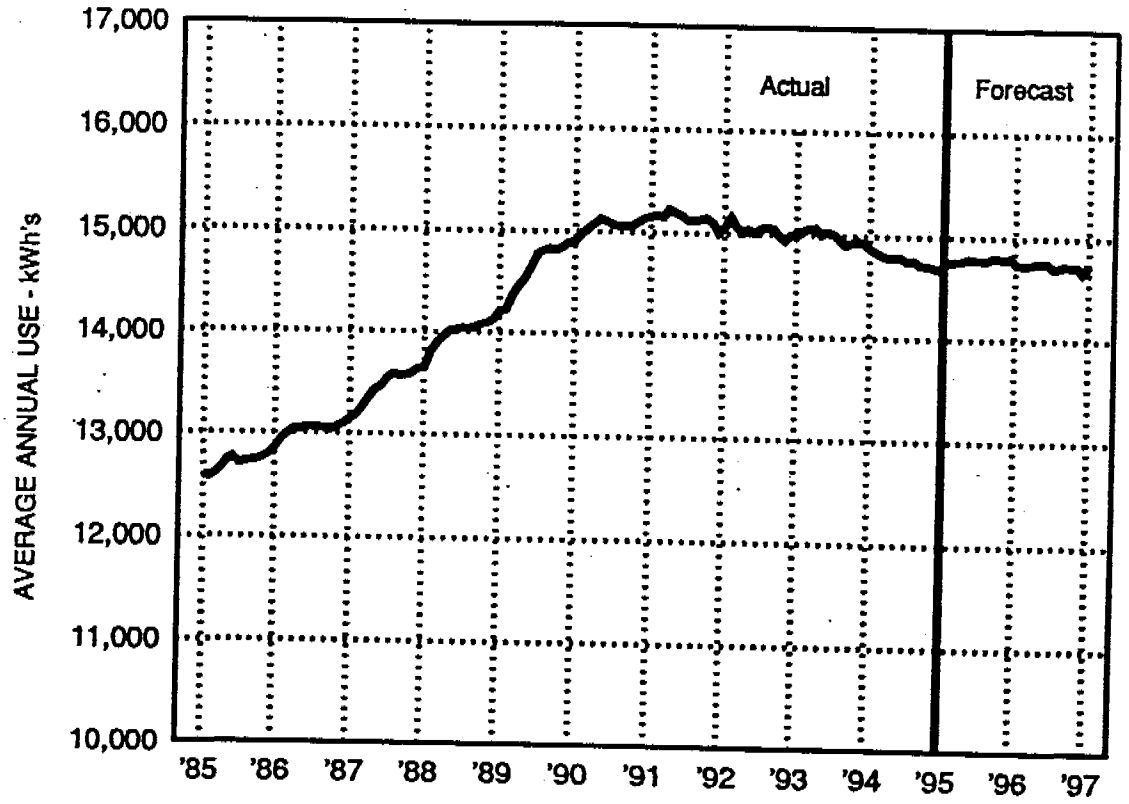
(2) The customer and energy sales forecast for rate 2.3 and 2.4 reflect the proposed change in availability of rate 2.4 effective November 1, 1996.

NP 1996 100-RGC-059

Exhibit RGC - 4
Page 1 of 1

NEWFOUNDLAND LIGHT & POWER CO. LIMITED

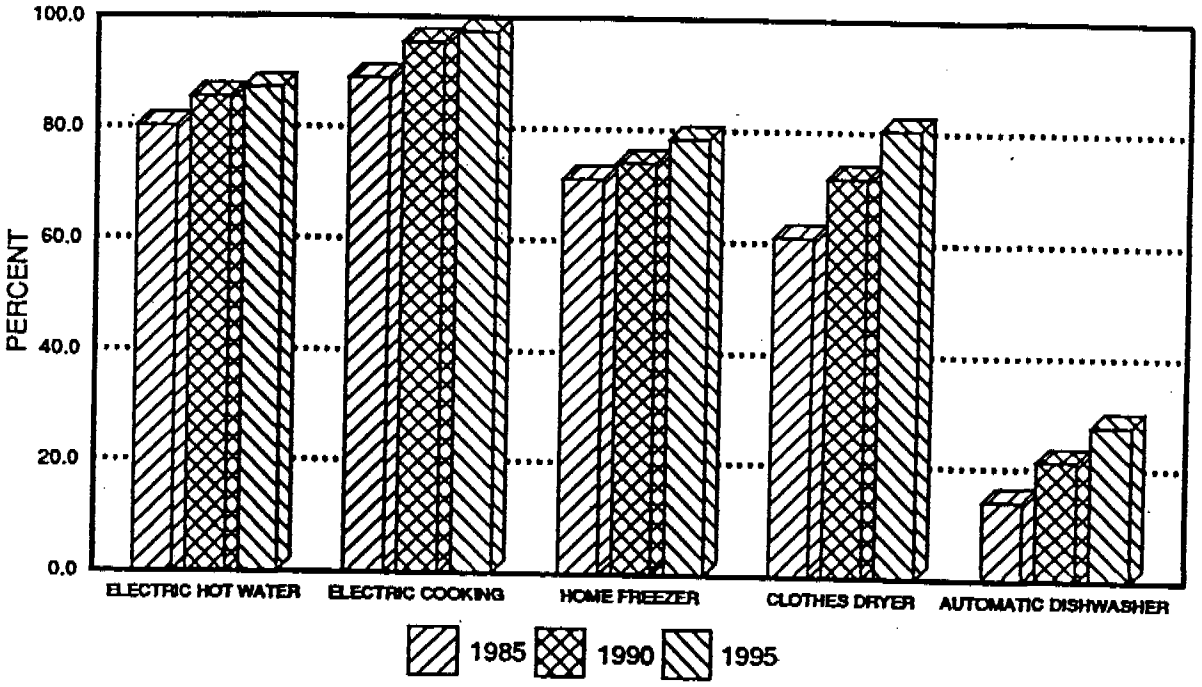
DOMESTIC AVERAGE USAGE



NP 1996 100-RGC-060

NEWFOUNDLAND LIGHT & POWER CO. LIMITED

ELECTRIC APPLIANCE OWNERSHIP



NEWFOUNDLAND LIGHT & POWER CO. LIMITED

COMPARISON OF FORECAST ENERGY SALES[1]
TO WEATHER ADJUSTED ACTUALS

	Forecast Sales (GWh)	Actual Weather Adjusted Sales (GWh)	Difference GWh	Difference %
1986	3,349.7	3,367.3	17.6	0.5
1987	3,495.0	3,516.0	21.0	0.6
1988	3,645.2	3,750.3	105.1	2.9
1989	3,945.3	3,959.5	14.2	0.4
1990	4,130.4	4,192.7	62.3	1.5
1991	4,231.7	4,256.8	25.1	0.6
1992	4,415.9	4,287.0	-128.9	-2.9
1993	4,339.8	4,333.9	-5.9	-0.1
1994	4,377.4	4,368.8	-8.6	-0.2
1995	4,468.4	4,382.1	-86.3	-1.9

(1) The forecast sales figures are from the annual forecasts prepared in the fall of the previous year and were part of the Capital Budget presentations made to the Board in those years. The 1986, 1987, 1990, and 1991 forecasts were the basis for the revenue requirement determinations presented as part of the Company's rate applications in 1986, 1987, 1989, and 1991, respectively.

Pre-filed Exhibit of Ron Crane for 1997 Capital Budget Hearing

Customer and Energy Sales Forecast

	1996			
	Customers	%	Energy Sales (GWh)	%
Domestic	179,859	1.2%	2,632.6	0.8%
General Service	20,096	(0.1%)	1,736.5	0.0%
Street & Area Lighting	10,527	3.2%	37.9	(2.1%)
Total	210,482	1.2%	4,407.0	0.5%

Forecast dated September 22, 1995 presented at the Capital Budget Hearing December 11, 1995.

Customer and Energy Sales

	1996					
	Customers			Energy Sales (GWh)		
	95/09/22	96/10/16	Variance	95/09/22	96/10/16	Variance
Domestic	179,859	179,045	(814)	2,632.6	2,628.8	(3.8)
General Service	20,096	20,153	57	1,736.5	1,757.5	21.0
Street & Area Lighting	10,527	10,729	202	37.9	38.3	0.4
Total	210,482	209,927	(555)	4,407.0	4,424.6	17.6
	1.2%	1.0%		0.5%	1.0%	

Economic Outlook - 1997

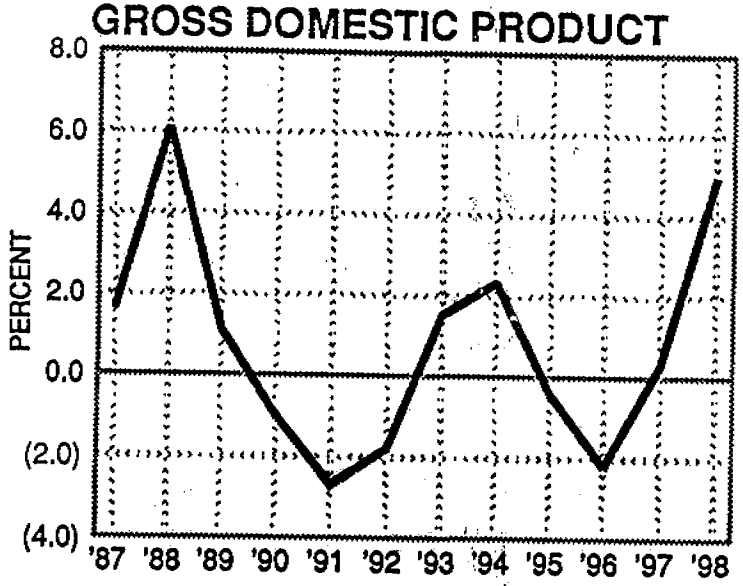
Downside

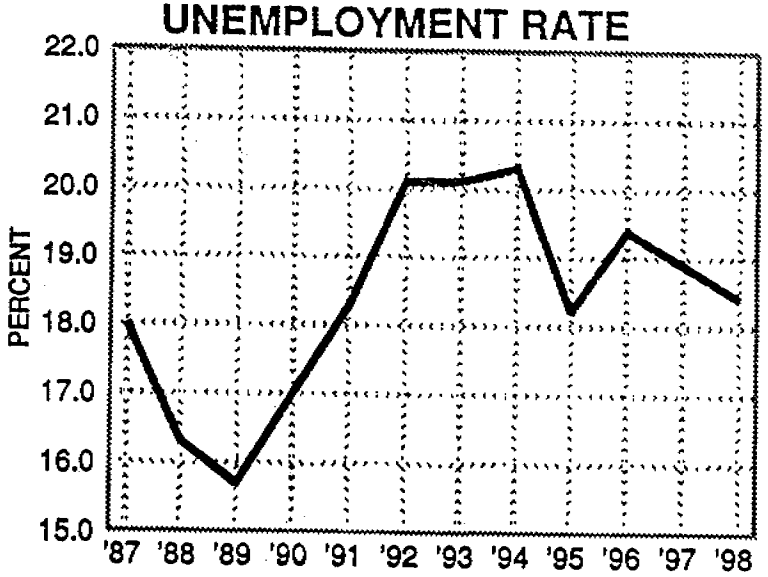
- Completion of Construction Phase of Hibernia
- Public Sector Restraint
- Reduction of the Number TAGS Recipients
- Continued High Levels of Out-Migration

