Terasen Gas

Scott A. Thomson
Vice President,
Finance & Regulatory Affairs

16705 Fraser Highway
Surrey, B.C. V3S 2X7
Tel: (604) 592-7784
Fax: (604) 592-7890
Email: scott.thomson@terasengas.com
www.terasengas.com

October 19, 2005

British Columbia Utilities Commission
6th Floor - 900 Howe Street
Vancouver, B.C.
V6Z 2N3

Attention: Mr. R.J. Pellatt, Commission Secretary

Dear Sir:

RE: Terasen Gas Inc.
2004 – 2007 Performance Based Rate Plan
2005 Annual Review - November 10, 2005
BCUC Order No. G-104-05

By Commission Order No. G-104-05, the British Columbia Utilities Commission ("the Commission") set November 10, 2005 as the date for the 2005 Terasen Gas Inc. Annual Review. This Annual Review will be the third under the Company's 2004 – 2007 Multi-Year Performance Based Rate settlement agreement ("the Settlement"). The Settlement was approved by Commission Order No. G-51-03 dated July 29, 2003. The Commission's approval of the Settlement followed a public hearing and Commission Decision on the Company's 2003 Revenue Requirement Application, an April 17, 2003 Application for a Multi-Year Performance Based Rate Plan for 2004-2008, information requests and responses and a negotiated settlement process in June and July 2003.

The terms of the Settlement require Terasen Gas to submit to the Commission and interested parties advance materials on the information to be presented at the Annual Review three weeks prior to the Annual Review. The details of the Annual Review process are set out on Pages 17 to 22 of Appendix A of Commission Order No. G-51-03. The 2005 Annual Review is a process for the Company and stakeholders to ensure that the objectives of the Settlement are being achieved and to review the cost drivers and financial forecasts for the purposes of establishing the 2006 revenue requirements.

Enclosed are twenty (20) copies of the advance information for the 2005 Annual Review. Section A of the binder includes information on the cost drivers, and financial projections and forecasts necessary for setting 2006 delivery rates. Section B of the binder includes various other reports and information requirements identified in the Settlement and Commission Order No. G-51-03. Terasen Gas will present information at the Annual Review on the matters addressed in the advance materials.

The 2006 revenue requirement increase identified in the enclosed materials is $21.6 million, equivalent to a 4.45% increase in gross margin or a 1.32% increase in total revenue at existing rates. After taking into consideration the earnings surplus incentive sharing, the increase is $14.3 million, equivalent to a 2.94% increase in gross margin, or a 0.87% increase in total revenue at existing rates.

The increase to rate base as a result of plant additions and increased gas in storage values contributed $7.8 million to the $21.6 million revenue requirement increase. Other contributors to the revenue requirement increase include lower revenues from the Southern Crossing Pipeline of $4.4 million, lower average customer use rates from Rates 1, 2, 3/23, higher property taxes of $1.8 million, higher operating and maintenance expenses of $5.4 million and increased depreciation expense of $4.2 million. Mitigating the cost pressures are lower income taxes due to decreased income tax rates, and lower financing costs. When the effects of the projected changes to the RSAM and Earnings Sharing Mechanism riders are factored in, residential customers can expect an increase of 0.99% at the burnertip. A summary of the contributors to the increase are summarized in Tab A-1, Page 4.

The revenue requirement information included is based on the allowed 2005 return on equity ("ROE") at 9.03%. Any variances from the 2005 allowed ROE level compared to the ROE subsequently approved by the Commission, or changes in the capital structure of Terasen Gas to be used for rate making purposes, will result in corresponding changes to the final 2006 revenue requirement. Any rate changes related to the flow-through of gas cost changes will be dealt with in a separate application to the Commission.

We trust the enclosed is satisfactory. To assist in the planning of the review, it would be appreciated if any party that intends to attend the Annual Review on November 10, 2005 would contact Regulatory Affairs by email at regulatory.affairs@terasengas.com or by phone (604) 592-7664 to advise of the intended attendance.

Yours very truly,

TERASEN GAS INC.

Original signed by Tom Loski for:

Scott Thomson

c. 2004 – 2007 PBR NSP Participants

TERASEN GAS INC.

2004 – 2007 PERFORMANCE BASED RATE SETTLEMENT AGREEMENT
REVISED FORECASTS AND PROJECTIONS FOR
2006 REVENUE REQUIREMENTS AND
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TERASEN GAS INC.

2004 – 2007 MULTI-YEAR PERFORMANCE BASED RATE PLAN
SUMMARY OF REVENUE REQUIREMENTS
FOR THE YEAR ENDING DECEMBER 31, 2006

By Order No. G-51-03 dated July 29, 2003, the Commission approved the Negotiated Settlement of the Terasen Gas Inc. (“Terasen Gas”) Multi-Year Performance Based Rate Plan for 2004 – 2007 (the “Settlement” or “PBR”).

Pursuant to the provisions of the Settlement Agreement, Terasen Gas has developed the projections and forecasts needed to establish the 2006 revenue requirement. The attached costs and revenues incorporate updated data for:

- 2005 projected year-end customers,
- 2005 projected formula-based capital expenditures trued up for customer additions and average total customers, the resulting year-end plant balances, and other rate base information,
- 2005 projected deferral account balances and amortization,
- 2005 projected formula-based utility O&M trued up for average total customers,
- Other projected 2005 cost-of-service items required under the terms of the Settlement for setting 2006 rates,
- 2006 forecast cost drivers, such as customer additions, average total customers and inflation (less an adjustment factor),
- 2006 customer use rate forecasts,
- 2006 forecast volumes and revenues,
- 2006 formula-based utility O&M expenses including adjustments, as per the terms of the Settlement, for the change in forecast pension and insurance costs,
- 2006 formula-based base capital expenditures and resulting plant balances, accumulated depreciation and contributions-in-aid-of-construction,
- 2006 forecast property taxes,
- 2006 forecast working capital, deferred account balances and amortization, and
- 2006 forecast long-term debt and the associated financing costs of long-term and unfunded debt to be included in 2006 rates.

A summary of the 2006 revenue requirement increase determined pursuant to the terms of the Settlement Agreement and the Revised Target is shown on the following financial summary pages:

The 2006 test year costs and revenues are explained under the following section of this Annual Review material:

- Cost Drivers - see Section A, Tab 2,
- Gas plant in service, plant additions and other rate base components - see Section A, Tab 3,
- Volumes and revenues - see Section A, Tab 4,
- Operating and maintenance costs - see Section A, Tab 5,
- Taxes and other expenses - see Section A, Tab 6,
- Financing costs - see Section A, Tab 7, and
- 2005 projected results - see Section A, Tab 8.

The results of incorporating the forecast and formula-based costs and revenues in the 2006 test year show that the revenue requirement increase, before the earnings surplus sharing, is $21.6 million, equivalent to a 4.45% increase in gross margin, or a 1.32% increase in total revenue at existing rates. After taking into consideration the earnings surplus incentive sharing, the increase is $14.3 million, equivalent to a 2.94% increase in gross margin, or a 0.87% increase in total revenue at existing rates.

The increase to rate base as a result of plant additions and increased gas in storage values contributed $7.8 million to the $21.6 million revenue requirement increase. Other contributors to the revenue requirement increase include lower revenues from the Southern Crossing Pipeline of $4.4 million, lower average customer use rates from Rates 1, 2, 3/23, higher property taxes of $1.8 million, higher operating and maintenance expenses of $5.4 million and increased depreciation expense of $4.2 million. Mitigating the cost pressures are lower income taxes due to decreased income tax rates, and lower financing costs. A summary of the components of the revenue requirement increase is at Page 4.

In addition to the delivery rate changes arising from the $21.6 million revenue requirement increase, core market customers will also experience rate changes in 2006 related to the Revenue Stabilization Adjustment Mechanism (RSAM) rider which is expected to go up from the 2005 level by $0.023 per gigajoule. This increase is offset by a decrease in the revenue requirement of an average of $0.052 per gigajoule resulting from the earnings sharing surplus as determined in accordance with the earnings sharing mechanism. There will also likely be a flow-through of cost of gas increases. The cost of gas is dependent on the commodity market which is subject to considerable volatility. A cold weather snap or unexpected negative news can change the natural gas commodity market outlook quite quickly. The increase in the RSAM rider and the delivery rate net of the earnings sharing credit will result in an increase of 0.99% to the annual bill for residential customers.

The final rates for 2006 may be subject to further adjustments for changes in the allowed return on common equity ("ROE"). The financial calculations for 2006 in the enclosed materials have been made using an ROE of 9.03%, representing the approved 2005 ROE and the capital structure currently approved for rate making purposes. Any revision to rates as a result of a variance between the approved ROE for 2006 and the 9.03% ROE utilized in this filing, or as a result of a change in the capital structure approved for rate making purposes, will be in addition to the rate adjustments reflected in these Annual Review materials.

SUMMARY OF 2006 REVENUE REQUIREMENT INCREASE

		($ Millions)
Volumes/Revenue Related		
• Change in Use rates for Rates 1/2/3/23	$10.2	
• Customer growth and Industrial revenue changes	(7.2)	$3.0
O & M Related		
• Higher O&M per formula	3.9	
• Change in Pension and Insurance forecast	1.5	5.4
Other Items		
• Higher Property Taxes	1.8	
• Higher Depreciation and Amortization	4.2	
• Lower Interest Expense	(3.0)	
• Large Corporations Tax Rate Reduction	(1.7)	
• BC Corporate Income Tax Rate Reduction	(2.2)	
• Lower Other Revenues (primarily SCP related)	4.7	
• Lower Income Tax Deductions	1.6	
• Higher Rate Base due to Plant Additions and Others	7.8	13.2
Revenue Increase (Section A, Tab 1, Page 5, Column 6, Line 15)		21.6
Earnings Sharing		(7.3)
Net Revenue Increase after Earnings Sharing		$14.3

TERASEN GAS INC.

SUMMARY OF RATE CHANGE REQUIRED
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	2005 Approved	2006 Core	2006 Non-Core	2006 Bypass and Special Rates	2006 Total	Change
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	RATE CHANGE REQUIRED						
2							
3	Gas Sales and Transportation Revenue,						
4	At Prior Year's Rates	$1,389,037	$1,554,511	$59,367	$12,589	$1,626,467	$237,430
5							
6	Add - Other Revenue Related to SCP Third Party						
7	Revenue / Terasen Gas (Vancouver Island)	15,991	0	0	11,559	11,559	(4,432)
8							
9	Total Revenue	1,405,028	1,554,511	59,367	24,148	1,638,026	232,998
10							
11	Less - Cost of Gas	(908,924)	(1,149,012)	(1,696)	(863)	(1,151,571)	(242,647)
12							
13	Gross Margin	$496,104	$405,499	$57,671	$23,285	$486,455	($9,649)
14							
15	Revenue Deficiency (Surplus)	($2,196)	$18,948	$2,695	$0	$21,643	
16							
17	Revenue Deficiency (Surplus) as a % of Gross Margin	-0.44%	4.67%	4.67%	0.00%	4.45%	
18							
19	Revenue Deficiency (Surplus) as a % of Total Revenue	-0.16%	1.22%	4.54%	0.00%	1.32%	

TERASEN GAS INC.

