

- 1 **Q. Please provide all supporting documents, calculations and workpapers used in**
2 **estimating the weighting factors used in Schedule 4.3 of the 2001 Cost of Service**
3 **Study for customer related costs, service drops, and meters (columns B, N and Q).**
4
5 A. Attachment A is a summary report which supports the calculation of the customer cost
6 weighting factors found in Columns B, E, H, K, N and Q of Schedule 4.3 of the 2001
7 Cost of Service Study.

NEWFOUNDLAND POWER INC.

2001 COST OF SERVICE STUDY

CUSTOMER COST WEIGHTING FACTORS

2001 CUSTOMER WEIGHTING FACTORS

Class of Service	Distribution Primary, Secondary & Transformers	Meters and Metering Hardware	Service Drops	Customer Related General
	A	B	C	D
Domestic (Rate 1.1)				
Regular	1.0	1.0	1.0	1.0
All-Electric	1.0	1.0	1.0	1.0
General Service				
Rate 2.1 (0-10 kW)	1.0	2.3	1.0	1.2
Rate 2.2 (10-100 kW)	1.0	14.2	1.2	2.1
Rate 2.3 (110-350 kVA)				
Primary	1.0	205.7	0.0	2.3
Secondary	1.0	61.8	6.6	2.3
Rate 2.3 (350-1000 kVA)				
Transmission	0.0	495.2	0.0	2.3
Primary	1.0	205.7	0.0	2.3
Secondary	1.0	61.8	6.6	2.3
Rate 2.4 (Over 1000 kVA)				
Transmission	0.0	211.6	0.0	2.6
Primary	1.0	236.7	0.0	2.6
Secondary	1.0	129.8	6.6	2.6
Street and Area Lighting (Rate 4.1)	1.0	0.0	0.0	0.2

NOTES:

- A - Weighting factor applied to customer costs related to - Conductor, Poles and Fittings - Secondary - Transformers.
- B - Weighting factor applies to Meters and Metering Hardware. See Schedule 2 for details.
- C - Weighting factor applies to Service Drops. See Schedule 2 for details.
- D - Weighting factor applies to Customer Account, Customer Service Costs and Credit. Based on an analysis of Customer Accounting, Customer Service and Credit Personnel. See Schedule 5 for details.

METERING AND SERVICE DROP WEIGHTING FACTORS

<u>Class of Service</u>	<u>Metering</u>		<u>Service Drop</u>	
	<u>Cost¹</u>	<u>Weighting</u>	<u>Cost²</u>	<u>Weighting</u>
Domestic	\$37	1.0	\$103	1.0
General Service 2.1	84	2.3	104	1.0
General Service 2.2	522	14.2	124	1.2
General Service 2.3 Secondary	2,276	61.8	682	6.6
General Service 2.3 Primary	7,570	205.7	-	0.0
General Service 2.3 Transmission	18,219	495.2	-	0.0
General Service 2.4 Secondary	4,776	129.8	682	6.6
General Service 2.4 Primary	8,708	236.7	-	0.0
General Service 2.4 Transmission	7,786	211.6	-	0.0

NOTES:

- 1 - Weighting Factors are based on the relative cost of installing the metering equipment for a typical customer from each class of service. The details of the costs are shown in Schedule 3.
- 2 - Weighting Factors are based on the relative cost of installing a service drop for a typical customer from each class of service. The details of the costs are shown in Schedule 4.

METER AND METERING HARDWARE COST

Basis for Cost Estimates:

-Metering labour cost are based on construction estimates used for the 2001 CIAC Policy costing tables.

- Metering costs are based on estimates from the Metering Section dated March 16,2002

No labour is charged to metering capital for services under 300 Amps. Line crews installs the meter when the service is connected.

For Services above 300 Amps CT's are required and installed by metering personnel. Labour is then charged to metering.

- GEC NOT included in these estimates.