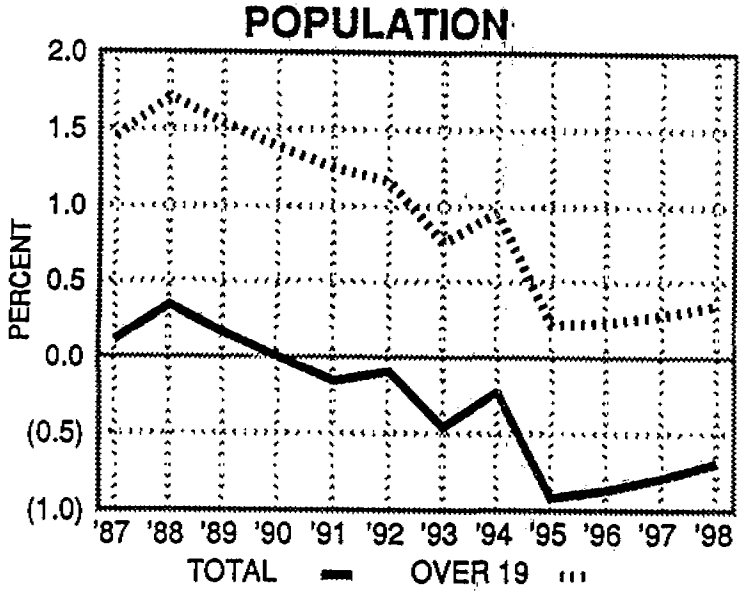
Upside

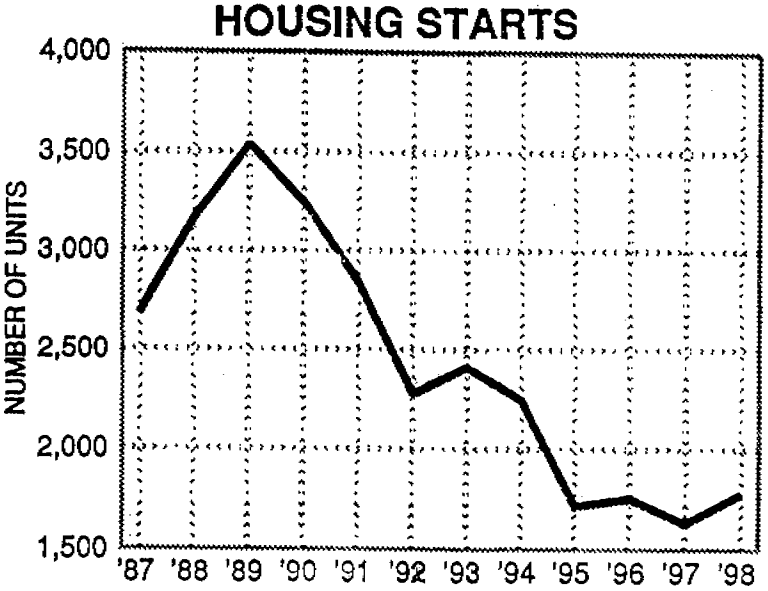
- Transshipment Facility
- Roycefield's Antimony Mine
- Start of Terra Nova Development
- Start of Voisey's Bay Development
- Cabot 500 Celebrations
- Limited Cod Fishery
- Oil and Gas Exploration
- Mineral Exploration