UTILITY RATE BASE
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	2005 Approved	2006 Existing Rates	2006 Adjustments	2006 Revised Rates	Change	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Plant in Service, Beginning	$2,922,348	$3,067,485	$0	$3,067,485	$145,137	- Tab A-3, Page 7.1
2	CPCNs	53,749	4,564	0	4,564	(49,185)	- Tab A-3, Page 7.1
3							
4	Additions	117,728	125,924	0	125,924	8,196	- Tab A-3, Page 7.1
5	Disposals	(20,340)	(56,345)	0	(56,345)	(36,005)	- Tab A-3, Page 7.1
6							
7	Plant in Service, Ending	3,073,485	3,141,628	0	3,141,628	68,143	
8							
9	Add - Intangible Plant	837	837	0	837	0	
10							
11		3,074,322	3,142,465	0	3,142,465	68,143	
12							
13	Contributions In Aid of Construction	(153,989)	(137,019)	0	(137,019)	16,970	- Tab A-3, Page 8
14							
15	Less - Accumulated Depreciation	(625,051)	(671,378)	0	(671,378)	(46,327)	- Tab A-3, Page 15
16							
17							
18	Net Plant in Service, Ending	$2,295,282	$2,334,068	$0	$2,334,068	$38,786	
19							
20							
21	Net Plant in Service, Beginning	$2,266,265	$2,302,480	$0	$2,302,480	$36,215	- Tab A-3, Page 9
22							
23							
24	Net Plant in Service, Mid-Year	$2,280,774	$2,318,274	$0	$2,318,274	$37,500	
25	Adjustment to 13-Month Average	0	0	0	0	0	
26	Construction Advances	(2)	(11)	0	(11)	(9)	
27	Work in Progress, No AFUDC	12,358	11,902	0	11,902	(456)	
28	Unamortized Deferred Charges	6,710	13,109	0	13,109	6,399	- Tab A-3, Page 13.1
29	Cash Working Capital	(22,876)	(29,356)	330	(29,026)	(6,150)	- Tab A-3, Page 14
30	Other Working Capital	121,715	194,361	0	194,361	72,646	- Tab A-3, Page 14
31	Deferred Income Tax, Mid-Year	(364)	(364)	0	(364)	0	
32	LILO Benefit	(2,564)	(2,312)	0	(2,312)	252	
33	Utility Rate Base	$2,395,751	$2,505,603	$330	$2,505,933	$110,182	

TERASEN GAS INC.

UTILITY INCOME AND EARNED RETURN
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	2005 Approved	2006 Existing Rates	2006 ----Revised Rates----- Revised Revenue	2006 ----Revised Rates----- Total	Change	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	ENERGY VOLUMES (TJ)						
2	Sales	119,302	116,140	0	116,140	(3,162)	- Tab A-4, Page 15
3	Transportation	105,684	98,287	0	98,287	(7,397)	- Tab A-4, Page 15
4		224,986	214,427	0	214,427	(10,559)	
5							
6	Average Rate per GJ						
7	Sales	$11.051	$13.390	$0.000	$13.553	$2.502	
8	Transportation	$0.648	$0.726	$0.000	$0.753	$0.105	
9	Average	$6.164	$7.585	$0.000	$7.686	$1.522	
10							
11	UTILITY REVENUE						
12	Sales - Existing Rates	$1,320,326	$1,555,107	$0	$1,555,107	$234,781	- Tab A-4, Page 16
13	- Increase	(1,939)	0	18,952	18,952	20,891	
14							
15	Transportation - Existing Rates	68,711	71,360	0	71,360	2,649	- Tab A-4, Page 16
16	- Increase	(257)		2,691	2,691	2,948	
17	**Total**	1,386,841	1,626,467	21,643	1,648,110	261,269	
18							
19	Cost of Gas Sold (Including Gas Lost)	908,924	1,151,571	0	1,151,571	242,647	- Tab A-4, Page 17.1
20							
21	**Gross Margin**	477,917	474,896	21,643	496,539	18,622	
22							
23	Operation and Maintenance	161,729	167,091	0	167,091	5,362	- Tab A-5, Page 2
24	Vehicle Lease	1,915	1,804	0	1,804	(111)	- Section B, Tab 6
25	Property and Sundry Taxes	39,573	41,379	0	41,379	1,806	- Tab A-6, Page 4
26	Depreciation and Amortization	79,720	83,894	0	83,894	4,174	- Tab A-6, Page 7
27	Other Operating Revenue	(25,969)	(21,237)	0	(21,237)	4,732	- Tab A-4, Page 19
28		256,968	272,931	0	272,931	15,963	
29	Utility Income Before Income Taxes	220,949	201,965	21,643	223,608	2,659	
30							
31	Income Taxes	38,321	30,605	7,138	37,743	(578)	- Tab A-1, Page 8
32							
33	**EARNED RETURN**	$182,628	$171,360	$14,505	$185,865	$3,237	
34							
35	**UTILITY RATE BASE**	$2,395,751	$2,505,603	$330	$2,505,933	$110,182	
36							
37	**RATE OF RETURN ON UTILITY RATE BASE**	7.623%	6.840%		7.417%	-0.21%	

TERASEN GAS INC.

INCOME TAXES / REVENUE DEFICIENCY
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	2005 Approved	2006 Existing Rates	2006 ----Revised Rates----- Revised Revenue	Total	Change	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	CALCULATION OF INCOME TAXES						
2	Earned Return	$182,628	$171,360	$14,505	$185,865	$3,237	- Tab A-1, Page 7
3	Deduct - Interest on Debt	(111,229)	(111,164)	(9)	(111,173)	56	
4	Add- Non-Tax Ded. Expense (Net)	(424)	(1,348)	0	(1,348)	(924)	- Tab A-6, Page 6
5							
6	Accounting Income After Tax	70,975	58,848	14,496	73,344	2,369	
7	Add (Deduct) - Timing Differences	(10,273)	(6,115)	0	(6,115)	4,158	- Tab A-6, Page 6
8	Add - Large Corporation Tax	3,049	2,170	(243)	1,927	(1,122)	
9							
10	Taxable Income After Tax	$63,751	$54,903	$14,253	$69,156	$5,405	
11							
12	Income Tax Rate (Current Tax)	35.620%	34.120%	34.120%	34.120%	-1.500%	
13	1 - Current Income Tax Rate	64.380%	65.880%	65.880%	65.880%	1.500%	
14							
15	Taxable Income (L10 / L13)	$99,023	$83,338	$21,634	$104,972	$5,949	
16							
17	Income Tax - Current (L12 x L15)	$35,272	$28,435	$7,381	$35,816	$544	
18							
19	- Large Corporation Tax	3,049	2,170	(243)	1,927	(1,122)	
20							
21	Total	$38,321	$30,605	$7,138	$37,743	($578)	- Tab A-1, Page 7
22							
23							
24	REVENUE DEFICIENCY						
25	Earned Return	$182,628		$14,505	$185,865	$3,237	- Tab A-1, Page 7
26	Add - Income Taxes	38,321		7,138	37,743	(578)	- Tab A-1, Page 7
27	Deduct - Utility Income Before Taxes,						
28	Existing Rates	(223,145)		0	(201,965)	21,180	- Tab A-1, Page 7
29	Corporate Capital Tax	0		0	0	0	
30							
31	Deficiency After Corporate Capital Tax	($2,196)		$21,643	$21,643	$23,839	

TERASEN GAS INC.

RETURN ON CAPITAL
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	Reference	-------- Capitalization -------- Amount		%	Embedded Cost	Cost Component	Earned Return
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	2006 AT 2005 RATES							
2	Long-Term Debt			$1,432,919	57.19%	7.072%	4.044%	
3	Unfunded Debt			245,835	9.81%	4.000%	0.392%	
4	Preference Shares			0	0.00%	0.000%	0.000%	
5	Common Equity			826,849	33.00%	7.285%	2.404%	
6								
7				$2,505,603	100.00%		6.840%	
8								
9	2006 REVISED RATES							
10	Long-Term Debt			$1,432,919	57.18%	7.072%	4.044%	$101,331
11	Unfunded Debt		$245,835					
12	Adjustment, Revised Rates		221	246,056	9.82%	4.000%	0.393%	9,842
13	Preference Shares			0	0.00%	0.000%	0.000%	0
14	Common Equity			826,958	33.00%	9.030%	2.980%	74,674
15								
16				$2,505,933	100.00%		7.417%	$185,847
17								
18	2005 APPROVED							
19	Long-Term Debt			$1,444,684	60.30%	7.255%	4.375%	$104,812
20	Unfunded Debt		$160,463					
21	Adjustment, Revised Rates		6	160,469	6.70%	4.000%	0.268%	6,417
22	Preference Shares			0	0.00%	0.000%	0.000%	0
23	Common Equity			790,598	33.00%	9.030%	2.980%	71,399
24								
25				$2,395,751	100.00%		7.623%	$182,628
26								
27	2006 CHANGE FROM 2005 APPROVED							
28	Long-Term Debt			($11,765)	-3.12%	-0.183%	-0.331%	($3,481)
29	Unfunded Debt		$85,372					
30	Adjustment, Revised Rates		215	85,587	3.12%	0.000%	0.125%	3,425
31	Preference Shares			0	0.00%	0.000%	0.000%	0
32	Common Equity			36,360	0.00%	0.000%	0.000%	3,275
33								
34				$110,182	0.00%		-0.206%	$3,219

TERASEN GAS INC.

2004 – 2007 MULTI-YEAR PERFORMANCE BASED RATE PLAN
2006 COST DRIVERS

The table below shows the Cost Driver forecasts which are used for setting the 2006 Targets as prescribed in BCUC Order No. G-51-03.

