

1 **Q. Page 2-32, Table 2-7: Provide a re-stated Table 2-7 to show Gross Operating Costs**  
2 **from 2015 to 2020F with inflation based on the CPI index only added for each year**  
3 **subsequent to 2015.**

4  
5 **A. General**

6  
7 *Non-labour Cost Inflation*

8  
9 In Order No. P.U. 7 (1996-1997) the Board directed Newfoundland Power to research  
10 whether a suitable inflation index could be found that measures Newfoundland industrial  
11 cost inflation. In its 1998 General Rate Application, Newfoundland Power filed with the  
12 Board, as Exhibit RGC-5, a report entitled Non-Labour Inflation Index - A Summary  
13 Report. A copy of that report is provided in Attachment A.

14  
15 Based on the analysis contained in the report, it was recommended that the GDP deflator  
16 for Canada was the most suitable inflation index for the Company's non-labour costs.  
17 The recommendation provided that the GDP deflator is more suitable than the Consumer  
18 Price Index ("CPI") because the CPI is based on an inappropriate mix of products.<sup>1</sup>

19  
20 In Order No. P. U. 36 (1998-99), the Board ordered the adoption of the GDP deflator for  
21 Canada as an appropriate inflation index to forecast non-labour operating expenses.

22  
23 *Labour Cost Inflation*

24  
25 Annual labour cost inflation is based upon a combination of base wage increases and  
26 forecast progression increases in employees' wages as a result of experience.<sup>2</sup> Consistent  
27 with non-labour costs, it would not be considered appropriate to forecast labour costs  
28 using the CPI.

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<sup>1</sup> 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 was considered at that time that the CPI would be inappropriate to use to forecast non-labour costs.

<sup>2</sup> See the response to Request for Information PUB-NP-007 for further information on the Company's labour cost inflation.

**Gross Operating Costs Compared to Inflation<sup>3</sup>**

Table 1 shows gross operating costs as forecasted by the Company compared to if gross operating costs were escalated for inflation only for the 2015 to 2020 forecast period.

**Table 1**  
**Gross Operating Costs**  
**Forecast vs. Inflation<sup>3</sup>**  
**2015 to 2020 Forecast**  
**(\$000s)**

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018F</b>	<b>2019F</b>	<b>2020F</b>
Forecast <sup>4</sup>	57,600	57,922	59,680	60,294	62,698	63,648
Inflation <i>Pro Forma</i>	57,600	58,942	60,647	61,845	62,966	64,192
<b>Difference</b>	-	<b>(1,020)</b>	<b>(967)</b>	<b>(1,551)</b>	<b>(268)</b>	<b>(544)</b>

The Company's gross operating costs are lower in each year, 2016 to 2020 forecast, than if gross operating costs were escalated for inflation only since 2015.

**Gross Operating Costs Compared to CPI**

In direct response to the Board's question, Table 2 shows gross operating costs as forecasted by the Company compared to if gross operating costs were escalated using CPI only for the 2015 to 2020 forecast period.

**Table 2**  
**Gross Operating Costs**  
**Forecast vs. CPI**  
**2015 to 2020 Forecast**  
**(\$000s)**

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018F</b>	<b>2019F</b>	<b>2020F</b>
Forecast <sup>4</sup>	57,600	57,922	59,680	60,294	62,698	63,648
CPI <i>Pro Forma</i>	57,600	59,163	60,502	61,619	62,958	64,298
<b>Difference</b>	-	<b>(1,241)</b>	<b>(822)</b>	<b>(1,325)</b>	<b>(260)</b>	<b>(650)</b>

The Company's gross operating costs are lower in each year, 2016 to 2020 forecast, than if gross operating costs were escalated using CPI only since 2015.

<sup>3</sup> Inflation calculated as discussed in the **General** section of this response.

<sup>4</sup> See *Volume I, Section 2: Customer Operations*, Page 2-32, Table 2-7.

**Non-Labour Inflation Index**  
**A Summary Report**

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NON-LABOUR INFLATION INDEX

A SUMMARY REPORT

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## **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 CPL 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 WFEA 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 CPL.

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

**Appendix A**  
**Survey of Canadian Electric Utilities**  
**Non-Labour Inflation Index**

Appendix A

**Survey of Canadian Electric Utilities**

**Non-Labour Inflation Index**

<u>Electric Utility</u>	<u>Survey Response</u>
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 WEF A 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.