Domestic Customer	<u>Materials</u>	<u>Labour</u>	<u>Total Cost</u>			
Single Phase Meter	\$37	\$0	\$37			
General Service 2.1	<u>Materials</u>	<u>Labour</u>	<u>Total Cost</u>	<u>Number of Customers</u>	<u>Weighting</u>	<u>Weighted Cost</u>
Total 2.1 (0 - 10 kW) Customers without Meters				770		
Total 2.1 (0 - 10 kW) Customers at year end 2001			11,939	11,169		
Single Phase (energy only meter)	\$37	\$0	\$37	9,185	82.2%	\$30
Single Phase (demand/energy meter)	278	0	278	901	8.1%	22
Three Phase (demand/energy meter)	325	0	325	1,083	9.7%	31
Weighted Class Cost				11,169	100%	\$84
Single Phase - Three Phase splits from monthly bill frequency analysis						
Rate 2.1 BFA for Dec/2001 - Total Less Unmetered	11,110					
Rate 2.1 BFA for Dec/2001 - Three Phase	1,078					
Three Phase as a % of Total	9.7%					
Number of 2.1 Customers with Demand Meters	1,984					
(Based on metering information)	18%					

General Service 2.2	<u>Materials</u>	<u>Labour</u>	<u>Total Cost</u>	<u>Number of Customers</u>	<u>Weighting</u>	<u>Weighted Cost</u>
Total 2.2 (10 - 100 kW) Customers at year end 2001				7721		
Cost Include a Demand Meter						
Single Phase (no CTs)	\$278	\$0	\$278	3,601	46.6%	\$130
Single Phase (with CTs)	664	243	908	985	12.8%	116
Three Phase Demand (no CTs)	325	0	325	1,751	22.7%	74
Three Phase Demand (with CTs)	888	243	1131	1,384	17.9%	203
Weighted Class Cost				7,721	100%	\$522
Number of 2.2 Customers with Metering CT's 1/O	13%					
Number of 2.2 Customers with Metering CT's 3/O	18%					
Single Phase - Three Phase splits from monthly bill frequency analysis						
Rate 2.2 BFA for Dec/2001 - Total	7724					
Rate 2.2 BFA for Dec/2001 - Three Phase	3135					
Three Phase as a % of Total	40.6%					

General Service 2.3	<u>Materials</u>	<u>Labour</u>	<u>Total Cost</u>	<u>Number of Customers</u>	<u>Weighting</u>	<u>Weighted Cost</u>
Total 2.3 (110 - 1000 kVA) Customers year end 2001				948		
Cost Include a Demand Meter						
Secondary Customers*						
Single Phase (with CTs)	\$664	\$243	\$908	6	0.7%	\$6
Single Phase (with CTs & PT's)	\$759	\$243	\$1,002	0	0.0%	\$0
Single Phase (with Metering Tanks)	10,485	625	11,110	2	0.2%	26
Three Phase (with CTs)	888	243	1,131	267	30.8%	348
Three Phase (with CTs & PT's)	1,202	243	1,445	510	58.8%	850
Three Phase (with Metering Tanks)	10,428	625	11,053	82	9.5%	1,045
Weighted Secondary Class Cost				867	100%	\$2,276
Primary Customers*						
Three Phase (with CTs & PT's)	\$1,202	\$243	\$1,445	29	36.3%	\$524
Three Phase (with Metering Tanks)	10,428	625	11,053	51	63.8%	7,046
Weighted Primary Class Cost				80	100.0%	\$7,570
Transmission Customers*						
Three Phase (with Metering Tanks)	17,594	625	18,219	1	100.0%	\$18,219
				948		

* Those with metering tanks include the cost of a test switch & meter cabinet .

Secondary, Primary & Transmission Splits From Dec/2001 BFA .

Single Phase - Three Phase Splits From Dec/2001 BFA .

Number of CustoeMr with CT's, PT's and Metering Tanks estimated from Metering information.

	<u>Bills</u>		
		<u>Adjust to</u>	<u>Metering</u>
		<u>Dec-2001 Booker</u>	<u>Tanks</u>
<u>Secondary</u>			
Rate 2.3 BFA for Dec/2001 - Total Bills	840	867	84
Rate 2.3 BFA for Dec/2001 - Total Three Phase Bills	832	859	82
Rate 2.3 BFA for Dec/2001 - Total Single Phase Bills	8	8	2
<u>Primary</u>			
Rate 2.3 BFA for Dec/2001 - Total Bills (All are Three Phase)	78	80	51
<u>Transmission</u>			
Rate 2.3 BFA for Dec/2001 - Total Bills	1	1	1
Total 2.3	919	948	136