	2004 Actual	2005 Projected	2006 Forecast	
Cost Drivers				
Year End Customer Counts	787,020	799,696	812,388	
Customer Additions		12,676	12,692	Note 1
Average Customers Counts	779,461	791,647	804,316	
Change in Average Customers		12,186	12,669	Note 2
Percentage of Customer Growth - Average		1.56%	1.60%	
Escalators				
B.C. Inflation (CPI)			2.20%	Note 3
Adjustment Factor			1.45%	Note 4

Explanatory Notes

Note 1 2005 projection and 2006 forecast year end customer counts are explained under Tab 4 - Volumes and Revenues. Year end customer additions are used to calculate Capital Expenditures driven by customer addition.

Note 2 The percentage growth in average customer is used to calculate the formula based O & M Expense and Other Based Capital Expenditures.

Note 3 Pursuant to the provisions of the July 29, 2003 BCUC Decision, the 2006 B.C. inflation forecast will be determined as the average of the forecasts from the Conference Board of Canada, the B.C. Ministry of Finance, the RBC Financial Group, and the Toronto-Dominion Bank.

Based on this formula, the B.C. CPI forecast for 2006 is 2.20%, and represents the average of the forecasts below:

Conference Board of Canada	2.0%	(July 2005)
B.C. Ministry of Finance	2.0%	(September 2005)
RBC Financial Group	2.9%	(July 2005)
Toronto-Dominion Bank	1.9%	(September 2005)

(Copies of the forecasts are attached as Attachment A)

Note 4 Pursuant to the provisions of BCUC Order G-51-03, the adjustment factor will be 66% of CPI for 2006 equal to 1.45%.

TAB A-2 2006 COST DRIVERS

ATTACHMENT A

Official Forecasts of British Columbia Consumer Price Index

October 3, 2005

Source	Forecast Date	Percent Change 2005	Percent Change 2006
Conference Board of Canada	July 15, 2005	2.0	2.0
BC Ministry of Finance	September 14, 2005	2.1	2.0
RBC Financial Group	July 5, 2005	2.0	2.9
TD Bank Financial Group	September 2005	2.0	1.9
Average		**2.025**	**2.2**

Key Economic Indicators: British Columbia
(Forecast Completed: Jul. 15, 2005)

	2004:1	2004:2	2004:3	2004:4	2005:1	2005:2	2005:3	2005:4	2006:1	2006:2	2006:3	2006:4	2004	2005	2006
GDP at market prices (current $)	149,061 *1.2*	153,454 *2.9*	157,907 *2.9*	163,542 *3.6*	160,014 *−2.2*	163,382 *2.1*	165,132 *1.1*	166,600 *0.9*	167,916 *0.8*	169,456 *0.9*	171,253 *1.1*	172,917 *1.0*	155,991 *7.3*	163,782 *5.0*	170,385 *4.0*
GDP at basic prices (current $)	136,485 *1.3*	140,450 *2.9*	144,681 *3.0*	150,250 *3.8*	146,744 *−2.3*	149,988 *2.2*	151,555 *1.0*	152,824 *0.8*	153,957 *0.7*	155,324 *0.9*	156,937 *1.0*	158,412 *0.9*	142,967 *7.4*	150,278 *5.1*	156,157 *3.9*
GDP at basic prices (constant $ 1997)	125,814 *1.7*	127,295 *1.2*	128,636 *1.1*	129,760 *0.9*	130,518 *0.6*	131,182 *0.5*	132,098 *0.7*	132,951 *0.6*	134,087 *0.9*	135,060 *0.7*	136,000 *0.7*	136,956 *0.7*	127,876 *4.2*	131,687 *3.0*	135,526 *2.9*
Consumer price index (1992 = 1.0)	1.212 *0.4*	1.231 *1.6*	1.234 *0.2*	1.236 *0.1*	1.238 *0.2*	1.252 *1.1*	1.258 *0.5*	1.263 *0.5*	1.269 *0.5*	1.275 *0.5*	1.281 *0.5*	1.287 *0.5*	1.228 *2.0*	1.253 *2.0*	1.278 *2.0*
Implicit price deflator— GDP at basic prices (1997 = 1.0)	1.085 *−0.4*	1.103 *1.7*	1.125 *1.9*	1.158 *3.0*	1.124 *−2.9*	1.143 *1.7*	1.147 *0.3*	1.149 *0.2*	1.148 *−0.1*	1.150 *0.2*	1.154 *0.3*	1.157 *0.2*	1.118 *3.1*	1.141 *2.1*	1.152 *1.0*
Average weekly wages (level)	671.0 *0.5*	678.3 *1.1*	676.8 *−0.2*	680.9 *0.6*	678.0 *−0.4*	684.9 *1.0*	689.1 *0.6*	693.1 *0.6*	699.4 *0.9*	704.7 *0.8*	710.0 *0.8*	715.3 *0.7*	676.7 *1.5*	686.3 *1.4*	707.3 *3.1*
Personal income (current $)	119,571 *1.1*	121,595 *1.7*	122,483 *0.7*	124,180 *1.4*	125,311 *0.9*	127,094 *1.4*	128,167 *0.8*	129,487 *1.0*	131,061 *1.2*	132,440 *1.1*	133,934 *1.1*	135,393 *1.1*	121,957 *4.3*	127,515 *4.6*	133,207 *4.5*
Personal disposable income (current $	92,174 *0.6*	94,875 *2.9*	95,464 *0.6*	96,172 *0.7*	96,895 *0.8*	98,311 *1.5*	99,134 *0.8*	100,150 *1.0*	101,472 *1.3*	102,580 *1.1*	103,733 *1.1*	104,853 *1.1*	94,671 *4.0*	98,623 *4.2*	103,160 *4.6*
Personal savings rate	−7.21	−6.38	−6.48	−6.43	−8.12	−7.21	−7.44	−7.51	−7.15	−6.82	−6.72	−6.59	−6.63	−7.57	−6.82
Population of labour force age (000s)	3,368 *0.3*	3,382 *0.4*	3,397 *0.5*	3,410 *0.4*	3,423 *0.4*	3,439 *0.5*	3,446 *0.2*	3,457 *0.3*	3,466 *0.3*	3,477 *0.3*	3,488 *0.3*	3,498 *0.3*	3,389 *1.5*	3,441 *1.5*	3,482 *1.2*
Labour force (000s)	2,209 *−0.2*	2,216 *0.3*	2,224 *0.4*	2,227 *0.1*	2,248 *0.9*	2,256 *0.4*	2,263 *0.3*	2,273 *0.4*	2,282 *0.4*	2,291 *0.4*	2,305 *0.6*	2,316 *0.5*	2,219 *1.3*	2,260 *1.9*	2,298 *1.7*
Employment (000s)	2,040 *−0.3*	2,051 *0.6*	2,067 *0.8*	2,082 *0.7*	2,098 *0.7*	2,124 *1.3*	2,133 *0.4*	2,142 *0.4*	2,148 *0.3*	2,154 *0.3*	2,163 *0.4*	2,171 *0.4*	2,060 *2.3*	2,124 *3.1*	2,159 *1.7*
Unemployment rate	7.7	7.4	7.1	6.5	6.7	5.9	5.8	5.8	5.9	6.0	6.1	6.3	7.2	6.0	6.1
Retail sales (current $)	45,866 *2.2*	47,049 *2.6*	47,826 *1.7*	48,126 *0.6*	48,890 *1.6*	49,172 *0.6*	49,628 *0.9*	50,115 *1.0*	50,479 *0.7*	50,774 *0.6*	51,175 *0.8*	51,563 *0.8*	47,217 *6.3*	49,451 *4.7*	50,998 *3.1*
Housing starts (units)	31,529 *11.1*	34,558 *9.6*	33,664 *−2.6*	31,949 *−5.1*	31,474 *−1.5*	32,333 *2.7*	31,112 *−3.8*	28,581 *−8.1*	28,018 *−2.0*	28,076 *0.2*	28,036 *−0.1*	27,286 *−2.7*	32,925 *25.8*	30,875 *−6.2*	27,854 *−9.8*

White area represents forecast data.
All data are in millions of dollars, seasonally adjusted at annual rates, unless otherwise specified.
For each indicator, the first line is the level and the second line is the percentage change from the previous period.
Sources: The Conference Board of Canada; Statistics Canada; Canada Mortgage and Housing Corporation.

Table 3.8.2 Components of Nominal Income and Expenditure

			Forecast				
	2003	2004	2005	2006	2007	2008	2009
Labour Income[1] ($ million)	75,141	78,509	82,583	86,632	90,836	95,224	99,796
(% change)	3.2	4.5	5.2	4.9	4.9	4.8	4.8
Personal Income ($ million)	116,125	120,907	126,779	132,870	138,895	145,165	151,643
(% change)	2.7	4.1	4.9	4.8	4.5	4.5	4.5
Corporate Profits Before Taxes ($ million)	12,566	16,703	17,844	18,735	19,838	21,016	22,197
(% change)	11.2	32.9	6.8	5.0	5.9	5.9	5.6
Retail Sales ($ million)	44,421	47,217	49,910	52,491	55,087	57,690	60,412
(% change)	2.7	6.3	5.7	5.2	4.9	4.7	4.7
Housing Starts	26,174	32,925	32,226	30,805	30,511	30,100	29,808
(% change)	21.0	25.8	-2.1	-4.4	-1.0	-1.3	-1.0
Residential Investment[2] ($ million)	10,694	13,148	13,958	14,676	15,440	16,254	17,113
(% change)	19.6	22.9	6.2	5.1	5.2	5.3	5.3
B.C. Consumer Price Index (1992 = 100)	120.4	122.8	125.3	127.9	130.4	133.1	135.8
(% change)	2.1	2.0	2.1	2.0	2.0	2.0	2.0

[1] Domestic basis; wages, salaries and supplementary labour income.

[2] Includes renovations and improvements.