Key Economic Indicators

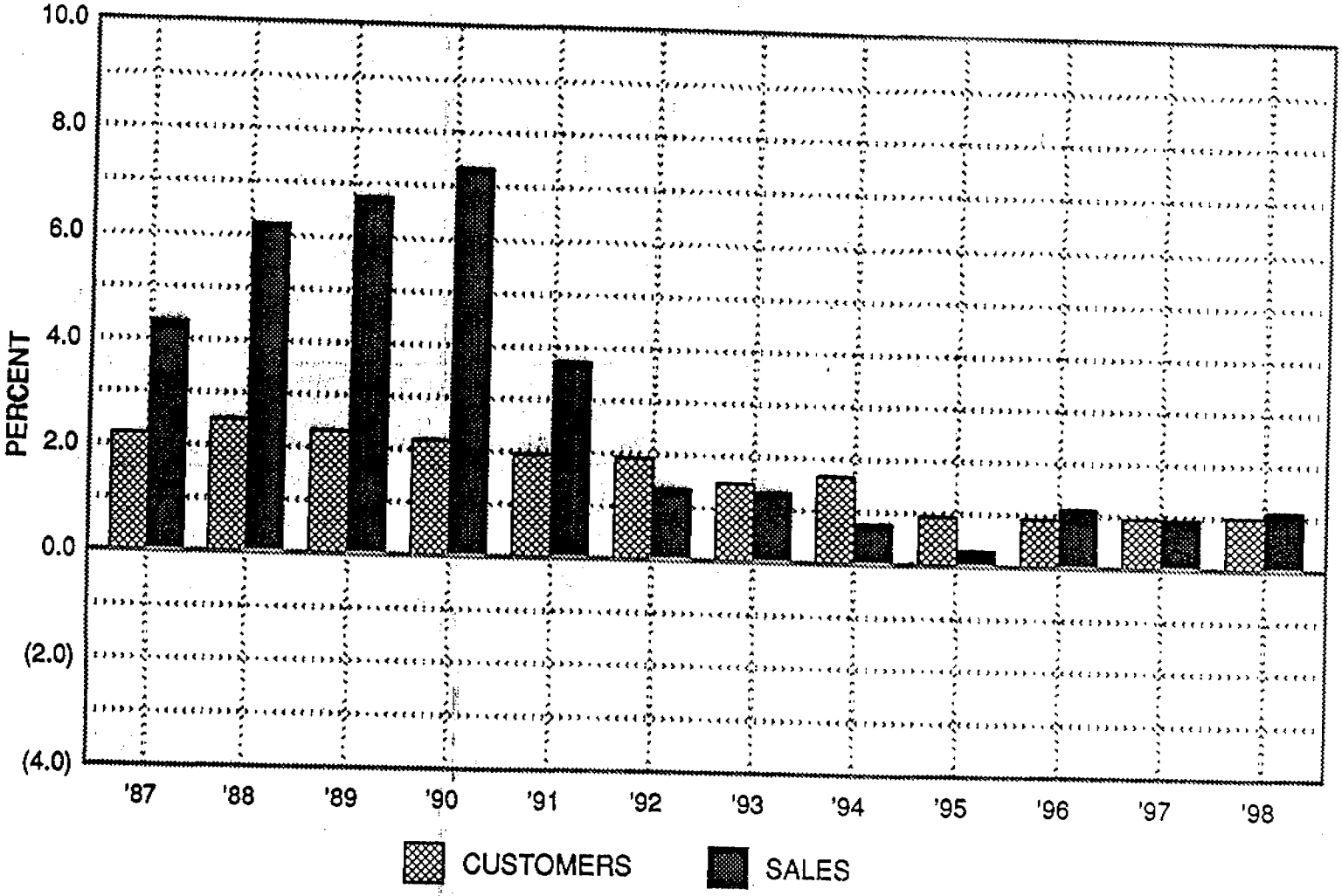




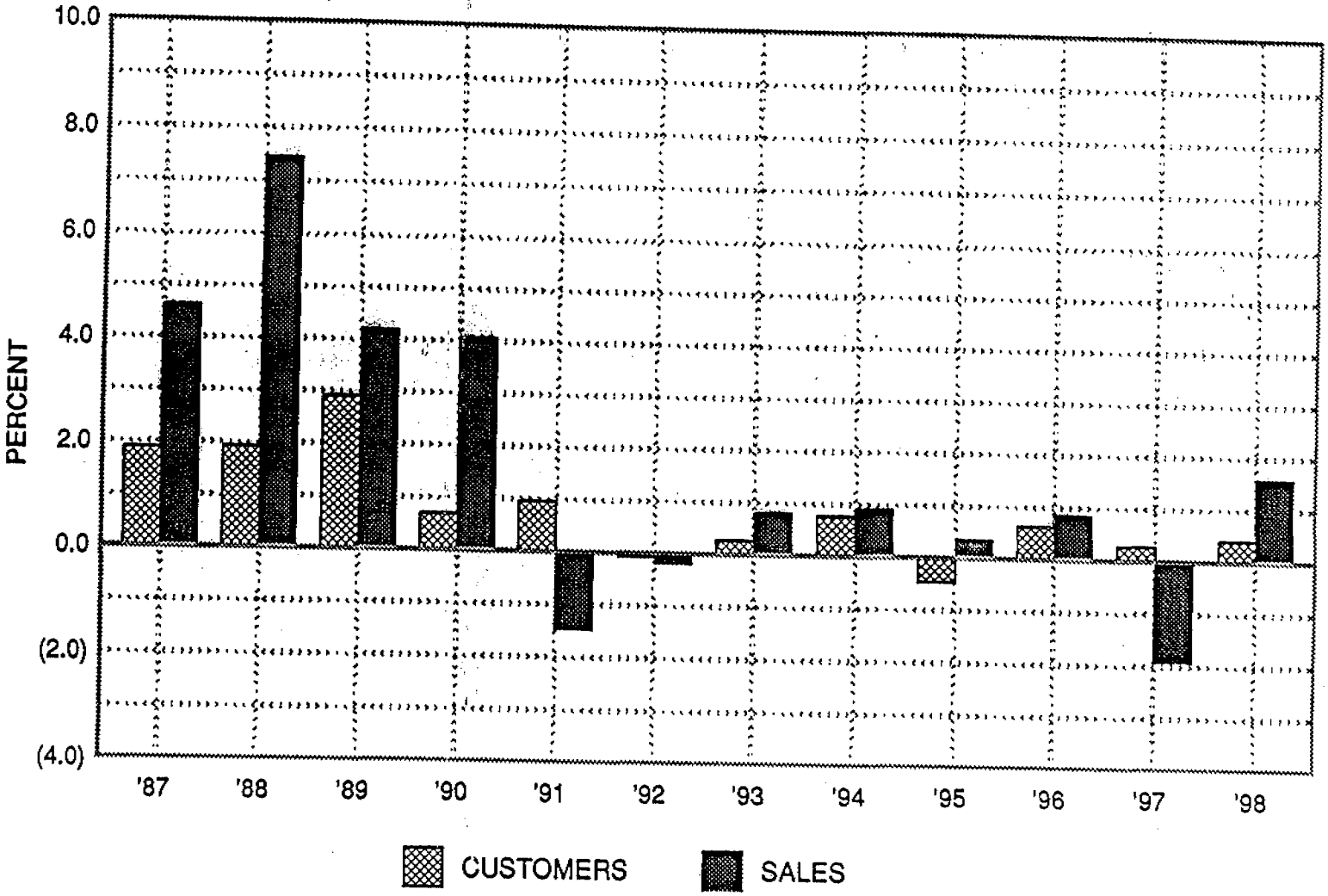




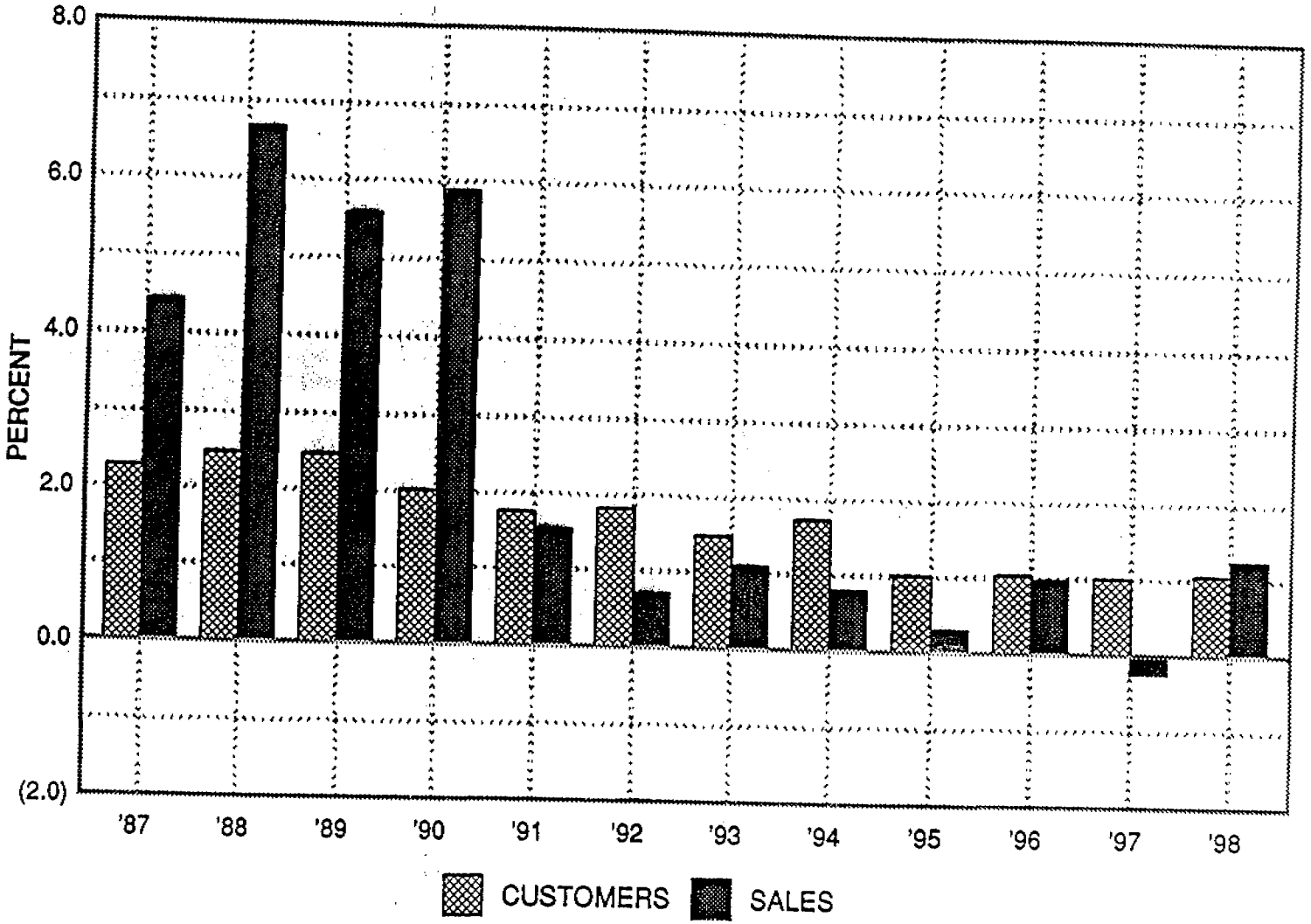
Total Domestic Growth



Total General Service Growth



Total Customer and Sales Growth



Customer Forecast

	1996		1997		1998	
Domestic	179,045	0.9%	180,727	0.9%	182,538	1.0%
General Service	20,153	0.6%	20,208	0.3%	20,288	0.4%
Street & Area Lighting	10,729	4.0%	11,089	3.4%	11,417	3.0%
Total	209,927	1.0%	212,024	1.0%	214,243	1.0%

Forecast dated October 16, 1996

Energy Sales Forecast (GWh)

	1996		1997		1998	
Domestic	2,628.8	1.1%	2,653.8	1.0%	2,683.3	1.1%
General Service	1,757.5	0.8%	1,723.8	(1.9%)	1,750.9	1.6%
Street & Area Lighting	38.3	(1.5%)	36.0	(6.0%)	34.6	(3.9%)
Total	4,424.6	1.0%	4,413.6	(0.2%)	4,468.8	1.3%

Forecast dated October 16, 1996.

Pre-filed Exhibit of Ron Crane
for 1998 Capital Budget Hearing

Customer and Energy Sales

	1996			
	Customers	%	Energy Sales (GWh)	%
Residential	179,375	85%	2,634.6	60%
General Service	20,154	10%	1,752.0	39%
Street & Area Lighting	10,632	5%	38.5	1%
Total	210,161	100%	4,425.1	100%

Customer and Energy Sales Forecast

	1997			
	Customers	%	Energy Sales (GWh)	%
Residential	180,727	0.9%	2,653.8	1.0%
General Service	20,208	0.3%	1,723.8	(1.9%)
Street & Area Lighting	11,089	3.4%	36.0	(6.0%)
Total	212,024	1.0%	4,413.6	(0.2%)

Forecast dated October 16,1996 presented at the Capital Budget Hearing December 9, 1996.

Customer and Energy Sales Forecast

	1997					
	Customers			Energy Sales (GWh)		
	Forecast	Estimate	Variance	Forecast	Estimate	Variance
Residential	180,727	181,228	501	2,653.8	2,664.3	10.5
General Service	20,208	20,322	114	1,723.8	1,726.7	2.9
Street & Area Lighting	11,089	10,902	(187)	36.0	36.0	0.0
Total	212,024	212,452	428	4,413.6	4,427.0	13.4

Forecast dated October 16,1996.
Estimate is based on 10 months actual and 2 months forecast.

Economic Outlook - 1998

Downside

- Voisey's Bay Development delayed
- Public Sector Restraint
- Elimination of the TAGS Program
- Continued High Levels of Out-Migration
- Implementation of Value Added Tax (VAT)

Upside

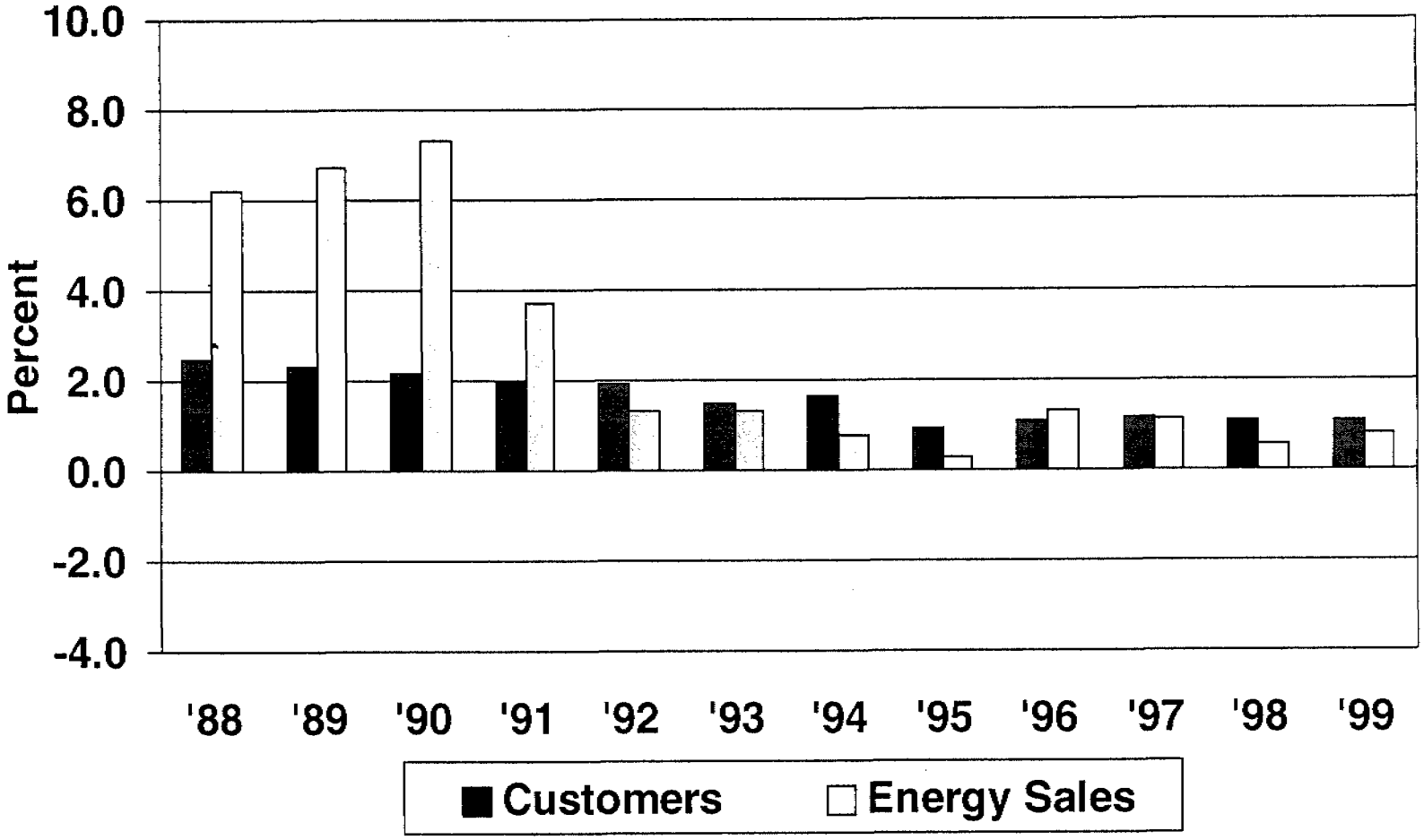
- Oil Production at Hibernia
- Start of Construction Phase of Terra Nova Project
- Transshipment Facility
- Roycefield's Antimony Mine
- Construction of Power Barge at Port aux Basques
- Reopening of the fluorspar mine at St. Lawrence
- Improvements in the Fishery