General Service 2.4	<u>Materials</u>	<u>Labour</u>	<u>Total Cost</u>	<u>Number of Customers</u>	<u>Weighting</u>	<u>Weighted Cost</u>
Total 2.4 (Over 1000 kVA) Customers year end 2001				53		
Cost Include a Demand Meter						
Secondary Customers*						
Three Phase (with CTs & PT's) & Load Recorder	\$1,865	\$348	\$2,212	11	73.3%	\$1,622
Three Phase (with Metering Tanks) & Load Recorder	11,096	729	11,826	4	26.7%	3,153
Weighted Secondary Class Cost				15	100%	\$4,776
Primary Customers*						
Three Phase (with CTs & PT's) & Load Recorder	\$1,865	\$348	\$2,212	12	32.4%	\$718
Three Phase (with Metering Tanks) & Load Recorder	11,096	729	11,826	25	67.6%	7,990
Weighted Primary Class Cost				37	100%	\$8,708
Transmission Customers Bus Metered						
Three Phase (with CTs & PT's) & Load Recorder	\$7,334	\$452	\$7,786	1	1.0%	\$7,786
				53		
Cost of a Load Recorder	\$440	\$104	\$544			

* Those with metering tanks include the cost of a test switch & meter cabinet.
 Secondary, Primary & Transmission Splits From Dec/2001 BFA .
 Number of CustoeMr with CT's, PT's and Metering Tanks estimated from Metering information.

	<u>Bills</u>		
		<u>Adjust to</u>	<u>Metering</u>
<u>Secondary</u>		<u>Dec-2001 Booker</u>	<u>Tanks</u>
Rate 2.4 BFA for Dec/2001 - Total Bills	15	15	4
<u>Primary</u>			
Rate 2.4 BFA for Dec/2001 - Total Bills	37	37	25
<u>Transmission</u>			
Rate 2.4 BFA for Dec/2001 - Total Bills	1	1	0
Total 2.4	53	53	29

SERVICE DROP COST

Basis for Cost Estimates:

- Cost are based on construction estimates used for the 2002 CIAC Policy costing tables.
- Number of customers are based on December 2001 bill frequency analysis and reconciled to financial statements.
- Labour charges for services under 300 Amps include the cost of installing the meter. Since the time to install meters is minimum, all labour cost are charged to services.
- GEC NOT included in these estimates.

Domestic Customer

	<u>Materials</u>	<u>Labour</u>	<u>Total Cost</u>
Single Phase 25M Service Drop	\$71	\$32	\$103

General Service 2.1

	<u>Materials</u>	<u>Labour</u>	<u>Total Cost</u>	<u>Number of Customers</u>	<u>Weighting</u>	<u>Weighted Cost</u>
Total 2.1 (0 - 10 kW) Customers at year end 2001				11,939		
Single Phase 25M Service Drop (No Demand Meter) Triplex	\$71	\$32	\$103	9,955	83.4%	\$86
Single Phase 25M Service Drop (With Demand Meter) Triplex	71	32	103	898	7.5%	8
Three Phase 25M Service Drop (With Demand Meter) #2 Quad	58	64	122	1,086	9.1%	11
Weighted Class Cost				11,939	100%	\$104

Single Phase - Three Phase splits from monthly bill frequency analysis

Rate 2.1 BFA for Dec/2001 - Total Bills	11,880
Rate 2.1 BFA for Dec/2001 - Three Phase Bills	1,078
Three Phase as a % of Total	9.1%

Assumption - Number of 2.1 Customers with Demand Meters	1984
	17%

General Service 2.2	<u>Materials</u>	<u>Labour</u>	<u>Total Cost</u>	<u>Number of Customers</u>	<u>Weighting</u>	<u>Weighted Cost</u>
Total 2.2 (10 - 100 kW) Customers at year end 2001				7,721		
Cost Include a 25M Service Drop						
Single Phase (no CTs) Triplex	\$71	\$32	\$103	3,601	46.6%	\$48
Single Phase (with CTs) Triplex	71	32	103	985	12.8%	13
Three Phase Demand (no CTs) #2 Quad	58	64	122	1,751	22.7%	28
Three Phase Demand (with CTs) 4/0 Quad	131	64	196	1,384	17.9%	35
Weighted Class Cost				7,721	100%	\$124
Assumption - Number of 2.2 Customers with Metering CT's 1/O	13%					
Assumption - Number of 2.2 Customers with Metering CT's 3/O	18%					
Single Phase - Three Phase splits from monthly bill frequency analysis						
Rate 2.2 BFA for Dec/2001 - Total Bills	7,724					
Rate 2.2 BFA for Dec/2001 - Three Phase Bills	3,135					
Three Phase as a % of Total	40.6%					