RBC Financial Group

Provincial forecast tables

Provincial forecast comparisons

Average annual % change unless otherwise indicated

	Real GDP			Nominal GDP			Employment			Labour force			Unemployment rate %			Personal disposable income			Housing starts Thousands			Retail sales			CPI		
	04	05	06	04	05	06	04	05	06	04	05	06	04	05	06	04	05	06	04	05	06	04	05	06	04	05	06
NFLD.	-0.7	2.0	6.1	7.1	4.5	8.0	1.3	0.1	1.5	0.4	-0.4	1.2	15.6	15.2	14.9	3.5	1.0	2.8	3.0	2.6	2.3	0.3	2.5	3.0	1.8	2.6	2.4
P.E.I	1.7	1.9	2.1	3.7	4.0	3.9	0.9	2.2	1.2	1.2	1.3	1.1	11.3	10.5	10.4	4.0	4.0	3.5	0.9	1.0	0.9	0.1	3.0	2.2	2.1	2.5	1.4
N.S.	1.3	2.4	2.7	3.9	4.0	4.0	2.4	1.0	1.6	2.0	0.7	1.2	8.8	8.5	8.2	3.3	2.6	4.0	4.8	4.9	4.7	2.8	3.0	3.0	1.8	2.3	1.9
N.B.	2.6	2.5	2.6	4.1	3.9	4.1	1.9	0.5	1.2	1.4	0.2	0.9	9.8	9.5	9.2	2.5	2.9	4.2	3.7	3.5	3.2	1.7	4.0	3.4	1.5	2.0	2.4
QUE.	2.2	2.2	2.9	5.3	4.2	4.5	1.7	0.6	1.5	0.9	0.4	0.9	8.5	8.3	7.8	3.3	2.5	3.7	58.5	53.8	43.1	4.2	7.0	6.0	1.9	1.6	1.8
ONT.	2.6	2.3	3.0	4.7	4.5	5.0	1.7	1.1	1.9	1.5	0.9	1.2	6.8	6.6	6.0	3.5	3.0	4.5	84.3	71.6	57.3	3.2	5.6	6.0	1.9	1.7	2.0
MAN.	2.3	3.4	3.0	6.0	5.5	5.0	0.9	1.3	1.2	1.3	0.7	0.9	5.3	4.7	4.5	3.8	3.1	3.3	4.5	4.0	3.5	6.7	8.3	5.6	2.0	2.7	1.2
SASK.	3.5	3.3	3.4	10.7	5.5	4.8	0.9	1.3	0.9	0.6	0.9	0.8	5.3	5.0	4.9	6.6	4.0	4.6	3.7	2.8	2.3	4.1	6.2	4.5	2.2	2.5	1.6
ALTA.	3.7	3.9	3.9	9.7	6.0	6.2	2.3	2.3	2.0	1.8	1.4	1.8	4.6	3.8	3.6	6.2	6.0	5.6	36.1	38.3	32.9	10.3	10.0	7.2	1.4	1.6	2.2
B.C.	3.9	3.6	3.6	7.5	5.9	6.2	2.3	2.9	2.5	1.3	1.9	2.0	7.2	6.3	5.8	4.0	6.0	6.0	32.7	33.2	29.7	6.3	6.3	6.8	2.0	2.0	2.9
CANADA	2.9	2.7	3.2	6.1	4.9	5.2	1.8	1.3	1.8	1.4	0.9	1.3	7.2	6.9	6.8	3.9	3.6	4.6	232	216	180	4.7	6.5	6.0	1.8	2.0	2.1

KEY PROVINCIAL COMPARISONS

2003 unless otherwise indicated

	NFLD	P.E.I.	N.S.	N.B.	QUE	ONT	MAN	SASK	ALTA	B.C.
Population (000s)	517	138	938	751	7,561	12,440	1,173	996	3,213	4,210
Gross domestic product ($ billions)	19.6	4.0	30.0	23.4	267.0	517.6	40.3	40.5	187.4	156.5
Real GDP ($1997 billions)	15.4	3.4	25.5	21.2	236.2	471.8	35.2	33.1	134.3	138.8
Share of Canada real GDP (%)	1.4	0.3	2.3	1.9	21.0	42.0	3.1	2.9	11.9	12.3
Real GDP growth (CAR, last five years, %)	5.7	2.2	2.7	2.7	2.7	3.1	2.2	1.7	3.3	3.0
Real GDP per capita ($)	29,870	24,756	27,182	28,162	31,235	37,929	29,973	33,243	41,811	32,966
Real GDP growth rate per capita (CAR, last five years, %)	6.3	2.0	2.6	2.6	2.1	1.6	1.7	2.1	1.6	2.1
Personal disposable income per capita ($)	19,490	19,783	21,298	20,371	21,425	24,263	21,282	21,158	26,793	22,291
Employment growth (CAR, last five years, %)	1.4	2.1	1.8	1.5	2.1	2.3	1.3	0.3	2.7	1.7
Employment rate (May 2005, %)	50.0	63.2	59.8	58.8	60.1	64.3	66.1	66.0	70.7	62.2
Discomfort index (inflation + unemp. Rates, latest)	18.8	13.9	10.7	11.7	10.9	9.2	8.6	7.7	5.8	7.7
Manufacturing industry output (% of real GDP, 2004)	6.9	12.3	9.6	15.3	21.0	21.0	12.3	8.4	10.3	12.1
Personal expenditures goods & services (% of real GDP, 2004)	57.7	70.9	68.0	62.5	59.7	54.6	62.0	55.9	52.4	63.9
International exports (% of real GDP, 2004)	32.8	29.4	27.3	44.8	36.7	50.0	30.1	41.2	36.2	30.8

Source (all tables): Statistics Canada, RBC Economics Department

PROVINCIAL CONSUMER PRICE INDEX											
Cal. Year	CANADA % chg.	N. & L. % chg.	P.E.I. % chg.	N.S. % chg.	N.B. % chg.	Que. % chg.	Ont. % chg.	Man. % chg.	Sask. % chg.	Alta. % chg.	B.C. % chg.
1997	1.7	2.1	1.2	2.1	1.9	1.5	1.9	2.2	1.3	2.1	0.7
1998	0.9	0.2	-0.5	0.6	0.6	1.4	0.9	1.3	1.4	1.1	0.3
1999	1.7	1.5	1.2	1.7	1.6	1.5	1.9	1.9	1.7	2.4	1.1
2000	2.7	3.0	4.1	3.5	3.3	2.4	2.9	2.5	2.6	3.5	1.9
2001	2.6	1.1	2.6	1.8	1.7	2.4	3.1	2.6	3.1	2.3	1.7
2002	2.2	2.4	2.7	3.0	3.4	2.0	2.0	1.6	2.8	3.4	2.3
2003	2.8	2.9	3.5	3.4	3.4	2.5	2.7	1.8	2.3	4.4	2.1
2004	1.9	1.8	2.2	1.8	1.5	1.9	1.9	2.0	2.2	1.4	2.0
2005f	1.9	2.2	2.1	2.2	2.0	1.9	1.9	2.2	2.5	1.8	2.0
2006f	1.6	1.6	1.8	1.8	1.5	1.6	1.6	1.9	2.1	2.0	1.9
2007f	1.7	1.7	1.8	1.8	1.5	1.7	1.8	1.9	2.1	2.0	2.0

f: forecast as at September 2005; Source: Statistics Canada, TD Economics

2006 RATE BASE

The 2006 Rate base is forecast to be $2.506 billion. Rate Base is composed of mid-year net gas plant in service, construction advances, work-in-progress not attracting AFUDC, unamortized deferred charges, cash working capital, other working capital, deferred income tax, and LILO benefit.

The 2006 Rate Base includes full year impacts of the 2005 projected plant activities including:

- 2005 CPCN Opening Additions of $51.7 million
- Adjusted Formula-Based Capital Additions of $123.0 million
- Plant Depreciation and CIAOC Amortization of $79.8 million

Details of the 2005 projected plant balances can be found in Section A, Tab 3, Pages 7.2 and 7.3.

Also, the 2006 Rate Base includes 2006 activities including:

- 2006 CPCN Opening Additions of $4.6 million
- Base Capital Additions of $125.9 million
- Plant Depreciation and CIAOC Amortization of $85.6 million
- Various changes in deferred charges, working capital and other items increasing rate base by a net amount of $72.7 million.

Details of the 2006 forecasted plant balances can be found in Section A, Tab 3, Pages 7 and 7.1.

TERASEN GAS INC.

2006 REVENUE REQUIREMENT
GAS SALES AND TRANSPORTATION VOLUMES

This Section addresses the forecast of gas sales and transportation volumes for 2006. Included in this Section is a review of the energy forecast methodology, as well as factors influencing customer additions and use per customer. An outline of the residential, commercial and industrial margins and revenues over the forecast period is also provided.

The yearly projections and forecasts including customer accounts and the use per account used to derive revenues for 2006, reflect the best information available at the time of the Annual Review.

The forecast of industrial accounts and associated volumes are updated to reflect the latest Industrial Survey conducted during the summer of 2005. Similarly, revenue and margin forecasts reflect the most recently approved rates.

1. FORECAST METHODOLOGY

Consistent with previous years, the forecasting process is comprised of three main components:

- the customer additions forecast;
- the average Use per Residential and Commercial Account Forecast; and
- the Industrial Forecast.

The residential and commercial energy forecast consisting of Rate Schedules 1, 2, 3, and 23 is driven by the respective account and use per customer forecasts, while the industrial energy forecast incorporates Rate Schedules 5, 7, 22, 25 and 27 and is based mainly on customer survey data. Seasonal (Rate Schedule 4) and Natural Gas Vehicle (Rate Schedule 6) account and demand growth is modelled from market information and historical trends.

The customer additions forecast reflects prevailing macroeconomic circumstances affecting residential and commercial customers. The forecast for industrial customers assumes no net change in the number of customers over the forecast period, except where written requests for change of service have been received by Terasen Gas.

Consistent with the methodology used in prior years, the average use per customer is estimated for Rate Schedules 1, 2, 3 and 23 and is multiplied by the corresponding forecast of customers in each respective class to derive energy by rate class. The large volume industrial and transportation customer throughput forecast continues to rely on historical data, sector analyses and customer-specific survey results.

Current rates are applied against the energy forecast to calculate the revenue forecast. The underlying assumptions and components of that forecast are discussed below.

2. UNDERLYING ASSUMPTIONS

Terasen Gas expects recent conservation efforts and trends to persist.

The forecast assumes continued growth in the regional economy, with primary considerations of the energy forecast being:

- regional economic growth for the balance of 2005 and 2006;
- strong provincial population growth continues, with significant contributions from interprovincial migration and international immigration;
- natural gas commodity prices continue to remain high relative to historical levels and will experience continued price volatility;
- no change to provincial electricity pricing methodologies;
- natural gas is increasingly more competitively challenged compared to electricity and to some degree to alternative energy options;
- energy efficiency improves with appliance renewal and continuing conservation efforts; and
- key industrial and transportation sectors experience limited growth, but with energy volumes offset by improved energy efficiency and switching to alternative fuels.

3. ECONOMIC OUTLOOK FOR BRITISH COLUMBIA

In its September update to the Balanced Budget 2005 announced in February 2005, the B.C. Ministry of Finance increased its projected economic growth (real GDP) in British Columbia of 3.4 per cent in 2005 and 3.2 per cent in 2006. The unemployment rate is expected to decrease to 6.5% in 2005 and to 6.4% in 2006. This forecast represents a substantial improvement from an unemployment rate of 7.2% experienced in 2004. Recent economic outlooks prepared by the Conference Board of Canada and various financial institutions are consistent with the Ministry of Finance's projections and in some cases suggest better performance is likely than the Ministry's projections[1]. Healthy population growth is expected to support continued strong economic growth over the near term.