Key Economic Indicators

	1998
Gross Domestic Product ($1986)	3.5%
Goods Producing Sector	13.5%
Service Producing Sector	0.3%
Personal Disposable Income ($1986)	1.4%
Housing Starts (units)	1,750

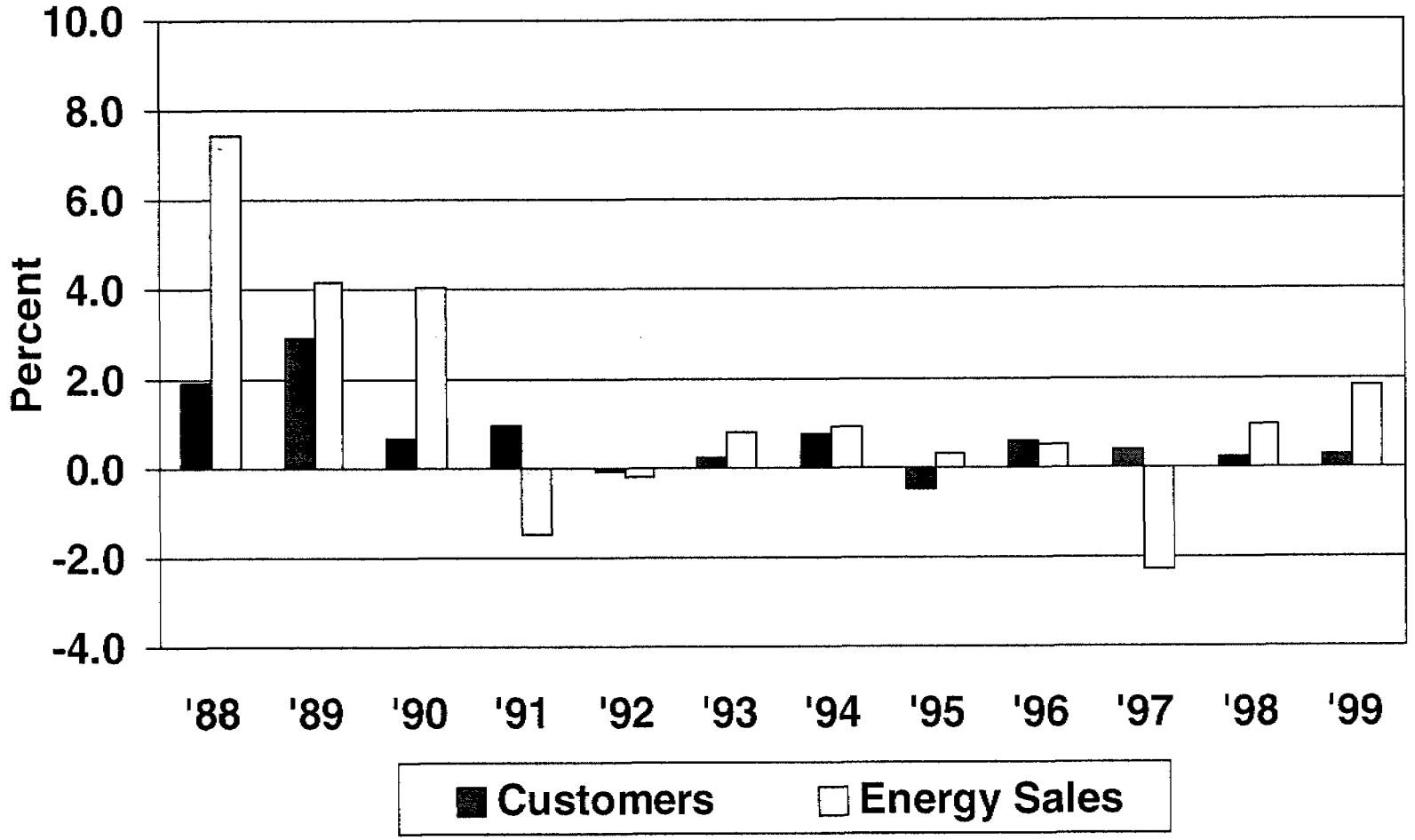
Residential Growth

1988 - 1999



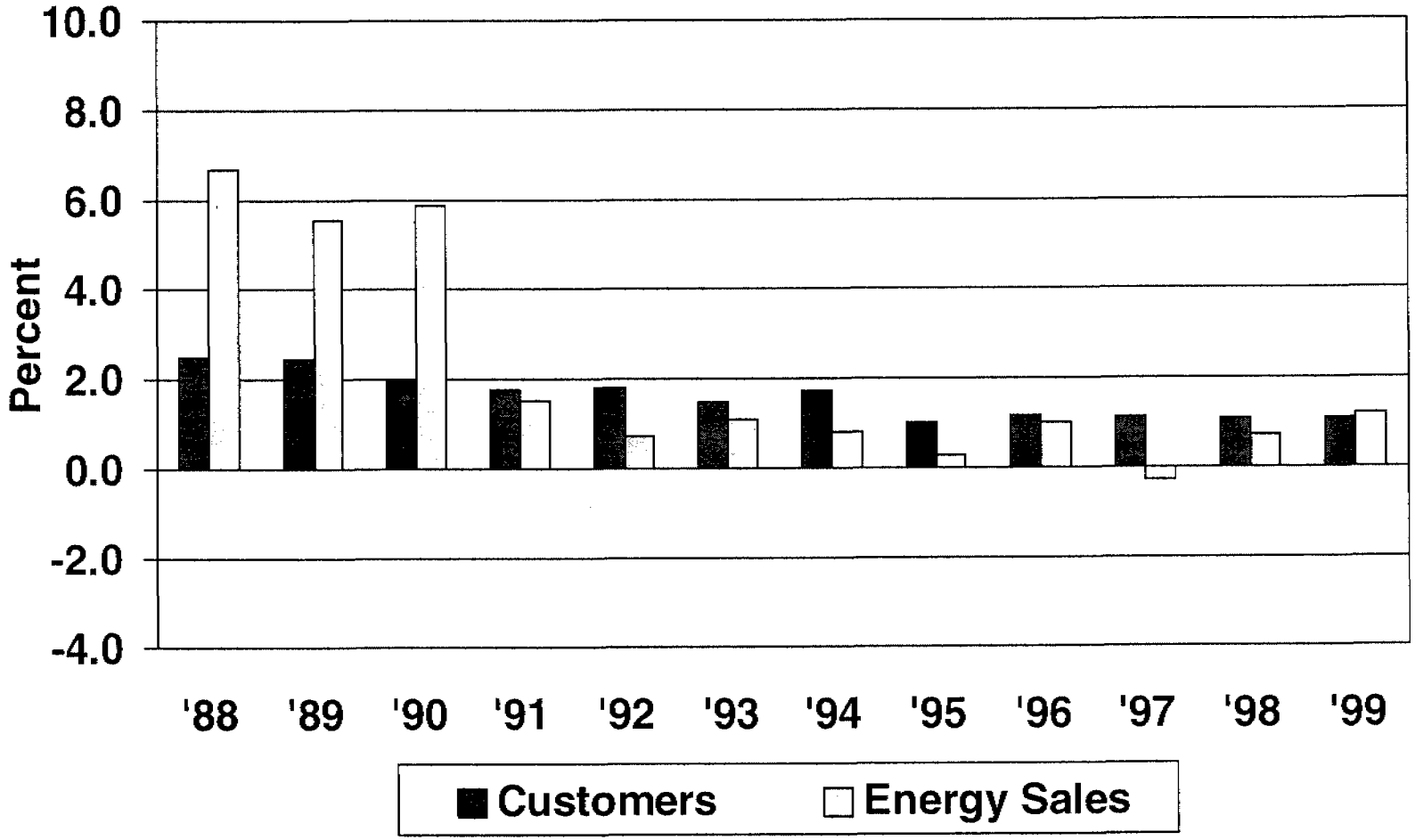
General Service Growth

1988 - 1999



Total Company Growth

1988 - 1999



Customer and Energy Sales Forecast

	1998			
	Customers	%	Energy Sales (GWh)	%
Residential	183,438	1.1%	2,680.0	0.6%
General Service	20,282	0.2%	1,728.0	1.0%
Street & Area Lighting	11,080	2.1%	35.7	(1.7%)
Total	214,800	1.1%	4,443.7	0.7%

Forecast dated October 3,1997.

**Pre-filed Testimony and Exhibits of Ron Crane
for 1998 General Rate Proceeding**

NEWFOUNDLAND POWER INC.

DIRECT TESTIMONY OF RONALD G. CRANE

TABLE OF CONTENTS

1. INTRODUCTION

Q. Please state your name and occupation.

A. My name is Ronald G. Crane. I am employed as Director of Forecasts with Newfoundland Power Inc. (the "Company"). I have been employed in the forecasting field for the past 18 years. I have appeared before this Board at the 1996 General Rate Proceeding as well as at a number of capital budget hearings.

Q. What is the nature of your testimony?

A. In my testimony, I will review the key assumptions used in preparing the customer and energy sales forecasts and present the forecast results for 1998 and 1999. I will also present evidence with respect to price elasticity and a suitable inflation index for the Company's non-labour costs.

2. FORECAST ASSUMPTIONS

Q. Please comment on the assumptions used in preparing the Customer and Energy Sales Forecasts for 1998 and 1999.

A. The economic assumptions used in preparing the customer and energy sales forecasts were provided by the Conference Board of Canada's forecast dated October 22, 1998. The key economic indicators for 1998 and 1999 are shown in Exhibit RGC-1 (1st Revision).