General Service 2.3 & 2.4

	<u>Materials</u>	<u>Labour</u>	<u>Total Cost</u>
Rate 2.3 (110 - 1000 kVA) Secondary Customers			
Cost Include a 25M Service Drop (500 MCM Conductor)	\$618	\$64	\$682
Rate 2.4 (1000 kVA & Over) Secondary Customers			
Cost Include a 25M Service Drop (500 MCM Conductor)	\$618	\$64	\$682

Rate 2.3 and rate 2.4 customers who take service at secondary voltage usually require a 500 MCM service drop.

Weighting Factors for Customer Related General**Direct Operating Expenses**

Credit	1,935,981	24.6%
Customer Accounting	2,960,111	37.6%
Customer Services	2,981,362	37.8%
Sub Total	7,877,454	100.0%

	<u>Direct Weightings</u>			<u>Sub Total Weightings</u>			<u>Weighting Factors</u>
	<u>Credit</u> ¹	<u>Customer Accounting</u> ²	<u>Customer Services</u> ³	<u>Credit</u> 24.6%	<u>Customer Accounting</u> 37.6%	<u>Customer Services</u> 37.8%	
Rate							
1.1	1.0	1.0	1.0	0.25	0.38	0.38	1.0
2.1	1.7	1.0	1.0	0.42	0.38	0.38	1.2
2.2	1.7	3.4	1.0	0.42	1.28	0.38	2.1
2.3 <350	1.7	3.4	1.7	0.42	1.28	0.63	2.3
2.3 >=350	1.7	3.4	1.7	0.42	1.28	0.63	2.3
2.4	1.7	3.4	2.5	0.42	1.28	0.95	2.6
4.1	0.5	0.3	0.0	0.13	0.10	0.00	0.2

1 - Details are shown in Schedule 8

2 - Details are shown in Schedule 7

3 - Details are shown in Schedule 6

Customer Services

Rate	Inquiry ² Minutes	Weighted Inquiry ¹ Minutes	Normalized Weight
1.1	3	3	1.00
2.1	3	3	1.00
2.2	6	3	1.00
2.3	10	5	1.67
2.4	15	7.5	2.50

1 - General Service Customers account for 5% of calls but are 10% of total customers.

2 - Based on LOB duration reports from Call Center - average times. More difficult large commercial commercial customers are often referred to the Team Leaders so call duration numbers for these customers would be based on average calls received.

<u>Rate</u>	<u>Weighting Factors</u>
1.1	1.0
2.1	1.0
2.2	1.0
2.3 <350	1.7
2.3 >350	1.7
2.4	2.5
4.1*	0.0

*Assumes Inquire staff spend very little time on direct Street and Area Lighting calls.

Customer Accounting

	60720		607x4 Meter Reading		60860 Cash Processing
Rate	Billing Mins.	Weight	Min.	Weight	Weight
1.1	0.6	1.0	0.64	1.0	1.0
2.1	0.6	1.0	0.64	1.0	1.0
2.2	1.07	1.8	2.69	4.2	1.0
2.3	1.07	1.8	2.69	4.2	1.0
2.4	1.07	1.8	2.69	4.2	1.0

Notes:

- 1) Billing is based upon the time that it takes process accounts in the Prebill Pending Work Queue.
- 2) Meter Reading is based upon the time that it takes to read meters. Two General Service routes were averaged, as well as two residential routes.
- 3) Cash Processing - There is no significant difference in the time that it takes to process payments for Residential vs. General Service Customers.