Housing Market

The housing market in BC has experienced strong gains since 2001. However this growth appears to have peaked in 2005 and is expected to decline slightly in 2006 from levels experienced in 2005. According to the Canada Mortgage and Housing Corporation (CMHC)[2], employment growth and continued consumer optimism are driving demand for existing and new housing markets. A strong increase in population growth and continued future economic expansion will help to stabilize housing starts in the near term at levels slightly below the highs experienced over the past year. These fundamentals, coupled with high consumer confidence and low interest rates, will continue to sustain a robust housing resale market.

As of June 2005, single detached housing starts decreased 14% year over year, from 6,934 for June 2004 to 5,954 starts. Multiple home starts continued to grow, from 8,976 for June 2004 to 9,446 starts year to date, representing a 5% increase year over year.

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[1] BMO Financial Group – Provincial Outlook, Aug 30, 2005 (2005 3.5%, 2006 3.8%); Conference Board of Canada, June 15, 2005 (2005 3.0%, 2006 2.9%); RBC Financial Group, "Provincial Outlook", July 2005 (2005 3.6%, 2006 3.6%).
[2] CMHC "Housing market Outlook" – Canada August 2005 edition.

BC Housing Starts[3]

The latest CMHC housing starts forecast for B.C. published in August 2005 projects 33,600 housing starts for 2005 and 31,600 for 2006, representing a reduction of approximately 6%. The majority of new housing starts are expected to occur in the Greater Vancouver region. Demand for new multi-family homes is expected to remain strong in response to demand for affordable homes from first-time buyers and demand from investors.

Customer Additions Forecast

The customer addition forecast is derived from broad regional economic forecasts and end-use information. Inputs gathered through industrial associations, research institutes, government agencies and periodic surveys provide the basis for relating economic data to account growth. To forecast residential account additions, actual household formation, estimated market share, and historical commodity price are statistically linked with actual account additions to model annual account growth on a service area basis. Household formation, market share and commodity price forecasts are then applied to obtain the expected number of additions, adjusted for actual customer counts to date (July 2005). For the forecast produced in support of the 2005 Annual Review, the BC Statistics 2005 Household Formation Forecast[4] is used as the primary predictor variable to estimate household formations by area over the forecast period, with the near-term forecast validated by current housing start and service request information.

[3] CMHC.
[4] Updated July 2005.

The housing boom sparked by low mortgage rates and improving consumer confidence has added new customer services at rates somewhat higher than those anticipated in prior forecasts. Although mortgage rates are expected to slowly rise, a very active resale market together with continued population and employment growth are expected to maintain the current boom for the balance of this year and through 2006[5].

The table below provides a summary of the Residential and Commercial customer additions for the last 3 years, and a projection for 2005 and the 2006 forecast customer additions. It also shows year-to-year changes in housing starts and population growth.

TGI Customer Growth[1]

	2002 ACTUALS	2003 ACTUALS	2004 ACTUALS	2005 PROJECTED	2006 FORECAST
Residential	7,360	6,306	10,716	12,095	12,204
Commercial	(220)	(762)	756	636	489
Industrial & Transportation	(533)	2	32	(55)	(1)
Total Change	**6,607**	**5,546**	**11,504**	**12,676**	**12,692**
Year-Ending Customers	769,970	775,516	787,020	799,696	812,388
Housing Starts[2]	21,625	24,050	32,925	33,600	31,600
Population Growth[3]	0.9%	0.1%	1.1%	1.0%	1.1%

Notes:

1. Includes Lower Mainland, Inland, Columbia & Revelstoke service regions only.
2. Housing Stats forecast for 2005 & 2006 from CMHC, Housing Market Outlook Canada, Third Quarter 2005
3. Population Growth Forecast from 2005 BC Stats Provincial Population Forecast (PEOPLE 30)

[5] CMHC Housing Market Outlook, Canada Edition, August 2005.

Even though the provincial estimates of new housing starts is projected to fall by approximately 6%, the forecast below reflects a less than 1% decrease in customer additions for 2006. Over the past year TGI has focused on educating existing and prospective customers as to the economic benefits of natural gas for space and water heating relative to other energy sources. TGI's capture rate of new customers has grown since 2002, but given the recent uptrend in natural gas prices the forecast for 2006 may be somewhat optimistic. Natural gas prices decreased from record high levels in 2001 and TGI was able to make some further inroads in the market following that moderation in natural gas pricing. However natural gas is significantly more challenged today relative to other energy sources, particularly electricity, than it was in the past. The negative impacts of the recent natural gas price increase on new customer additions will likely begin to be felt in the latter part of 2006 and into 2007 as energy decisions in respect of new construction will be made 6 to 12 months ahead of the actual start of construction.

4. USE PER CUSTOMER FORECAST

Individual use per account projections were developed for each service area and rate class by considering the following factors:

- recent historical normalized use per account;
- customer migration between rates;
- forecast use for new customer additions;
- appliance conversion or replacement effects where applicable;
- the estimated impact of demand side management programs over the forecast period; and
- the near term reaction of consumers to recent natural gas rate increases.

In response to changes in customer lifestyle and the provincial demographic profile, Terasen Gas expects the proportionate share of multiple housing to increase over the next several years. Homeowner preference shifts toward apartment-style condominiums and townhouses will place further downward pressure on residential usage per account. Other factors causing downward pressure on use rates include space heating efficiency, improved home insulation, setback thermostats, and more generally the high natural gas commodity price.

The competitive price perception of natural gas has eroded in recent years, notwithstanding that gas continues to be the most cost effective energy alternative for many applications. The forecast assumes that future electricity rate increases will help preserve the relative competitiveness of natural gas as a heating energy source over the next few years.

The rate increases of the past 6 months are expected to have an impact on customer use rates in 2006 as customers seek to mitigate the financial impacts of these increases. It is expected that customers will undertake some further conservation activities to reduce gas use in the near term, such as turning back thermostats and hot water heater settings and reducing the use of their natural gas fireplaces.

A summary of historic customer usage and the forecast use per account values are set out below. The forecast use per account values in the table below were used to develop the revenue forecasts in this Annual Review.

Historic and Forecast Usage - Rates 1, 2, 3 & 23 (GJs)

	Normal 2002	Normal 2003	Normal 2004	Forecast 2005	Forecast 2006
Rate 1	105.6	103.1	102.6	103.3	100.6
Rate 2	301.8	303.6	313.8	317.1	307.6
Rate 3	3,378.1	3,292.0	3,500.9	3,426.0	3,401.7
Rate 23	5,281.1	4,883.4	5,112.6	4,975.3	4,976.7

5. ENERGY FORECAST

a. Residential and Commercial

The residential and commercial energy forecast is calculated by multiplying the estimated energy use per account by the total number of customers including customer additions. Compared with the projection for 2005, total residential consumption is expected to rise marginally from 70.3 to 72.9 PJs while total commercial use is forecast to increase from 43.2 to 43.8 PJs. Lower projected volumes for 2005 compared with 2006 is primarily caused by the effect of warmer than normal weather experienced over the first seven months of this year. The forecast for each year is provided in the summary table at the end of this section.

b. Firm Sales and Industrial

As with previous years, the primary source of information for the industrial energy forecast is a customer survey, which was conducted over the summer of 2005. Surveys were faxed or mailed to each customer in rate schedules 7, 22, 25 and 27. Customers were asked to what extent they expect their firm’s natural gas consumption to change from the previous year, and then to estimate their consumption over the forecast period. The industrial energy forecast was then updated to include these demand estimates and other pertinent feedback.

A total of 333 surveys were completed, representing a response rate of 48% by number of accounts and 67% by 2006 forecast volume. Surveys were gathered from customers across every service region, rate class, and industry.

Rate Schedule 5 forecast volumes were estimated based on the most recent 12 months (July 2004 – June 2005) of metered consumption data. Where statistically acceptable, the forecast consumption was adjusted to reflect a normal weather year.

Total Firm Sales and Industrial energy consumption [excluding Burrard Thermal and Terasen Gas (Vancouver Island)] is expected to decrease from 63.6 PJs in 2004 to 63.2 PJs in 2005. This continued reduction in volume represents a decline of approximately 1% in 2005 from levels in 2004 and then by an additional 2% in 2006. This volume decline is primarily caused by fuel-switching.

The following table sets out the energy forecast by Residential, Commercial, Firm Sales, and Industrial rate classes. However since the industrial customer survey was undertaken, natural gas prices have increased significantly and the supply disruption impacts of the hurricanes in the US Gulf Coast have been more fully assessed. Given this, we would expect that the industrial customers will be focused on further reducing their natural gas consumption and would expect that the forecast provided here may prove to be optimistic in nature.

Energy Forecast (PJ per annum)

	Normal 2002	Normal 2003	Normal 2004	Projected 2005	Forecast 2006
Residential[1]	72.6	72.6	72.0	70.3	72.9
Commercial[2]	44.3	45.3	45.2	43.2	43.8
Firm Sales[3]	6.9	6.1	5.3	4.8	4.5
Industrial[4]	59.4	58.8	58.3	58.4	57.5
Total	183.2	182.8	180.8	176.7	178.7

Notes
1. Rate 1
2. Rates 2, 3 & 23
3. Rates 4, 5 & 6
4. Rates 7, 22, 25 & 27; Burrard Thermal & TGVI are excluded

6. REVENUE FORECAST

Revenue forecasts for each customer class are developed from the total energy forecasts and the applicable rates. The revenue forecast below does not include amounts for Terasen Gas (Vancouver Island) and BC Hydro for Burrard Thermal.

The table below summarizes the 2005 Projection and 2006 Revenue Forecast by market segment and provides data from 2002-2004 for comparison purposes. Revenues from residential, commercial, a firm sales customers are expected to increase substantially in 2006 due to recent increases in the commodity cost of natural gas.

Revenue Forecast ($ millions per annum)

	Normal 2002	Normal 2003	Normal 2004	Projected 2005	Forecast 2006
Residential[1]	702.3	784.3	815.0	878.2	1,012.1
Commercial[2]	360.7	411.2	421.1	441.4	502.6
Firm Sales[3]	51.3	51.8	47.6	47.4	52.2
Industrial[4]	44.7	44.7	47.1	49.3	49.6
Total	1,159.0	1,292.0	1,330.8	1,416.3	1,616.5

Notes

1. Rate 1
2. Rates 2, 3 & 23
3. Rates 4, 5 & 6
4. Rates 7, 22, 25 & 27; Burrard Thermal & TGVI are excluded

7. MARGIN FORECAST

In 2005 and 2006, total margin is expected to change only slightly with the forecast incorporating approved rate increases and forecast customer growth. The table below sets out the forecast for Residential, Commercial, Firm Sales, and Industrial customers.

