Q. DISTRIBUTION

PUB 61.0

B-25 Extensions (Pooled) $6,766,000
IR PUB-11.0 NP (2006 NP Capital Budget), Tables 1 and 2 indicate that in each year from 2001 to 2005F the expenditures for extensions and the number of new customer connections have been consistently under-forecast, Table 1 by an average of 44%, Table 2 by an average of 33%. Why, given the variances between budget and actual, does NP continue to use the same methodology of estimating costs relating to the connection of new customers?

A. ***General***

The current methodology is based on the historic unit cost of connecting new customers and the forecast number of new customers.

The relatively large variances between budget and actual for the Distribution project *Extensions* has not been the result of methodological deficiencies in the estimation of the unit costs of connecting new customers. The variances are principally explained by the relatively large difference between the forecasts of new customers and the actual number of new customer connections made.

Unit Cost Methodology

In early 2005, Newfoundland Power conducted an analysis of 2004 Distribution capital cost variances affected by customer growth. The analysis concluded that the almost $3.5 million 2004 capital expenditure variance in the *Extensions* project was not materially affected by differences in budgeted and actual unit costs.

A copy of the report entitled *An Analysis of 2004 Distribution Capital Expenditure Variances Affected by Customer Growth* which was filed by the Company on March 1, 2005 with its 2004 Capital Expenditure Report is Attachment 1 to this response. It contains the results of Newfoundland Power's 2005 analysis of 2004 Distribution capital cost variances.

As indicated in the response to PUB-43.0 NP, Newfoundland Power has made some refinements to its unit cost methodology. These changes, however, were principally driven by an effort to provide improved transparency and consistency in the use of unit costs as contemplated by the Provisional Capital Budget Application Guidelines.

Forecast vs. Actual Customer Growth

Newfoundland Power's forecast of new customers historically has been derived from the annual forecast of the *Conference Board of Canada*, an independent forecast service (the "Conference Board"). The Conference Board's housing starts forecast for the province is adjusted to provide a forecast of housing starts for Newfoundland Power's service territory. In recent years, the Conference Board's forecasts have underestimated housing starts for Newfoundland and Labrador.

In an effort to improve the accuracy of the customer forecast for purposes of the Company's 2006 capital budget, Newfoundland Power has modified its customer forecasting methodology by including information from the housing starts forecast of *Canada Mortgage and Housing Corporation* (CMHC), a federal Crown corporation. Since 2002, CMHC's forecasts of housing starts for Newfoundland and Labrador have proved to be more accurate than those of the Conference Board.

Concluding

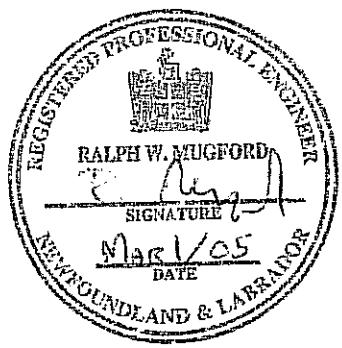
There have been relatively large variances between budgeted and actual costs in the Distribution project *Extensions* in recent years.

Newfoundland Power continues to use the same methodology because the variances are principally related to the accuracy of independent economic data as opposed to a methodological deficiency.

Newfoundland Power has taken steps to address the accuracy of the economic data used for forecasting the number of new variances in its 2006 capital budget.

An Analysis of 2004 Distribution Capital Expenditure Variances Affected by Customer Growth

An Analysis of 2004 Distribution Capital Expenditure Variances Affected by Customer Growth



Ralph Mugford, P.Eng
Senior Engineer

March 1, 2005

1. Introduction

Newfoundland Power's actual 2004 capital expenditures in the Distribution class were approximately $3.4 million over budget. The primary cause of actual expenditures exceeding budget was the increase in actual capital expenditure required to serve new customers.

This Report analyzes variances between budgeted and actual 2004 capital expenditures for each of the Distribution projects which are materially impacted by the capital cost of serving an increased number of customers.

The analyses contained in this Report clearly support the conclusion that increased 2004 capital expenditures were the result of the unexpected increase in the number of new customers. The analyses do not, however, reconcile budgeted and actual 2004 capital expenditure for the Distribution classes reviewed. Such a reconciliation is practically impossible.

2. Overview

A comparison of budgeted and actual capital expenditures in those Distribution projects affected by customer growth is set out in Table 1 below.

Table 1
2004 Capital Expenditures
in Distribution Projects Affected by Customer Growth
($000s)

Project	Budget	Actual	Variance
Extensions	4,956	8,406	3,450
Meters	1,174	1,297	123
Services	1,946	2,008	62
Street Lighting	1,242	1,499	257
Transformers	4,965	5,449	484
Total	**14,283**	**18,659**	**4,376**

Newfoundland Power forecast an additional 2,313 gross domestic customer connections in 2004. Actual gross domestic customer connections in 2004 were 3,632, or 57% more than forecast. Details on the forecast and actual 2004 gross customer connections are set out in Table 2 below.