Customer Accounting	Function	Total	Labour	Non-Lab
Regulation Policy & system Admin	60700	\$ 293,319	\$ 204,495	\$ 88,823
Billing	60720	221,674	217,353	4,321
Meter Reading	607X4	1,948,827	1,820,978	127,850
Policy & Systems	60760			
Cash control	60860	496,291	425,109	71,182
Cashiers	608X6			
Total Regulation Policy & system Admin (Incls. Cash Control & Cashiers)		2,960,111	2,667,935	292,176

Customer Accounting Weightings	Function		
Billing	60720	221,674	8.3%
Meter Reading	607X4	1,948,827	73.1%
Cash control & Cashiers	60860-608X6	496,291	18.6%
Sub Total		<u>2,666,792</u>	100.0%

	Direct Weightings			Sub Total Weightings			Weighting Factors
	Billing	Meter Reading	Cash Control & Cashiers	Billing	Meter Reading	Cash Control	
Rate				8.3%	73.1%	18.6%	
1.1	1.0	1.0	1.0	0.08	0.73	0.19	1.0
2.1	1.0	1.0	1.0	0.08	0.73	0.19	1.0
2.2	1.8	4.2	1.0	0.15	3.07	0.19	3.4
2.3 <350	1.8	4.2	1.0	0.15	3.07	0.19	3.4
2.3 >350	1.8	4.2	1.0	0.15	3.07	0.19	3.4
2.4	1.8	4.2	1.0	0.15	3.07	0.19	3.4
4.1*	1.0	0.0	1.0	0.08	0.00	0.19	0.3

*In most cases Street Lighting charges are included with some other account. Treat Street Lighting the same as residential and small GS 2.1 for billing and cash processing.

Credit Cost

The breakdown for the cost of Credit (60800) in relationship to each rate class:

RATE:	Customer	Average	Customer	Total Credit	Cost Per Cust		Total Credit	Ave Cost	Ave Cost
	<u>Credit Activity</u>	<u>Customers</u>	<u>Breakdown</u>	<u>Labour Cost</u>	<u>Average</u>	<u>Average GS</u>	<u>Other Cost⁴</u>	<u>per Cust</u>	<u>per Cust</u>
1.1 & 1.2	76.4%	186,058	90.0%	\$ 642,789	\$ 3.45	\$ 3.45	\$ 985,333	\$ 5.30	\$ 8.75
2.1	13.4%	11,929	5.8%	\$ 112,740	\$ 9.45	\$ 9.62	\$ 63,174	\$ 5.30	\$ 14.92
2.2	9.4%	7,721	3.7%	\$ 79,087	\$ 10.24	\$ 9.62	\$ 40,889	\$ 5.30	\$ 14.92
2.3	0.7%	938	0.5%	\$ 5,889	\$ 6.28	\$ 9.62	\$ 4,967	\$ 5.30	\$ 14.92
2.4	0.1%	51	0.0%	\$ 841	\$ 16.50	\$ 9.62	\$ 270	\$ 5.30	\$ 14.92
		206,697	100.0%	\$ 841,347	\$ 4.07	\$ 4.07	\$ 1,094,634	\$ 5.30	\$ 9.37

This numbers were calculated as follows:

1. The Customers requiring collection action for the month of March were reviewed. 76% of the customers were Residential and the remainder were Commercial.
2. Collection action for residential customers is initiated when the customer reaches the Over 60 stage. It is begun for commercial customers at the Over 30 stage. The above percentages reflect the numbers of customers where collection activity has begun, therefore reflects the actual workload of our Credit personnel.
3. The number of Credit customers fluctuates from month to month, however the percentage of Residential to Commercial is relatively consistent. An average for commercial is used.
4. Non-Labour Credit Cost is mainly associated with total postage cost including billing.

	Function	Total	Labour	Non-Lab
Credit collections & cash admin.	60800	1,935,981	841,347	1,094,634
Active collections	608X2			
Inactive collections	608X4			
Total Credit collections & cash admin.		1,935,981	841,347	1,094,634

Rate	<u>Weightings</u>
1.1	1
2.1	1.7
2.2	1.7
2.3 <350	1.7
2.3 >350	1.7
2.4	1.7
4.1*	0.5

* Usually Area Lighting is not the reason behind the collection action, however it is included in the arrears as Area Lighting is normally on the same account. Street Lighting is usually included with the regular premise bill. Area lighting was assigned 1/2 the average weighting of the other classes.