Margin Forecast ($ millions per annum)

	Normal 2002	Normal 2003	Normal 2004	Projected 2005	Forecast 2006
Residential[1]	264	273.2	284.2	279.7	288.3
Commercial[2]	113.7	118.8	123.4	119.0	120.2
Firm Sales[3]	12.3	10.5	10.9	9.6	9.3
Industrial[4]	43.9	43.5	45.4	48.2	47.8
Total	433.9	446.0	463.9	456.5	465.6

Notes

1. Rate 1
2. Rates 2, 3 & 23
3. Rates 4, 5 & 6
4. Rates 7, 22, 25 & 27; Burrard Thermal & TGVI are excluded

8. SOUTHERN CROSSING PIPELINE (SCP) THIRD PARTY REVENUES

For 2006, SCP Third Party firm revenues are forecast to be $7.5 million. This revenue forecast currently reflects the termination of the BC Hydro agreement at the end of October 2005 consistent with Commission Order No. G-55-05. Under this Order, the Midstream Cost Reconciliation Account (MCRA) is to be debited $3.6 million annually and an equal amount credited to the delivery margin account. The Company does not consider that all aspects of the Commission's Decision were reasonable and believes the Commission inappropriately dealt with the application before it. The Company is currently evaluating its position and may seek reconsideration of, or leave to appeal, Order G-55-05. Depending in the course of action the Company pursues, this accounting treatment may be modified.

Variances from forecast in SCP Third Party revenues continue to be subject to deferral treatment as set out in the 2004–2007 Negotiated Settlement document.

9. MISCELLANEOUS REVENUE

Revenue from service work remains at $85 for customer additions and $25 for account transfers. Late Payment Charges are calculated using the O&M formula methodology as set out in the 2004–2007 Negotiated Settlement document. Annual NSF cheques are estimated at approximately 1% of the beginning of year account base at a rate of $20 per cheque.

Other miscellaneous revenue is estimated at approximately $0.2 million that is primarily comprised of NRB recoveries.

10. BURRARD THERMAL REVENUE

Various Burrard Thermal agreements, including the Bypass Transportation Agreement, generate approximately $9.9 million in revenues annually. The transportation charge is fixed and independent of energy consumption.

11. TERASEN GAS (VANCOUVER ISLAND) INC. REVENUE

Revenue from wheeling demand charges and odorant cost recovery remains at approximately $4.1 million per year.

12. FORECAST RISKS

Although the economic fundamentals that underpin the forecast for 2006 are stronger than they have been in the recent past, a number of risks are present that could affect actual performance over the near term. These risks are greater for 2006 than they were for 2005 and include:

- an increase in interest rates and a slow-down in new construction;
- rising construction costs and a shortage of skilled trades workers;
- a stronger Canadian dollar and a decrease in the competitiveness of the export market, especially as it affects the forestry industry;
- recent commodity price increases have impacted the competitive position of natural gas as an energy choice; and
- near term reactions by all customer segments to reduce natural gas consumption in light of recent rate increases.

13. SUMMARY

The updated Year-End Forecast for 2005 reflects the best currently available information, and incorporates the following changes since the 2005 Forecast was completed:

- Revenues adjusted to reflect current rates including all approved 2005 permanent delivery rates and gas cost increases; and
- Customer counts adjusted to reflect actual results to July 2005.

GAS SALES AND TRANSPORTATION VOLUMES
FOR THE YEAR ENDING DECEMBER 31, 2006

Line No.	Particulars	2005 Approved	2006 Terajoules Core and Non-Core	Bypass and Special Rates	Total	Change	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	SALES						
2	Schedule 1 - Residential	73,587.7	72,934.4	0.0	72,934.4	(653)	
3	Schedule 2 - Small Commercial	22,448.0	22,333.4	0.0	22,333.4	(115)	
4	Schedule 3 - Large Commercial	17,879.4	16,273.6	0.0	16,273.6	(1,606)	
5							
6	Total Schedules 1, 2 and 3	113,915.1	111,541.4	0.0	111,541.4	(2,373.7)	
7							
8	Schedule 4 - Seasonal Service	179.5	120.6	0.0	120.6	(59)	
9	Schedule 5 - General Firm Service	4,806.4	4,205.8	0.0	4,205.8	(601)	
10							
11	Industrials						
12	Schedule 7 - Interruptible	73.7	53.9	0.0	53.9	(20)	
13							
14	Schedule 10	0.0	0.0	0.0	0.0	0	
15							
16	Total Industrials	73.7	53.9	0.0	53.9	(19.8)	
17							
18	Schedule 6 - N G V Fuel - Stations	327.3	217.8	0.0	217.8	(110)	
19							
20	Total Sales	119,302.0	116,139.5	0.0	116,139.5	(3,162.5)	- Tab A-1, Page 7
21							
22	TRANSPORTATION SERVICE						
23	Schedule 22 - Firm Service	25,462.3	10,154.4	13,396.4	23,550.8	(1,911)	
24	- Interruptible Service	14,662.6	15,100.5	0.0	15,100.5	438	
25	Schedule 23 - Large Commercial	5,037.6	5,185.7	0.0	5,185.7	148	
26	Schedule 25 - Firm Service	14,513.2	13,475.8	2,070.6	15,546.4	1,033	
27	Schedule 27 - Interruptible Service	5,783.5	6,103.0	0.0	6,103.0	320	
28	Terasen Gas (Vancouver Island)	40,128.1	0.0	32,685.0	32,685.0	(7,443)	
29	Columbia Service Area - Byron Creek	97.0	0.0	115.9	115.9	19	
30							
31	Total Transportation Service	105,684.3	50,019.4	48,267.9	98,287.3	(7,397.0)	- Tab A-1, Page 7
32							
33	TOTAL SALES AND TRANSPORTATION SERVICE	224,986.3	166,158.9	48,267.9	214,426.8	(10,559.5)	- Tab A-1, Page 7

REVENUE
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	2005 Approved	2006 Gas Sales Revenue At 2005 Rates: Core and Non-Core	2006 Gas Sales Revenue At 2005 Rates: Bypass and Special Rates	2006 Gas Sales Revenue At 2005 Rates: Total	Change	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	SALES						
2	Residential / Residential	$851,647	$1,012,064	$0	$1,012,064	160,417	
3	Schedule 2 - Small Commercial	243,131	293,147	0	293,147	50,016	
4	Schedule 3 - Large Commercial	175,812	197,097	0	197,097	21,285	
5							
6	Total Schedules 1, 2 and 3	1,270,590	1,502,308	0	1,502,308	231,718	
7							
8	Schedule 4 - Seasonal Service	1,643	1,324	0	1,324	(319)	
9	Schedule 5 - General Firm Service	44,139	48,195	0	48,195	4,056	
10		45,782	49,519	0	49,519	3,737	
11	Industrials						
12	Schedule 7 - Interruptible	647	596	0	596	(51)	
13							
14	Schedule 10	0	0	0	0	0	
15							
16							
17	Total Industrials	647	596	0	596	(51)	
18							
19	Schedule 6 - N G V Fuel - Stations	3,307	2,684	0	2,684	(623)	
20							
21	Total Sales	1,320,326	1,555,107	0	1,555,107	234,781	- Tab A-1, Page 7
22							
23	TRANSPORTATION SERVICE						
24	Schedule 22 - Firm Service	19,458	6,744	11,701	18,445	(1,013)	
25	- Interruptible Service	10,007	11,228	0	11,228	1,221	
26	Schedule 23 - Large Commercial	12,092	12,391	0	12,391	299	
27	Schedule 25 - Firm Service	20,983	22,046	840	22,886	1,903	
28	Schedule 27 - Interruptible Service	6,133	6,362	0	6,362	229	
29	Terasen Gas (Vancouver Island)	0	0	0	0	0	
30	Columbia Service Area - Byron Creek	38	0	48	48	10	
31							
32	Total Transportation Service	68,711	58,771	12,589	71,360	2,649	- Tab A-1, Page 7
33							
34	TOTAL SALES AND TRANSPORTATION SERVICE	$1,389,037	$1,613,878	$12,589	$1,626,467	$237,430	

COST OF GAS BY RATE SCHEDULE
FOR THE YEAR ENDING DECEMBER 31, 2006

		Lower Mainland			Inland Including Revelstoke			Columbia			Total
Line No.	Particulars	Energy TJ	Unit Cost $/GJ	Cost of Gas ($000)	Energy TJ	Unit Cost $/GJ	Cost of Gas ($000)	Energy TJ	Unit Cost $/GJ	Cost of Gas ($000)	Cost of Gas ($000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	CORE AND NON-CORE										
2	Core and Non-Core Sales										
3	Schedule 1 - Residential	54,565.5	$9.941	$542,436	16,661.6	$9.861	$164,307	1,707.3	$9.970	$17,022	$723,765
4	Schedule 2 - Small Commercial	16,074.6	$10.021	161,084	5,577.5	$9.971	55,611	681.3	$10.048	6,845	223,540
5	Schedule 3 - Large Commercial	13,407.2	$9.750	130,720	2,606.3	$9.788	25,511	260.1	$9.785	2,545	158,776
6	Schedules 1, 2 and 3	84,047.3		834,240	24,845.4		245,429	2,648.7		26,412	1,106,081
7											
8	Schedule 4 - Seasonal	78.0	$9.474	739	42.6	$9.392	400	0.0	$0.000	0	1,139
9	Schedule 5 - General Firm	3,538.5	$9.476	33,531	611.7	$9.392	5,745	55.6	$9.519	529	39,805
10											
11	Industrial										
12	Interruptible - Schedule 7	42.2	$9.479	400	11.7	$9.392	110	0.0	$0.000	0	510
13	- Schedule 10	0.0	$0.000	0	0.0	$0.000	0	0.0	$0.000	0	0
14	Total Industrials	42.2		400	11.7		110	0.0		0	510
15											
16	N G V Fuel - Stations - Schedule 6	198.0	$9.135	1,809	19.8	$9.070	179	0.0	$0.000	0	1,988
17			$6.935			$9.070			$0.000		
18	Total NGV	198.0		1,809	19.8		179	0.0		0	1,988
19											
20	Total Core and Non-Core Sales	87,904.0		870,719	25,531.2		251,863	2,704.3		26,941	1,149,523
21											
22	Core and Non-Core Transportation Service										
23	Schedule 22 - Firm Service	292.0	$0.020	6	7,135.7	$0.020	142	2,726.7	$0.080	217	365
24											
25	- Interruptible Service	14,270.4	$0.020	285	798.4	$0.020	15	31.7	$0.080	3	303
26											
27	Schedule 23 - Large Commercial	4,154.7	$0.020	83	1,001.0	$0.020	20	30.0	$0.080	2	105
28	Schedule 25 - Firm Service	8,854.4	$0.020	176	4,241.1	$0.020	84	380.3	$0.080	30	290
29	Schedule 27 - Interruptible Service	5,231.4	$0.020	104	871.6	$0.020	17	0.0	$0.000	0	121
30	Total Core and Non-Core T-Service	32,802.9		654	14,047.8		278	3,168.7		252	1,184
31											
32											
33	Total Core and Non-Core Sales and										
34	Transportation Service										
35	Cost of Gas Sold	120,706.9		$871,373	39,579.0		$252,141	5,873.0		$27,193	$1,150,707