During the 1998 and 1999 forecast period, the Newfoundland economy, as measured by the Gross Domestic Product ("GDP"), is forecast by the Conference Board to exhibit strong growth. This growth is a direct result of large resource based projects such as Hibernia and Terra Nova. The fishing industry is also expected to grow as cod quotas are slowly increased and the industry continues to diversify. As a result, the goods-producing sector is forecast to grow by 14.4 per cent in 1998 and 17.6 per cent in 1999.

The service-producing sector, to which Newfoundland Power's energy sales are highly correlated, is forecast to grow at a modest rate of 1.1 per cent in 1998 and 0.9 per cent in 1999. Growth in the service-producing sector is being positively influenced by developments in the goods-producing sector and an improved employment outlook. Conversely, service-producing sector growth is being constrained by continued government restraint, the elimination of fishery support programs, the impact of changes to the Employment Insurance program and continued high levels of net out-migration.

During 1998 and 1999, energy sales will be impacted by changes in the price of electricity. These include the implementation of the Harmonized Sales Tax on April 1, 1997; the reduction in rates of 2.1 per cent effective January 1, 1998 as ordered in P.U. 16 (1998-99); increases in rates as a result of the Rate Stabilization Account adjustments of 1.2 per cent on July 1, 1997, 0.4 per cent on July 1, 1998 and 0.7 per cent on July 1, 1999; and a forecast increase in rates of 1.31 per cent effective January 1, 1999.

3. CUSTOMER AND ENERGY FORECASTS

Q. Please comment on the customer and energy sales forecasts for 1998 and 1999.

A. Exhibit RGC-2 (1st Revision) shows the customer and energy sales forecasts for 1998 and 1999. The number of customers is forecast to grow by 0.9 per cent in 1998 and 1.0 per cent in 1999. Energy sales are forecast to increase by 0.2 per cent in 1998 and 1.6 per cent in 1999.

Domestic

Growth in domestic sales is a function of the number of customers and the amount of energy consumed. Domestic customer growth is primarily determined by changes in population and the number of new homes constructed to meet the associated demand. With significant levels of net out-migration, the population in Newfoundland continues to decline from the 1996 Census. However, the population of individuals 20 years of age and older is forecast to increase by approximately 0.1 per cent annually. The Conference Board of Canada's latest forecast indicates housing starts to be 1,373 units in 1998 and 1,498 units in 1999. Since housing starts account for the majority of all new domestic customers, the number of domestic customers is forecast to grow by 0.8 per cent in 1998 and 0.9 per cent in 1999.

The average amount of energy consumed per customer is dependent on a number of factors. The majority of these factors are tied to changes in economic variables such as personal disposable income, market share of electric space heating, and the prices of electricity and other competing fuels. Based on these factors, an econometric model was

developed to forecast domestic average annual usage. Based on the economic and price assumptions and actual results ending September 1998, average annual usage is forecast to be 14,710 kWh per year in 1998 and 14,689 kWh per year in 1999.

Combining the forecasts of customers and average annual usage, domestic energy sales are forecast to remain at the 1997 level in 1998 and grow by 0.8 per cent in 1999.

General Service

In the general service classes, it is important to recognize that in 1997, 86 per cent of all energy sales were to customers in the service-producing sector of the economy. These are organizations which provide goods and services to the residential population and to businesses in the public and private sectors. Only 14 per cent of general service sales were to customers who participate directly in the goods-producing sector such as the fishing, mining and construction industries.

In the small general service rate classes 2.1 and 2.2, over 90 per cent of energy sales were to customers in the service-producing sector. Customer and energy sales growth in this category are dependent on growth in the service-producing sector of the GDP and changes in the price of electricity. In the large general service rate classes 2.3 and 2.4, energy sales are also influenced by changes in the service-producing sector of the GDP. However, in the large general service category, energy sales are mainly determined by changes in the load of larger customers in the goods-producing sector. Information obtained from specific customers is incorporated into forecasts for rate classes 2.3 and 2.4.

Based on the economic and price assumptions, actual results ending July 1998 and information collected about specific customers, the number of customers is forecast to grow by 0.8 per cent in 1998 and 0.7% in 1999 while energy sales are forecast to grow by 0.5 per cent in 1998 and 2.8 per cent in 1999.

Street and Area Lighting

The number of street and area lighting customers is forecast to grow by 3.2 per cent in both 1998 and 1999. These growth figures must be considered in the context of the way street and area lighting customers are counted by the Company. As a cost cutting measure, some municipalities remove street and area lighting fixtures. When the fixtures are disconnected, many of the residents of these communities become dissatisfied with the level of lighting around their properties and often assume responsibility for the fixture or fixtures. The Company's count of customers is a reflection of customers, not a count of the number of fixtures in service. Therefore, if a municipality removes 25 fixtures and 15 of those are reconnected by residents, the Company's statistics will show a gain of 15 new customers even though there are 10 fewer fixtures in service.

The Company is still experiencing growth in the number of street and area lighting fixtures in service although at a reduced rate. However, while the number of fixtures continues to grow, street and area lighting energy sales are forecast to decline. This reduction is largely a reflection of the Company's replacement of mercury vapour fixtures with more energy efficient high pressure sodium fixtures. Consequently, street and area lighting energy sales are forecast to decline by 1.7 per cent in both 1998 and 1999.

Q. How have actual energy sales compared to your previous forecasts?

A. Exhibit RGC-3 (1st Revision) shows the energy sales forecasts and actual weather-adjusted energy sales for the past 10 years. During this period, variances from forecast have ranged from a high of 2.9 per cent to a low of 0.1 per cent.

Exhibit RGC-4 (1st Revision) shows a sensitivity analysis based on a positive or negative variance of 0.5 per cent from the 1999 forecast of 1.6 per cent. This analysis indicates that change in contribution is plus or minus $0.6 million from the total contribution in the 1999 forecast of $148.4 million. This change in contribution does not account for income taxes. It also does not reflect any changes in the capital or operating expenses of the Company resulting from any change in customer and energy sales growth.

4. PRICE ELASTICITY

Q. Does this forecast incorporate the impact of price elasticity?

A. Yes, this forecast does incorporate the impact of price elasticity. The elasticities for the various categories were developed using regression techniques. The models are similar to those used by Newfoundland & Labrador Hydro ("Hydro").

In the domestic category, for every 1.0 per cent increase in the price of electricity, the total impact on average annual use is a decline of 0.3 per cent. Conversely, a price decrease of 1.0 per cent will result in a 0.3 per cent increase in average annual use. This

elasticity is a combination of the impact that price has on the electric heat market share and on customers' usage. Changes in the electric heat market share and its impact on domestic average annual use, are determined by the ratio of the price of electricity to the price of oil.

Overall, a 1.0 per cent electricity price change will have a much greater impact on the following year than on the current year. Analysis of customers' response to electricity price changes indicates that there is a one year lag between the occurrence of a price change and any significant change in customers' consumption. A 1.0 per cent change in the price of electricity will result in a slight increase or decrease, as the case may be, in domestic average annual use of only 0.03 per cent in the year of the price change. In the following year, the effect of the 1.0 per cent change is an increase or reduction, as the case may be, in domestic average annual use of 0.27 per cent.

In the general service category, it was determined that the price of electricity is significant for customers in rate classes 2.1 and 2.2. No discernible impact could be determined for customers in rate classes 2.3 and 2.4. For general service customers in rate classes 2.1 and 2.2, it was determined that for every 1.0 per cent increase in the price of electricity, energy sales would decline by 0.17 per cent.

From the perspective of total Company sales, a 1.0 per cent increase in the price of electricity will result in a decline in energy sales of 0.21 per cent.

5. NON-LABOUR INFLATION INDEX

Q. Has the Company determined a suitable index to measure Newfoundland's industrial cost inflation?

A. Exhibit RGC-5 is entitled *Non-Labour Inflation Index: A Summary Report.* This report summarizes the process used in identifying a suitable inflation index for the Company's non-labour costs. The steps in the process included determining the origin of the Company's non-labour costs, completing a survey of practices of other Canadian utilities and identifying the various inflation indexes that are available. Based on the Company's analysis, it was determined that the GDP deflator for Canada is the most suitable inflation index for the Company's non-labour costs. This was the index used in preparing the 1999 forecast of capital expenses.

Q. Does this conclude your testimony?

A. Yes, it does.

Conference Board of Canada

Key Economic Indicators

(millions of dollars)

		Forecast			
Economic Indicator	1997	1998	% Increase Over 1997	1999	% Increase Over 1998
Gross Domestic Product ($ 1992)					
Goods Producing Industries	2,213	2,532	14.4%	2,978	17.6%
Service Producing Industries	6,276	6,342	1.1%	6,399	0.9%
Total of All Industries	8,490	8,875	4.5%	9,378	5.7%
Consumer Price Index (1992=100)	108.2	108.7	0.4%	110.5	1.6%
Personal Disposable Income ($ 1992)	7,066	7,151	1.2%	7,250	1.4%
Unemployment Rate (%)	18.7%	17.6%		17.4%	
Housing Starts - Units	1,750	1,373	-21.5%	1,498	9.1%
Canadian GDP Deflator (1992=100)	107.1	107.1	-0.1%	108.8	1.6%

Source: Conference Board of Canada
Provincial Outlook
Dated: October 22, 1998

Newfoundland Power Inc.

Customer and Energy Sales (GWh) Forecast

Customers		1997	Forecast 1998	% Increase Over 1997	1999	% Increase Over 1998
Domestic	1.1	181,168	182,651	0.8%	184,256	0.9%
General Service						
0-10 kW	2.1	11,500	11,664	1.4%	11,755	0.8%
10-100 kW	2.2	7,881	7,873	-0.1%	7,920	0.6%
110-1000 kVA	2.3	930	941	1.2%	950	1.0%
Over 1000 kVA	2.4	45	50	11.1%	52	4.0%
Total General Service		20,356	20,528	0.8%	20,677	0.7%
Street and Area Lighting	4.1	10,835	11,179	3.2%	11,534	3.2%
Total Customers		212,359	214,358	0.9%	216,467	1.0%
Energy Sales (GWh)						
Domestic	1.1	2,669.3	2,669.4	0.0%	2,691.4	0.8%
General Service						
0-10 kW	2.1	91.4	91.6	0.2%	92.9	1.4%
10-100 kW	2.2	550.7	548.9	-0.3%	554.0	0.9%
110-1000 kVA	2.3	769.5	766.5	-0.4%	773.7	0.9%
Over 1000 kVA	2.4	321.2	334.2	4.0%	369.7	10.6%
Total General Service		1,732.8	1,741.2	0.5%	1,790.3	2.8%
Street and Area Lighting	4.1	35.9	35.3	-1.7%	34.7	-1.7%
Total Energy Sales		4,438.0	4,445.9	0.2%	4,516.4	1.6%

Note: Forecast dated November 10, 1998. The forecast for 1998 includes nine months of weather adjusted actuals.