AppendixB

**Appendix B**  
**Analysis of Electric Utility Construction Price Indexes**

Appendix B

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Appendix B

**Electric Utility Distribution Price Index Weights**

<u>Total, Major Components and Items</u>	<u>Cansim D #s</u>	<u>Weights</u>	
<b>Distribution System</b>	D696101	100.00	
<b>Total Direct Costs</b>	D696102	85.31	
Materials	D696104	48.54	
Poles, towers and fixtures	D696109	13.53	
Poles, wooden	D696110		<b>8.78</b>
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	
tooperating expenses	D696126	2.64	
Mechanics	D696127		0.66
Other operating expenses	D696128		1.98
<b>Construction indirects</b>	D696103	14.69	
Engineering	D696105	4.08	
Administration and Overhead	D696106	10.61	

Source: Statistics Canada

Appendix B

**Electric Utility Transmission Lines Price Index Weights**

<u>Total, Major Components and Items</u>	<u>Cansim D#s</u>	<u>Weights</u>	
<b>Transmission Lines</b>	D696131	100.00	
<b>Initial grading and clearing</b>	D696132	7.57	
<b>Poles, towers, fixtures and overhead conductors</b>	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	
Crossanns	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	
<b>Construction indirects</b>	D696134	16.77	
Engineering	D696156	8.14	
Head office administration	D696155	6.45	
Interest during construction	D696154	2.18	

Source: Statistics Canada

Appendix B

**Electric Utility Transformer Stations Price Index Weights**

<u>Total, Major Components and Items</u>	<u>Cansim D #s</u>	<u>Weights</u>		
<b>Transformer Stations</b>	D696161	100.00		
<b>Initial grading and clearing</b>	D696162	2.95		
<b>Main station building</b>	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		
<b>Support structures and fixtures</b>	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	
<b>Station equipment</b>	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		
<b>Construction indirects</b>	D696166	20.84		
Engineering	D696191	12.17		
Head office administration	D696190	5.96		
Interest during construction	D696189	2.71		

Source: Statistics Canada



Appendix B

**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	<b>48.8</b>	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	<b>81.8</b>	72.2
1982	85.5	86.2	<b>88.0</b>	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	<b>118.8</b>
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

Appendix B

**Electric Utility Transmission Lines Indexes  
Including Labour  
1986=100**

	Transmission <u>Lines</u>	Grading & <u>Clearing</u>	Direct Costs				Indirect Costs
			<u>Total</u>	<u>Material</u>	<u>Labour</u>	<u>Equipment</u>	
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	<b>86.8</b>	84.5	91.4	74.8	78.0	84.1
1982	<b>88.7</b>	<b>87.8</b>	<b>88.2</b>	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 <sub>1</sub>	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

Appendix B

**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	<b>45.8</b>
1975	51.2	51.8	45.6	<b>48.9</b>	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	<b>88.3</b>	77.4	81.6	81.2	82.9	73.3	84.3
1982	89.8	89.5	<b>83.8</b>	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	<b>98.5</b>
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	It 7.1
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

Appendix B

**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
199	113.9	114.4	115.7	112.8	101.6	112.1
1990	117.3	116.8	117.8	117.1	107.5	<b>118.8</b>
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	118.1	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

Appendix B

**Electric Utility Transmission Lines Indexes  
Excluding Labour  
1986=100**

	Transmission <u>Lines</u>	Grading& <u>Clearing</u>	Direct Costs				Indirect Costs
			<u>Total</u>	<u>Material</u>	<u>Labour</u>	<u>Equipment</u>	
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	<b>48.8</b>	42.5	38.0	50.4
1976	50.8	57.2	<b>48.8</b>	50.7	48.5	40.6	54.2
1977	54.1	<b>58.1</b>	52.7	54.3	53.6	45.9	56.4
1978	58.5	63.6	57.3	<b>58.6</b>	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	<b>81.0</b>	<b>84.4</b>	67.2	66.6	73.5
1981	87.6	<b>86.8</b>	<b>88.9</b>	91.4	74.8	78.0	<b>84.1</b>
1982	90.3	<b>87.8</b>	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	<b>98.3</b>
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
<b>1988</b>	115.0	115.9	117.3	122.5	107.5	94.9	107.7
1989 <sub>1</sub>	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

Appendix B

**Electric Utility Transformer Stations Indexes  
Excluding Labour  
1986=100**

	<u>Transformer Station</u>	<u>Main Station Building</u>	<u>Support Structures &amp; Fixtures</u>	<u>Station Equipment</u>
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	<b>83.8</b>	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

Appendix B

**Direct Materials Price Index**

Annual	Direct Materials			Direct Materials Index <u>1986=100</u>	Direct Materials Index <u>1992=100</u>
	<u>Distribution</u>	<u>Transmission Lines</u>	<u>Transformers Station</u>		
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	<b>88.8</b>	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

Appendix B

**Gross Domestic Product Deflator - Canada  
1992=100**

Annual	Gross Domestic Product <u>Deflator</u>
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 <sup>1</sup>	102.3
1995	105.8
1996	106.7
1997	107.1

Source: Conference Board of Canada



Appendix B

**Regression Analysis**  
**Direct Material Price Index Versus GDP Deflator Canada**

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.995666427
R Square	0.991351633
Adjusted R Square	0.99017231
Standard Error	2.886074338
Observations	26

ANOVA

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

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
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