COST OF GAS BY RATE SCHEDULE
FOR THE YEAR ENDING DECEMBER 31, 2006

		Lower Mainland			Inland Including Revelstoke			Columbia			Total
Line No.	Particulars	Energy TJ	Unit Cost $/GJ	Cost of Gas ($000)	Energy TJ	Unit Cost $/GJ	Cost of Gas ($000)	Energy TJ	Unit Cost $/GJ	Cost of Gas ($000)	Cost of Gas ($000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	BYPASS AND SPECIAL RATES										
2	Bypass and Special Rates Sales										
3	Schedule 4 - Seasonal	0.0	$0.000	$0	0.0	$0.000	$0	0.0	$0.0000	$0	$0
4											
5	Large Industrial										
6	Interruptible - Schedule 10	0.0	$0.000	0	0.0	$0.000	0	0.0	0.0000	0	0
7											
8			$0.000			$0.000					
9	Total Large Industrial	0.0		0.0	0.0		0.0	0.0		0.0	0
10	Total Bypass and Spec. Rates Sales	0.0		0.0	0.0		0.0	0.0		0.0	0
11											
12	Bypass and Special Rates Transportation Service										
13	Schedule 22 - Firm Service	0.0	$0.000	0	10,130.3	$0.020	202	266.1	0.0800	21	223
14											
15	- Interruptible Service	0.0	$0.000	0	0.0	$0.000	0	0.0	0.0000	0	0
16											
17	- Burrard Thermal - Firm	3,000.0	$0.017	50	0.0		0	0.0		0	50
18	Schedule 23 - Large Commercial	0.0	$0.000	0	0.0	$0.000	0	0.0	0.0000	0	0
19	Schedule 25 - Firm Service	0.0	$0.000	0	2,070.6	$0.020	41	0.0	0.0000	0	41
20	Schedule 27 - Interruptible Service	0.0	$0.000	0	0.0	$0.000	0	0.0	0.0000	0	0
21	Byron Creek	0.0	$0.000	0	0.0	$0.000	0	115.9	0.0800	9	9
22	Centra BC (PCEC)	32,685.0	$0.017	541							541
23	Total Bypass and Spec. Rates T-Svc	35,685.0		591	12,200.9		243	382.0		30	864
24											
25											
26	Total Bypass and Special Rates Sales and										
27	Transportation Service										
28	Cost of Gas Sold	35,685.0		591	12,200.9		243	382.0		30	864
29											
30	Total Sales and Transportation										
31	Transportation Service										
32	Cost of Gas Sold	156,391.9		$871,964	51,779.9		$252,384	6,255.0		$27,223	$1,151,571

REVENUE UNDER PROPOSED 2005 RATES AND REVISED RATES
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	Terajoules	Revenue -- At 2005 Rates -- Average $/GJ	Revenue -- At 2005 Rates -- Revenue ($000)	Gross Margin -- At 2005 Rates -- Average $/GJ	Gross Margin -- At 2005 Rates -- Revenue ($000)	Increase / (Decrease) -10.55% $/GJ	Increase / (Decrease) of Margin Revenue ($000)	Average Number of Customers	Revenue ---- Revised Rates ---- Average $/GJ	Revenue ---- Revised Rates ---- Revenue ($000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	CAPTIVE										
2	Captive Sales										
3	Schedule 1 - Residential	72,934.4	$13.876	$1,012,064	$3.9529	$288,300	$0.1847	$13,471	724,730	$14.061	$1,025,535
4	Schedule 2 - Small Commercial	22,333.4	13.126	293,147	3.1167	69,607	0.1457	3,253	72,568	13.272	296,400
5	Schedule 3 - Large Commercial	16,273.6	12.111	197,097	2.3548	38,321	0.1101	1,791	4,784	12.221	198,888
6											
7	Schedules 1, 2 and 3	111,541.4		1,502,308		396,228		18,515			1,520,823
8											
9											
10	Schedule 4 - Seasonal Service	120.6	10.978	1,324	1.5340	185	0.0746	9	21	11.053	1,333
11	Schedule 5 - General Firm Service	4,205.8	11.459	48,195	1.9949	8,390	0.0612	392	398	11.520	48,587
12											
13	Industrials										
14	Schedule 7 - Interruptible	53.9	11.058	596	1.5955	86	0.0329	4	4	11.091	600
15											
16	Schedule 10 - Interruptible	0.0	0.000	0	0.0000	0	0.0000	0	0	0.000	0
17											
18	Total Industrials	53.9		596		86		4			600
19											
20											
21	Schedule 6 - N G V Fuel - Stations	217.8	12.323	2,684	3.1956	696	0.1192	32	40	12.442	2,716
22	- VRA's	0.0	0.000	0	0.0000	0	0.0000	0	0	0.000	0
23											
24	Total Captive Sales	116,139.5		1,555,107		405,585		18,952	802,545		1,574,059
25											
26	Captive Transportation Service										
27	Schedule 22 - Firm Service	10,154.4	0.664	6,744	0.6284	6,381	0.0299	298	16	0.694	7,042
28	- Interruptible Service	15,100.5	0.744	11,228	0.7234	10,923	0.0323	510	28	0.776	11,738
29	Schedule 23 - Large Commercial	5,185.7	2.389	12,391	2.3692	12,286	0.1364	574	1,042	2.525	12,965
30	Schedule 25 - Firm Service	13,475.8	1.636	22,046	1.6144	21,755	0.0969	1,017	567	1.733	23,063
31	Schedule 27 - Interruptible Service	6,103.0	1.042	6,362	1.0224	6,240	0.0445	292	98	1.087	6,654
32											
33	Total Captive Transportation Service	50,019.4		58,771		57,585		2,691	1,751		61,462
34											
35											
36	Total Captive Sales and Transportation Service	166,158.9		$1,613,878		$463,170		$21,643	804,296		$1,635,521

REVENUE UNDER PROPOSED 2005 RATES AND REVISED RATES
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	Terajoules	Revenue -- At 2005 Rates -- Average $/GJ	Revenue ($000)	Gross Margin -- At 2005 Rates -- Average $/GJ	Revenue ($000)	Increase / (Decrease) -10.55% $/GJ	of Margin Revenue ($000)	Average Number of Customers	Revenue ---- Revised Rates ---- Average $/GJ	Revenue ($000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	Bypass and Special Rates										
2											
3	Bypass and Special Rates - Sales										
4	Residential - Option A	0.0	$0.000	$0	$0.0000	$0	$0.000	$0	0	$0.000	$0
5	Schedule 4 - Seasonal Service	0.0	0.000	0	0.0000	0	0.000	0	0	0.000	0
6	Schedule 5 - General Firm Service	0.0	0.000	0	0.0000	0	0.000	0	0	0.000	0
7	Industrials										
8	Schedule 7 - Interruptible	0.0	0.000	0	0.0000	0	0.000	0	0	0.000	0
9											
10	Schedule 10 - Interruptible	0.0	0.000	0	0.0000	0	0.000	0	0	0.000	0
11											
12	Total Large Industrial	0.0		0		0		0			0
13											
14	Schedule 6 - N G V Fuel - Stations	0.0	0.000	0	0.0000	0	0	0	0	0.000	0
15	- VRA's	0.0	0.000	0	0.0000	0	0	0	0	0.000	0
16											
17	Total Non-Captive Sales	0.0		0		0		0	0		0
18											
19	Non-Captive Transportation Service										
20	Schedule 22 - Firm Service	10,396.4	0.171	1,776	0.1496	1,555	0	0	10	0.171	1,776
21	Schedule 22 - Interruptible	0.0	0.000	0	0.0000	0	0	0	0	0.000	0
22	Schedule 25 - Interruptible	2,070.6	0.406	840	0.3859	799	0	0	7	0.406	840
23	Columbia - Byron Creek	115.9	0.414	48	0.3107	36	0	0	1	0.414	48
24	Burrard Transportation - Firm	3,000.0	3.308	9,925	3.2923	9,877	0	0	1	3.308	9,925
25	Terasen Gas (Vancouver Island)	32,685.0	0.125	4,087	0.1085	3,546	0	0	1	0.125	4,087
26	SCP Third Party Revenues			7,472		7,472					7,472
27	Total Non-Captive Transportation Service	48,267.9		24,148		23,285		0	20		24,148
28											
29	Total Non-Captive Sales and										
30	Transportation Service	48,267.9		24,148		23,285		0	20		24,148
31											
32	TOTAL CAPTIVE AND NON-CAPTIVE SALES AND										
33	TRANSPORTATION SERVICE	214,426.8		$1,638,026		$486,455		$21,643	804,316		$1,659,669

OTHER OPERATING REVENUE
FOR THE YEARS ENDED DECEMBER 31, 2006
($000)

Line No.	Particulars	2005 Approved	2006	Change	Reference
	(1)	(2)	(3)	(4)	(5)
1	**Other Utility Revenue**				
2					
3	Late Payment Charge	$5,003	$5,130	$127	
4					
5	Connection Charge and NSF Cheque	4,192	4,330	138	
6					
7	Total Other Utility Revenue	9,195	9,460	265	
8					
9	**Miscellaneous Revenue**				
10					
11	TGVI Wheeling Charge	4,094	4,087	(7)	
12					
13	SCP Third Party Revenue	11,897	7,472	(4,425)	
14					
15	Other	783	218	(565)	
16					
17	Total Miscellaneous	16,774	11,777	(4,997)	
18					
19	**Total Other Operating Revenue**	$25,969	$21,237	($4,732)	- Tab A-1, Page 7

2006 CAPITAL EXPENDITURES

The 2006 Capital Expenditures are based on the capital expenditure formula (approved by Commission Order No. G-51-03) plus forecast CPCNs. The capital expenditure formula is composed of two cost components: Customer Addition Driven Capital and Other Base Capital driven by average number of customers.