NEWFOUNDLAND POWER INC.

1998 GENERAL RATE PROCEEDING

EXHIBITS OF R.G. CRANE

ERRATA SHEET

Exhibit RGC-3 (1st Revision)	Note Line 3 change "1991" to "1992"

Newfoundland Power Inc.
Comparison of Forecast Energy Sales
To Weather Adjusted Actual Sales

	Forecast Sales (GWh)	Weather Adjusted Actual Sales (GWh)	Difference (GWh)	Difference (%)
1989	3,945.3	3,959.5	14.2	0.4
1990	4,130.4	4,192.7	62.3	1.5
1991	4,231.7	4,256.8	25.1	0.6
1992	4,415.9	4,287.0	-128.9	-2.9
1993	4,339.8	4,333.9	-5.9	-0.1
1994	4,377.4	4,368.8	-8.6	-0.2
1995	4,468.4	4,382.1	-86.3	-1.9
1996	4,407.0	4,425.1	18.1	0.4
1997	4,400.5	4,438.0	37.5	0.9
1998	4,443.7	4,445.9	2.2	0.0

Note: The forecast sales figures are from the annual forecasts prepared in the fall of the previous year and were part of the Capital Budget presentations made to the Board in those years. The 1990, 1991 and 1997 forecasts were the basis for the revenue requirement determinations presented as part of the Company's rate applications in 1989, 1991 and 1996, respectively.

The forecasts for 1990 and 1997 were completed early in 1989 and 1996, respectively. Consequently, these represent two year forecasts while the others represent one year forecasts.

The actual weather adjusted sales for 1998 are based on nine months weather adjusted actuals and three months forecasts.

Newfoundland Power Inc.
Sensitivity Analysis - 1999

	Sensitivity Range		
Energy Sales Growth	1.1%	1.6%	2.1%
Energy (GWh)			
Domestic	2,677.9	2,691.4	2,704.9
General Service	1,781.3	1,790.3	1,799.3
Street & Area Lighting	34.5	34.7	34.9
Total Energy Sales	4,493.7	4,516.4	4,539.1
Company Use	11.7	11.7	11.7
Losses	223.2	224.3	225.4
Total Produced & Purchased	4,728.6	4,752.4	4,776.2
Revenue (000's)			
Domestic	$202,078	$203,093	$204,108
General Service	125,500	126,131	126,762
Street & Area Lighting	10,180	10,231	10,282
Forfeited Discounts	2,298	2,310	2,322
Total Revenue From Rates	$340,056	$341,765	$343,474
Total Purchased Power	$192,258	$193,332	$194,406
Contribution	$147,798	$148,433	$149,068
Change in Contribution	-$635	$0	$635

Note: Contribution is defined as revenue from base rates including forfeited discounts, less purchased power costs from Hydro.

Revenue includes the impact of a 1.31% increase in rates effective January 1, 1999.

NON-LABOUR INFLATION INDEX

A SUMMARY REPORT

NON-LABOUR INFLATION INDEX

1.0 Introduction

In Order No. P.U. 7 (1996-1997) the Board ordered Newfoundland Power to research whether a suitable inflation index could be found that measures Newfoundland industrial cost inflation. In response to the Board order, Newfoundland Power undertook an analysis to :

1. determine the origin of Newfoundland Power's non-labour costs;
2. survey Canadian Utilities to identify what inflation indexes are being used in the industry;
3. identify the various inflation indexes that are available to escalate non-labour costs; and
4. recommend an inflation index for Newfoundland Power's non-labour costs.

Each step in the analysis is discussed in greater detail in the following sections.

2.0 Non-Labour Costs

In 1997 Newfoundland Power incurred approximately $45 million in non-labour expenses. The majority of these non-labour costs are categorized as distribution, transmission, substation, energy supply, general property, telecommunication, transportation and computing equipment. In most years, distribution, transmission and substations direct materials make up over half of the total costs. While over 60 per cent of these non-labour products and services were purchased through local suppliers, over 75 per cent of them were manufactured outside of Newfoundland, with the majority coming from the provinces of Ontario and Quebec. Therefore, any inflation index that is selected should reflect the price changes in the region where the products are manufactured.

3.0 Survey

A survey was conducted to determine the practices of other Canadian Electric Utilities. The results of the survey, which are included in Appendix A, indicate that the approach to escalating non-labour costs varies significantly from utility to utility. Some of the indexes used by utilities are the provincial Consumer Price Index ("CPI"), the Canadian CPI, a raw material price index and the Canadian Gross Domestic Product ("GDP") deflator. The larger utilities in Canada use indexes that are developed for each component of the system. Forecasts of these indexes are available from various services. Some utilities used a consensus of forecasts from banks and other financial institutions, while others purchase their forecasts from outside economic agencies such as the Conference Board of Canada and The WEFA Group, an international forecasting and consulting company.

During the survey the appropriateness of GDP deflator was discussed. While it was agreed that it was a more appropriate escalator than CPI, it was not readily available without a contract with an economic agency. On the other hand, numerous banks and financial institutions published reports on Canadian and provincial CPI.

4.0 Suitable Indexes

There are a number of approaches available to Newfoundland Power in selecting a suitable inflation index. The first approach involves selecting an off the shelf inflation index such as the CPI. The second approach involves taking an existing index, such as the Statistics Canada historical Electric Utility Price Indexes for distribution, transmission and transformer stations and finding a way to forecast these indexes. The third approach involves engaging the services of an economic agency to develop customized indexes for each major component of non-labour costs.

4.1 Off the Shelf Indexes

Under Newfoundland Power's current contract with the Conference Board of Canada, it has ready access to a number of inflation indexes. These include the Newfoundland CPI, the Canadian CPI, the Newfoundland GDP deflator and the Canadian GDP deflator. While the Conference Board of Canada produces other indexes, none are suitable for the electric utility industry.

Statistics Canada defines CPI as an indicator of the changes in consumer prices experienced by the target population. The CPI measures price change by comparing, through time, the cost of a fixed basket of household commodities. Given the type of material consumed by an electric utility it is felt that the CPI would be inappropriate.

The GDP deflator is a broad based indicator and includes all price changes in the economy. While Newfoundland Power's costs are weighted toward products for distribution, transmission and substations, it also purchases many other products and services, such as, communications, computers, transportation and insurance. Under these circumstances the GDP deflator would appear to be a more appropriate index for Newfoundland Power's non-labour costs than the CPI.

When deciding between the Canadian versus the Newfoundland GDP deflator, the Canadian GDP deflator is preferred for two reasons. First, most of Newfoundland Power's non-labour costs are related to purchases from outside the province. Second, with the addition of major construction related to Hibernia and Terra Nova and the production of oil at Hibernia, the GDP deflator for Newfoundland has become unstable. This instability is due to the fact that the GDP deflator measures both price changes as well as changes in spending patterns. The addition of these projects has altered spending patterns and has made the Newfoundland GDP deflator unstable.

4.2 Existing Utility Price Indexes

Statistics Canada catalogue no. 62-007-XPB Construction Price Statistics contains a series of Electric Utility Construction Price Indexes. These indexes measure price changes for the construction of five separate models of electric plant: distribution systems; transmission lines; transformer stations; hydro electric generating stations; and fossil-fuel fired generating stations. Each model was developed after extensive consultation with major Canadian electric utilities and the Canadian Electricity Association. Each model includes a mix of materials, labour and equipment. Because Newfoundland Power has no major generating capacity, only three of the five indexes would be of use.

While on the surface it appears that using these indicators would be ideal, there are a number of drawbacks. First, each of the indicators include labour which would have to be removed to get a more precise indication of non-labour cost. Second, even with labour removed the index would only be useful for distribution, transmission and transformer station costs. Finally, neither Statistics Canada nor any other economic agency forecasts these indexes.

In consultation with Statistics Canada, the labour component was removed from each index and a weighted Direct Material Price Index was created for distribution, transmission and transformer stations. This index is shown in Appendix B. In an attempt to forecast this new index, a regression model was developed using the GDP deflator for Canada and variables to account for the tax change which occurred in 1991. The results of the regression analysis indicate that there is a high correlation between the GDP deflator for Canada and the new Direct Material Price Index. The model also showed that the elasticity indicated for a 1.0 per cent change in the GDP deflator, direct material costs increased by 1.14 per cent. The relationship was almost one to one.

4.3 Development of a Customized Model

Discussions were held with the Conference Board of Canada with respect to developing a customized model that could forecast inflation for each major component of Newfoundland Power's expenditures. Based on these discussions, it was determined that it would cost approximately $25,000 to develop and $3,000 to $5,000 annually to maintain a customized model. Because of the cost, this option was not pursued.

5.0 Recommendation

Based on the analysis, it was determined that the GDP deflator for Canada is the most suitable inflation index for the Company's non-labour costs. The reasons for this conclusion are:

1. Newfoundland Power purchases many goods and services from different sectors of the economy and the GDP deflator is a broad indicator of price change.
2. Newfoundland Power purchases in excess of 75 per cent of its non-labour products and services from manufacturers outside Newfoundland.
3. The GDP deflator for Canada is currently available to Newfoundland Power.
4. The GDP deflator for Canada is highly correlated to the direct material costs of electric utility construction.
5. The GDP deflator is more suitable than the CPI because the CPI is based on an inappropriate mix of products.
6. The cost of an off the shelf indicator is substantially less than developing a customized model.
7. The GDP deflator for Canada is more stable than the GDP deflator for Newfoundland.

Appendix A

Survey of Canadian Electric Utilities

Non-Labour Inflation Index

Survey of Canadian Electric Utilities

Non-Labour Inflation Index

Electric Utility	Survey Response
Newfoundland & Labrador Hydro:	Use the Canadian Consumer Price Index, Canadian Investment in Distribution and Transmission, and an Index of Primary Metal Prices to project Statistics Canada's Electric Utility Construction Price Indexes.
Maritime Electric:	Provincial Consumer Price Index provided by CANMAC Economics Ltd.
Nova Scotia Power:	Canadian Consumer Price Index from various banks and financial institutions. Nova Scotia Power also includes price increases of which it is aware.
New Brunswick Power:	Provincial Consumer Price Index from various banks and financial institutions. Ensures the index falls within the Bank of Canada's one to three per cent target. New Brunswick Power also includes price increases of which it is aware.
Ontario Hydro:	Use a series of inflation factors for various components of the system. These forecasts are provided by DRI.
Manitoba Hydro:	Canadian Consumer Price Index from various banks and financial institutions.
Saskatchewan Power:	Provincial Consumer Price Index.
Alberta Power:	They have used Raw Materials Price Index and Gross Domestic Product Deflator. The information is provided by The WEFA Group.
Trans Alta:	The Canadian Consumer Price Index provided by Consensus Forecasts. This is what was approved by the Regulator.
BC Hydro:	BC Hydro only includes increases of which they are aware. When evaluating projects they do not use inflation factors directly however they use an inflation adjusted discount rate.