Table 2
2004 Gross Domestic
Customer Connections

Area [1]	STJ	AVA	BUR	BON	GAN	GFW	CBK	STV	Total
Forecast	1,188	344	72	156	144	130	154	125	2,313
Actual	2,128	384	154	79	213	205	319	150	3,632
Difference	**940**	**40**	**82**	**(77)**	**69**	**75**	**165**	**25**	**1,319**

3. Extensions

Actual 2004 capital expenditures on Distribution Extensions were $3,450,000 more than the 2004 capital budget.

For 2004, Newfoundland Power forecast a unit cost per new customer for Distribution Extensions of $2,143.[2] The 2004 Distribution Extensions budget of $4,956,000 explicitly reflected this unit cost and the 2004 forecast gross domestic customer connections of 2,313 as set out in Table 3 below.

Table 3
Distribution Extensions
2004 Capital Budget

Forecast GDCC [3]	Unit Cost ($)	Budget ($000s)
2,313	2,143	4,956

Actual 2004 gross domestic customer connections were 3,632. Application of the 2004 forecast unit cost to actual gross domestic connections indicates that the increased number of connections was the primary cause of increased Distribution Extensions capital expenditures. This is reflected in Table 4 below.

---

1 STJ = St. John's Area; AVA = Avalon Area; BUR = Burin Area; BON = Bonavista Area; GAN = Gander Area; GFW = Grand Falls Area; CBK = Corner Brook Area; STV = Stephenville Area..

2 See Response to Information Request PUB 27.3, Page 1 of 5 filed in Newfoundland Power's 2005 Capital Budget Application.

3 Forecast gross domestic customer connections.

Table 4
Distribution Extensions
2004 Capital Budget

Forecast GDCC [3]	Unit Cost ($)	Budget ($000s)
3,632	2,143	7,783

The difference between the 2004 capital expenditure based upon unit costs and indicated in Table 4 above and the total Distribution Extensions capital expenditure of $8,406,000 is $623,000. This difference is explained by 2004 capital expenditures associated with the Humber Valley Report (the "HVR").

Due to the special circumstances associated with extending service to HVR, the costs associated with the extension were not reflected in Newfoundland Power's 2004 unit cost budgeting.[4]

4. Meters

Actual 2004 capital expenditures for Meters totaled $123,000 more than the 2004 capital budget.

This increased expenditure broadly reflects the increased number of gross domestic customer connections in 2004 as indicated in Table 5 below.

Table 5
Meters
2004 Capital Expenditures

		Expenditure Increase ($000s)	
Increased GDCC[5]	Unit Cost ($)[6]	Indicated	Actual
1,319	102	135	123

5. Services

Actual 2004 capital expenditures on Services were $62,000 more than the 2004 capital budget. This was principally the result of two of factors.

---

4 In 2004, the Board approved contributions in aid of construction relating to approximately $400,000 in main line distribution extensions related to HVR (see Order Nos. P.U. 15 and 29 (2004)).

5 Increased gross domestic customer connections over forecast.

6 See Response to Information Request PUB 27.3, Page 1 of 5 filed in Newfoundland Power's 2005 Capital Budget Application.

In 2004, the total cost of replacement Services was lower than anticipated in the 2004 capital budget. The 2004 capital budget contained $494,000 for replacement Services. In 2004, actual expenditures on replacement Services was $349,000. The fact that actual 2004 replacement Services capital expenditures were lower than budget tends to mask the overall impact of increased new Services costs on total Services capital expenditures. When the decreased capital expenditures associated with replacement Services is considered, the total variance over budget for capital expenditure for new Services is approximately $207,000.

The $207,000 increased capital expenditure on new Services in 2004 appears disproportionately low when compared to the increases in the other Distribution projects affected by customer growth. The likely cause of this is the fact that the bulk of additional customer connections in 2004 (more than 70%) was experienced in new residential subdivisions in the St. John's area. The connection of new Services in new subdivisions tends to be low-cost. Part of this is due to the close proximity of a relatively large number of new connections. Part of it is due to the low requirement for service poles. Typically, an installed service pole will add approximately $1,000 to the capital cost of a new Service.

6. Street Lighting

Actual 2004 capital expenditures on Street Lighting were $257,000 more than 2004 capital budget.

The only material variance between actual 2004 Street Lighting capital expenditures and the 2004 Street Lighting capital budget occurred in the St. John's area. The variance was $270,000.

The bulk of additional customer connections was in St. John's in 2004 and was associated with new residential subdivisions. In 2004, Newfoundland Power extended distribution service to 59 subdivisions in the St. John's area. This compares to 33 subdivisions in 2003. Actual Street Lighting installations in 2004 were 57% higher than in 2003. This corresponds to the increased 2004 customer growth over forecast.

7. Transformers

Actual 2004 capital expenditures on Transformers were $484,000 more than the 2004 capital budget.

In 2004 general service growth, in the St. John's area in particular, required a larger number of padmount transformers be installed. Total padmount installations in 2004 were 52 compared to 19 in 2003.

The cost of padmount transformers is in the order of $20,000. Approximately 20 padmount transformers were included in the 2004 capital budget. The actual installation of 52 padmount units in 2004 largely explains the increased transformer expenditures.