Appendix B

Analysis of Electric Utility Construction Price Indexes

Index of Tables

Electric Utility Distribution Price Index Weights

Total, Major Components and Items	Cansim D #s	Weights			
Distribution System	D696101	100.00			
Total Direct Costs	D696102	85.31			
Materials	D696104		48.54		
Poles, towers and fixtures	D696109			13.53	
Poles, wooden	D696110				8.78
Crossarms	D696111				1.10
Hardware	D696112				2.72
Insulators	D696113				0.93
Overhead Conductor	D696114			8.26	
Aluminum cable steel reinforced	D696115				3.69
Aluminum and triplex	D696116				3.41
Copper	D696117				1.16
Street lighting systems and water heaters	D696118			5.92	
Luminaires and water heaters	D696119				3.96
Conductors	D696120				0.34
Poles, metal and concrete	D696121				1.62
Distribution system equipment	D696122			20.83	
Transformers	D696123				16.04
Meters	D696124				4.79
Labour	D696107		31.82		
Construction equipment	D696108		4.95		
Equipment, trucks	D696125			2.31	
Operating expenses	D696126			2.64	
Mechanics	D696127				0.66
Other operating expenses	D696128				1.98
Construction indirects	D696103	14.69			
Engineering	D696105		4.08		
Administration and Overhead	D696106		10.61		

Source: Statistics Canada

Electric Utility Transmission Lines Price Index Weights

Total, Major Components and Items	Cansim D #s	Weights		
Transmission Lines	D696131	100.00		
Initial grading and clearing	D696132	7.57		
Poles, towers, fixtures and overhead conductors	D696133	75.66		
Materials	D696135		42.10	
Foundations, footings and anchors	D696136			1.18
Ready-mix concrete	D696137			0.83
Bars, concrete reinforcing	D696138			0.09
Anchors and plates	D696139			0.26
Tower steel, conductor and insulators	D696140			30.20
Grounding system and hardware	D696141			2.18
Wooden poles	D696142			7.19
Crossarms	D696143			1.35
Installation labour	D696144		23.73	
Installation equipment	D696145		9.83	
Equipment	D696146			5.89
Front end loaders	D696147			0.21
Crawler tractors	D696148			2.15
Portable air compressors	D696149			0.16
Off highway dumptrucks	D696150			0.52
Crawl mounted drills	D696157			0.19
Rotary wing aircraft	D696151			2.21
Mobile cranes	D696152			0.45
Operating expenses	D696153			3.94
Construction indirects	D696134	16.77		
Engineering	D696156		8.14	
Head office administration	D696155		6.45	
Interest during construction	D696154		2.18	

Source: Statistics Canada

Electric Utility Transformer Stations Price Index Weights

Total, Major Components and Items	Cansim D #s	Weights			
Transformer Stations	D696161	100.00			
Initial grading and clearing	D696162	2.95			
Main station building	D696163	4.85			
Substructure	D696167		1.55		
Excavating	D696168			0.49	
Concrete	D696169			1.06	
Material	D696170				0.21
Equipment	D696171				0.35
Labour	D696172				0.50
Station building	D696173		3.30		
Support structures and fixtures	D696164	10.33			
Steel or pipe structures	D696174		8.64		
Foundations	D696175			1.48	
Steel Structures	D696176			2.61	
Labour	D696177			4.55	
Wooden structures	D696178		1.69		
Materials	D696179			0.86	
Poles	D696180				0.55
Hardware	D696181				0.31
Labour	D696182			0.83	
Station equipment	D696165	61.03			
Equipment	D696183		50.47		
Power Transformers	D696184			17.13	
Circuit breakers, circuit reclosers	D696185			10.29	
Switchboards, meters, disconnect switches, metal clad switchgear	D696186			17.06	
Power cables and buswork	D696187			5.99	
Labour	D696188		10.56		
Construction indirects	D696166	20.84			
Engineering	D696191		12.17		
Head office administration	D696190		5.96		
Interest during construction	D696189		2.71		

Source: Statistics Canada

Electric Utility Distribution Price Indexes
Including Labour
1986=100

	Distribution Systems	Direct Costs				Indirect Costs
		Total	Material	Labour	Equipment	
Weights	100.00%	85.31%	48.54%	31.82%	4.95%	14.69%
Annual	D696101	D696102	D696104	D696107	D696108	D696103
1971	29.7	30.0	32.8	26.0	28.8	27.7
1972	31.0	31.1	33.1	28.3	29.8	30.3
1973	33.9	34.2	35.9	32.0	30.9	32.3
1974	40.9	41.7	46.6	35.1	35.4	36.2
1975	45.8	46.5	50.4	41.7	38.5	41.7
1976	48.4	48.8	50.1	47.7	43.2	46.1
1977	51.6	51.9	51.5	53.1	47.9	50.1
1978	55.5	55.8	55.4	56.7	53.4	53.6
1979	62.9	63.7	66.4	60.3	59.9	58.2
1980	71.7	72.9	77.8	66.1	68.2	64.6
1981	78.2	79.3	82.7	73.7	81.8	72.2
1982	85.5	86.2	88.0	82.7	90.8	81.5
1983	88.9	89.1	87.2	91.0	95.3	87.9
1984	92.9	92.9	91.5	94.3	98.3	92.7
1985	97.7	97.9	97.7	97.4	102.9	96.9
1986	100.0	100.0	100.0	100.0	100.0	100.0
1987	103.1	102.9	102.8	103.4	101.0	104.0
1988	109.4	109.5	112.1	107.2	99.0	108.6
1989	113.6	113.8	115.7	112.8	101.6	112.1
1990	117.2	116.9	117.8	117.1	107.5	118.8
1991	116.3	114.5	108.6	124.2	109.9	126.6
1992	119.0	116.9	110.2	128.2	110.6	130.8
1993	122.0	120.0	114.4	129.7	111.8	133.8
1994	126.1	124.5	122.0	129.9	114.6	135.4
1995	132.6	131.6	133.5	130.2	122.0	138.3
1996	133.3	132.2	133.8	130.6	127.5	139.4
1997	133.4	131.6	131.4	132.1	130.0	143.8

Source: Statistics Canada

Electric Utility Transmission Lines Indexes
Including Labour
1986=100

	Transmission Lines	Grading & Clearing	Direct Costs				Indirect Costs
			Total	Material	Labour	Equipment	
Weights	100.00%	7.57%	75.66%	42.10%	23.73%	9.83%	16.77%
Annual	D696131	D696132	D696133	D696135	D696144	D696145	D696134
1971	28.8	26.0	27.6	28.1	27.1	26.7	35.7
1972	30.6	28.1	29.2	29.6	29.5	27.1	37.9
1973	33.3	32.9	31.9	32.0	33.0	28.5	39.9
1974	39.9	44.8	38.1	40.6	36.2	32.2	45.4
1975	46.7	51.8	45.4	48.8	42.5	38.0	50.4
1976	50.3	57.2	48.7	50.7	48.5	40.6	54.2
1977	53.9	58.1	53.0	54.3	53.6	45.9	56.4
1978	58.3	63.6	57.5	58.6	57.8	51.7	59.8
1979	66.9	67.3	67.3	72.7	61.6	57.9	65.0
1980	76.0	74.3	76.7	84.4	67.2	66.6	73.5
1981	84.6	86.8	84.5	91.4	74.8	78.0	84.1
1982	88.7	87.8	88.2	91.1	83.5	87.1	91.5
1983	92.1	89.4	92.1	92.6	91.5	91.4	93.6
1984	96.9	97.8	96.6	97.8	94.7	95.7	98.3
1985	97.8	97.7	97.5	96.5	97.6	101.5	99.4
1986	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1987	103.8	102.2	104.0	105.6	103.5	98.2	103.7
1988	113.2	115.9	114.2	122.5	107.5	94.9	107.7
1989	117.3	117.8	118.7	127.4	112.7	96.0	110.6
1990	120.4	122.2	120.8	127.4	117.9	99.7	117.5
1991	117.8	123.8	116.2	114.9	124.5	101.4	122.5
1992	116.4	119.4	114.2	108.0	128.5	106.2	124.7
1993	119.5	120.7	117.9	112.0	130.3	113.2	126.1
1994	126.1	120.9	126.1	125.0	130.7	120.0	128.4
1995	133.5	125.8	135.0	139.8	131.2	123.9	130.3
1996	135.9	126.3	138.0	143.7	131.8	128.3	130.7
1997	137.6	128.0	139.6	145.2	133.2	130.7	133.2

Source: Statistics Canada

Electric Utility Transformer Stations Indexes
Including Labour
1986=100

	Transformer Stations	Grading & Clearing	Main Station Building	Support Structures & Fixtures	Station Equipment			Indirect Costs
					Total	Equipment	Labour	
Weights	100.00%	2.95%	4.85%	10.33%	61.03%	50.47%	10.56%	20.84%
Annual	D696161	D696162	D696163	D696164	D696165	D696183	D696188	D696166
1971	32.4	26.3	29.7	29.6	32.1	33.0	27.8	36.2
1972	33.5	29.7	32.0	32.0	32.4	33.0	29.8	38.3
1973	35.8	34.2	34.8	35.6	34.4	34.7	32.9	40.3
1974	43.8	46.0	40.8	44.0	43.3	44.8	35.9	45.8
1975	51.2	51.8	45.6	48.9	52.1	54.3	41.7	50.8
1976	54.8	57.4	50.0	53.8	55.2	56.6	48.6	54.6
1977	56.9	58.5	54.6	57.0	57.2	58.1	52.9	56.5
1978	61.4	64.0	58.6	61.1	62.0	63.2	56.2	59.9
1979	67.5	68.0	64.3	70.4	68.1	69.6	60.7	65.2
1980	75.0	75.7	70.1	76.1	75.5	77.4	66.7	73.7
1981	81.9	88.3	77.4	81.6	81.2	82.9	73.3	84.3
1982	89.8	89.5	83.8	87.0	90.1	91.6	82.7	91.8
1983	91.3	90.0	89.5	93.3	90.3	90.0	91.5	93.9
1984	95.4	98.0	92.5	96.6	94.2	94.1	94.5	98.5
1985	96.7	98.7	95.5	98.2	95.5	95.0	97.8	99.4
1986	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1987	107.5	102.8	103.2	101.7	110.5	112.1	102.7	103.5
1988	115.7	114.3	109.2	104.6	121.0	124.2	105.9	107.4
1989	124.8	116.8	113.0	108.7	133.8	138.6	111.1	110.3
1990	125.7	120.2	116.7	110.7	132.1	135.4	116.5	117.1
1991	120.4	121.4	115.3	112.1	121.6	121.4	122.7	122.0
1992	120.5	116.1	116.0	114.8	120.9	119.4	127.8	124.2
1993	121.2	117.6	117.9	120.3	120.2	118.1	130.4	125.6
1994	129.6	117.8	120.9	126.2	132.1	132.2	131.6	127.7
1995	135.3	122.6	124.5	130.3	139.5	141.1	131.6	129.7
1996	134.9	123.1	126.4	131.4	138.3	139.5	132.6	130.4
1997	135.6	124.8	129.3	132.1	138.1	138.9	134.2	132.9

Source: Statistics Canada

Electric Utility Distribution Price Indexes
Excluding Labour
1986=100

	Distribution Systems	Direct Costs				Indirect Costs
		Total	Material	Labour	Equipment	
Weights	100.00%	78.45%	71.19%	0.00%	7.26%	21.55%
Annual	D696101	D696102	D696104	D696107	D696108	D696103
1971	31.4	32.4	32.8	26.0	28.8	27.7
1972	32.3	32.8	33.1	28.3	29.8	30.3
1973	34.8	35.4	35.9	32.0	30.9	32.3
1974	43.5	45.6	46.6	35.1	35.4	36.2
1975	47.7	49.3	50.4	41.7	38.5	41.7
1976	48.7	49.5	50.1	47.7	43.2	46.1
1977	50.9	51.2	51.5	53.1	47.9	50.1
1978	54.9	55.2	55.4	56.7	53.4	53.6
1979	64.2	65.8	66.4	60.3	59.9	58.2
1980	74.3	76.9	77.8	66.1	68.2	64.6
1981	80.4	82.6	82.7	73.7	81.8	72.2
1982	86.8	88.3	88.0	82.7	90.8	81.5
1983	87.9	87.9	87.2	91.0	95.3	87.9
1984	92.3	92.1	91.5	94.3	98.3	92.7
1985	97.9	98.2	97.7	97.4	102.9	96.9
1986	100.0	100.0	100.0	100.0	100.0	100.0
1987	102.9	102.6	102.8	103.4	101.0	104.0
1988	110.4	110.9	112.1	107.2	99.0	108.6
1989	113.9	114.4	115.7	112.8	101.6	112.1
1990	117.3	116.8	117.8	117.1	107.5	118.8
1991	112.6	108.7	108.6	124.2	109.9	126.6
1992	114.7	110.2	110.2	128.2	110.6	130.8
1993	118.4	114.2	114.4	129.7	111.8	133.8
1994	124.4	121.3	122.0	129.9	114.6	135.4
1995	133.7	132.4	133.5	130.2	122.0	138.3
1996	134.5	133.2	133.8	130.6	127.5	139.4
1997	134.0	131.3	131.4	132.1	130.0	143.8

Source: Statistics Canada

Electric Utility Transmission Lines Indexes
Excluding Labour
1986=100

	Transmission Lines	Grading & Clearing	Direct Costs				Indirect Costs
			Total	Material	Labour	Equipment	
Weights	100.00%	9.92%	68.09%	55.20%	0.00%	12.89%	21.99%
Annual	D696131	D696132	D696133	D696135	D696144	D696145	D696134
1971	29.4	26.0	27.8	28.1	27.1	26.7	35.7
1972	31.0	28.1	29.1	29.6	29.5	27.1	37.9
1973	33.4	32.9	31.3	32.0	33.0	28.5	39.9
1974	41.0	44.8	39.0	40.6	36.2	32.2	45.4
1975	48.1	51.8	46.8	48.8	42.5	38.0	50.4
1976	50.8	57.2	48.8	50.7	48.5	40.6	54.2
1977	54.1	58.1	52.7	54.3	53.6	45.9	56.4
1978	58.5	63.6	57.3	58.6	57.8	51.7	59.8
1979	68.6	67.3	69.9	72.7	61.6	57.9	65.0
1980	78.7	74.3	81.0	84.4	67.2	66.6	73.5
1981	87.6	86.8	88.9	91.4	74.8	78.0	84.1
1982	90.3	87.8	90.3	91.1	83.5	87.1	91.5
1983	92.3	89.4	92.4	92.6	91.5	91.4	93.6
1984	97.6	97.8	97.4	97.8	94.7	95.7	98.3
1985	97.9	97.7	97.4	96.5	97.6	101.5	99.4
1986	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1987	103.9	102.2	104.2	105.6	103.5	98.2	103.7
1988	115.0	115.9	117.3	122.5	107.5	94.9	107.7
1989	118.7	117.8	121.5	127.4	112.7	96.0	110.6
1990	121.1	122.2	122.2	127.4	117.9	99.7	117.5
1991	115.7	123.8	112.3	114.9	124.5	101.4	122.5
1992	112.6	119.4	107.7	108.0	128.5	106.2	124.7
1993	116.1	120.7	112.2	112.0	130.3	113.2	126.1
1994	124.7	120.9	124.1	125.0	130.7	120.0	128.4
1995	134.3	125.8	136.8	139.8	131.2	123.9	130.3
1996	137.1	126.3	140.8	143.7	131.8	128.3	130.7
1997	139.0	128.0	142.5	145.2	133.2	130.7	133.2

Source: Statistics Canada

Electric Utility Transformer Stations Indexes
Excluding Labour
1986=100

	Transformer Station	Main Station Building	Support Structures & Fixtures	Station Equipment
Weights	100.00%	7.39%	15.73%	76.88%
Annual		D696163	D696164	D696183
1971	32.2	29.7	29.6	33.0
1972	32.8	32.0	32.0	33.0
1973	34.8	34.8	35.6	34.7
1974	44.4	40.8	44.0	44.8
1975	52.8	45.6	48.9	54.3
1976	55.7	50.0	53.8	56.6
1977	57.7	54.6	57.0	58.1
1978	62.5	58.6	61.1	63.2
1979	69.3	64.3	70.4	69.6
1980	76.7	70.1	76.1	77.4
1981	82.3	77.4	81.6	82.9
1982	90.3	83.8	87.0	91.6
1983	90.5	89.5	93.3	90.0
1984	94.4	92.5	96.6	94.1
1985	95.5	95.5	98.2	95.0
1986	100.0	100.0	100.0	100.0
1987	109.8	103.2	101.7	112.1
1988	120.0	109.2	104.6	124.2
1989	132.0	113.0	108.7	138.6
1990	130.1	116.7	110.7	135.4
1991	119.5	115.3	112.1	121.4
1992	118.4	116.0	114.8	119.4
1993	118.4	117.9	120.3	118.1
1994	130.4	120.9	126.2	132.2
1995	138.2	124.5	130.3	141.1
1996	137.3	126.4	131.4	139.5
1997	137.1	129.3	132.1	138.9

Source: Statistics Canada

Direct Materials Price Index

Annual	Direct Materials: Distribution	Direct Materials: Transmission Lines	Direct Materials: Transformers Station	Direct Materials Index 1986=100	Direct Materials Index 1992=100
Weights	74.8%	17.8%	7.4%	100.0%	
1971	32.4	27.8	32.2	31.6	28.6
1972	32.8	29.1	32.8	32.1	29.1
1973	35.4	31.3	34.8	34.7	31.4
1974	45.6	39.0	44.4	44.3	40.1
1975	49.3	46.8	52.8	49.1	44.5
1976	49.5	48.8	55.7	49.8	45.1
1977	51.2	52.7	57.7	51.9	47.0
1978	55.2	57.3	62.5	56.1	50.8
1979	65.8	69.9	69.3	66.8	60.5
1980	76.9	81.0	76.7	77.6	70.3
1981	82.6	88.9	82.3	83.7	75.8
1982	88.3	90.3	90.3	88.8	80.4
1983	87.9	92.4	90.5	88.9	80.6
1984	92.1	97.4	94.4	93.2	84.5
1985	98.2	97.4	95.5	97.9	88.6
1986	100.0	100.0	100.0	100.0	90.6
1987	102.6	104.2	109.8	103.4	93.7
1988	110.9	117.3	120.0	112.7	102.1
1989	114.4	121.5	132.0	117.0	106.0
1990	116.8	122.2	130.1	118.8	107.6
1991	108.7	112.3	119.5	110.2	99.8
1992	110.2	107.7	118.4	110.4	100.0
1993	114.2	112.2	118.4	114.1	103.4
1994	121.3	124.1	130.4	122.5	111.0
1995	132.4	136.8	138.2	133.6	121.1
1996	133.2	140.8	137.3	134.9	122.2
1997	131.3	142.5	137.1	133.7	121.1

Gross Domestic Product Deflator - Canada
1992=100

Annual	Gross Domestic Product Deflator
1972	28.1
1973	30.8
1974	35.8
1975	40.4
1976	43.6
1977	46.3
1978	50.1
1979	55.6
1980	62.0
1981	67.1
1982	73.0
1983	76.6
1984	79.2
1985	81.8
1986	82.7
1987	86.0
1988	90.4
1989	93.7
1990	96.9
1991	98.9
1992	99.8
1993	100.8
1994	102.3
1995	105.8
1996	106.7
1997	107.1

Source: Conference Board of Canada

Regression Analysis
Direct Material Price Index Versus GDP Deflator Canada

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.995666427
R Square	0.991351633
Adjusted R Square	0.99017231
Standard Error	2.886074338
Observations	26

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	21005.4176	7001.805868	840.6109425	7.79956E-23
Residual	22	183.2473518	8.329425082		
Total	25	21188.66496			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-3.447993167	1.782674539	-1.934168628	0.066057724	-7.145037851	0.249051517
GDP Deflator - Canada	1.142125088	0.023171864	49.28930602	5.13586E-24	1.094069532	1.190180644
91 Tax Variable	-9.743582681	3.008060923	-3.239157361	0.003767456	-15.98192591	-3.505239452
92 Tax Variable	-10.47898432	3.011970764	-3.47911223	0.002128058	-16.72543608	-4.232532569