Per Commission Order No. G-51-03, base capital expenditure amounts will not be rebased to actual amounts during the term. For the rate setting in subsequent years the formula base capital expenditures from the prior years will be adjusted for projected customer counts and trued up for actual customers as this information becomes known. There is no true up for CPI.

During the 2004 annual review, Terasen Gas had forecast 10,144 customer additions along with 790,385 average number of customers for 2005. The current projection for 2005 is 12,676 and 791,647, respectively. Accordingly, the total formula-based capital expenditures for 2005 derived from the projected customer addition numbers has increased from $90.6 million to $96.1 million. Supporting calculations can be found at Tab 3, Page 4.

The 2006 Capital Expenditure is calculated using the 2006 Forecast Unit Cost multiplied by customer accounts cost drivers. The detail calculation is shown on Tab 3, Page 4.

- 2006 Forecast Unit Cost per Customer =
    - 2005 Unit Cost per Customer x ([1 + (CPI - Adjustment Factor)]

- 2006 Capital Expenditure =
    - 2006 Forecast Unit Cost per customer x Cost Driver
    - The Cost Driver for:
        - Customer Addition Driven Capital is Number of Customer Additions
        - Other Base Capital is Average Number of Customers

2006 PLANT ADDITIONS

The 2006 Plant Additions are comprised of the 2006 formula-driven Base Capital plant costs including AFUDC, overhead capitalized for the year, and opening 2006 CPCN Additions. The opening 2006 CPCN plant additions are the CPCN plant costs put in-service in 2005. The reconciliation of capital expenditures to plant additions is shown on Section A, Tab 3, Page 5. The 2006 Plant Additions allowed by the terms of the Settlement is $130.488 million. The Plant Addition summary is shown below:

<u>2006 Plant Additions</u>	
Formula-based Base Capital	$ 98.681 million
Overhead Capitalized	$ 27.243 million
Opening CPCN – Transmission Pipeline Integrity Plan	$4.158 million
Opening CPCN – Other Additions	$ 0.406 million
Total 2006 Plant Additions	**$ 130.488 million**

Consistent with the terms of the Settlement, the 2006 Contributions in Aid of Construction Additions ("CIAOC") are formula-based. The software tax savings are based on the software plant additions arising from the base capital additions formula. The Service Line Installation Fee is calculated based on $215 per service line. The other CIAOC consisting of main extensions, excess service line charges, billable alterations, meter & regulator equipment work, and other CIAOC have been calculated based on the PBR Formula. CIAOC is subject to the same adjustment and true-up process as base capital additions. Therefore, the CIAOC additions for 2005 have been adjusted based on projected 2005 customer counts. The 2006 CIAOC and 2005 formula updated CIAOC schedules can be found in Section A, Tab 3, Page 8 and Page 8.1, respectively.

TERASEN GAS INC.
CAPITAL EXPENDITURES
FOR THE YEARS ENDING DECEMBER 31, 2005 and 2006

Line. No.	Particulars	PBR Settlement 2003	Approved 2004	Adjusted 2004	Approved 2005	Adjusted 2005	Forecast 2006
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Forecast CPI (BC)		1.70%	1.70%	2.00%	2.00%	2.20%
2	Adjustment Factor		0.85%	0.85%	1.00%	1.00%	1.45%
3							
4	CPI - Adjustment Factor		100.85%	100.85%	101.00%	101.00%	100.75%
5							
6							
7	**CUSTOMER ADDITION DRIVEN CAPITAL EXPENDITURES**						
8							
9	Customer Addition Driven Capital Expenditures Per Customer Addition	$2,093.04	$2,110.83	$2,110.83	$2,131.94	$2,131.94	$2,147.89
10							
11	Number of Customers Additions		8,604	11,504	10,144	12,676	12,692
12							
13	**Target Customer Addition Driven Capital Expenditures ($000)**		**$18,162**	**$24,283**	**$21,626**	**$27,024**	**$27,261**
14							
15							
16	**OTHER BASE CAPITAL EXPENDITURES**						
17							
18	Other Base Capital Expenditures Per Customer	$85.69	$86.42	$86.42	$87.28	$87.28	$87.93
19							
20	Average Number of Customers		777,779	779,461	790,385	791,647	804,316
21							
22	**Target Other Base Capital Expenditures ($000)**		**$67,216**	**$67,361**	**$68,985**	**$69,095**	**$70,724**
23							
24							
25							
26	**SUMMARY CAPITAL EXPENDITURES ($000)**						
27							
28	Target Customer Addition Driven Capital Expenditures		$18,162	$24,283	$21,626	$27,024	$27,261
29	Target Other Base Capital Expenditures		67,216	67,361	68,985	69,095	70,724
30							
31	Total Target Base Capital Expenditures		$85,378	$91,644	$90,611	$96,119	$97,985
32							
33							
34	**Total Base Capital Additions excluding Forecast CPCN Additions ($000)**		**$85,378**	**$91,644**	**$90,611**	**$96,119**	**$97,985**

TERASEN GAS INC.
CAPITAL EXPENDITURES AND PLANT ADDITIONS
FOR THE YEARS ENDING DECEMBER 31, 2005 - 2006
($000)

Line No.	Particulars	Approved 2005	Adjusted 2005	Forecast 2006
	(1)	(2)	(3)	(4)
1	**CAPITAL EXPENDITURES**			
2				
3	Base Capital Expenditures			
4	Customer Addition Driven Capital Expenditures	$21,626	$27,024	$27,261
5	Other Base Capital Expenditures	68,985	69,095	70,724
6				
7	Total Base Capital Expenditures	$90,611	$96,119	$97,985
8				
9	Special Projects - CPCNs			
10	WMS/PM	$0	$406	$0
11	Transmission Pipeline Integrity Plan	3,723	4,158	0
12	Coastal Facilities	50,258	50,790	0
13	Other	20,000	0	9,070
14				
15	Total CPCNs	$73,981	$55,354	$9,070
16				
17				
18	TOTAL CAPITAL EXPENDITURES	$164,592	$151,473	$107,055
19				
20				
21	**RECONCILIATION OF CAPITAL EXPENDITURES TO PLANT ADDITIONS**			
22				
23	Base Capital			
24	Base Capital Expenditures	$90,611	$96,119	$97,985
25	Add - Opening WIP	11,547	11,557	11,951
26	Less - Opening WIP adjustment	0	0	0
27	Less - Closing WIP	(11,685)	(11,951)	(12,215)
28				
29	Add - AFUDC	919	938	960
30	Add - Overhead Capitalized	26,335	26,335	27,243
31				
32	TOTAL BASE CAPITAL ADDITIONS TO GAS PLANT IN SERVICE	$117,728	$122,998	$125,924
33				
34	Special Projects - CPCNs			
35	CPCNs Expenditures	$73,981	$55,354	$9,070
36	Add - Opening WIP	3,741	901	4,564
37	Less - Closing WIP	(24,055)	(4,564)	(9,070)
38				
39	Add - AFUDC	82	0	0
40				
41	TOTAL CPCN ADDITIONS TO OPENING GAS PLANT IN SERVICE	$53,749	$51,691	$4,564
42				
43				
44	TOTAL PLANT ADDITIONS	$171,477	$174,689	$130,488

UTILITY RATE BASE
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	2005 Approved	2006 Existing Rates	2006 Adjustments	2006 Revised Rates	Change	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Plant in Service, Beginning	$2,922,348	$3,067,485	$0	$3,067,485	$145,137	- Tab A-3, Page 7.1
2	CPCNs	53,749	4,564	0	4,564	(49,185)	- Tab A-3, Page 7.1
3							
4	Additions	117,728	125,924	0	125,924	8,196	- Tab A-3, Page 7.1
5	Disposals	(20,340)	(56,345)	0	(56,345)	(36,005)	- Tab A-3, Page 7.1
6							
7	Plant in Service, Ending	3,073,485	3,141,628	0	3,141,628	68,143	
8							
9	Add - Intangible Plant	837	837	0	837	0	
10							
11		3,074,322	3,142,465	0	3,142,465	68,143	
12							
13	Contributions In Aid of Construction	(153,989)	(137,019)	0	(137,019)	16,970	- Tab A-3, Page 8
14							
15	Less - Accumulated Depreciation	(625,051)	(671,378)	0	(671,378)	(46,327)	- Tab A-3, Page 15
16							
17							
18	Net Plant in Service, Ending	$2,295,282	$2,334,068	$0	$2,334,068	$38,786	
19							
20							
21	Net Plant in Service, Beginning	$2,266,265	$2,302,480	$0	$2,302,480	$36,215	- Tab A-3, Page 9
22							
23							
24	Net Plant in Service, Mid-Year	$2,280,774	$2,318,274	$0	$2,318,274	$37,500	
25	Adjustment to 13-Month Average	0	0	0	0	0	
26	Construction Advances	(2)	(11)	0	(11)	(9)	
27	Work in Progress, No AFUDC	12,358	11,902	0	11,902	(456)	
28	Unamortized Deferred Charges	6,710	13,109	0	13,109	6,399	- Tab A-3, Page 13.1
29	Cash Working Capital	(22,876)	(29,356)	330	(29,026)	(6,150)	- Tab A-3, Page 14
30	Other Working Capital	121,715	194,361	0	194,361	72,646	- Tab A-3, Page 14
31	Deferred Income Tax, Mid-Year	(364)	(364)	0	(364)	0	
32	LILO Benefit	(2,564)	(2,312)	0	(2,312)	252	
33	Utility Rate Base	$2,395,751	$2,505,603	$330	$2,505,933	$110,182	

GAS PLANT IN SERVICE
FOR THE YEARS ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	Balance 12/31/2005	CPCN'S	2006 Additions	Retirements	Transfers/ Recovery	Balance 12/31/2006
	(1)	(7)	(8)	(9)	(10)	(11)	(12)
1	401 Franchise Consents	$99	$0	$0	$0	$0	$99
2	402 Other Intangible Plant	835	0	0	0	0	835
3	TOTAL INTANGIBLE PLANT	934	0	0	0	0	934
4							
5	430 Manufact'd Gas - Land	31	0	0	0	0	31
6	432 Manufact'd Gas - Struct. & Improvements	438	0	0	0	0	438
7	433 Manufacturing Equipment	139	0	0	0	0	139
8	434 Gas Holders - Manufacturing	358	0	0	0	0	358
9	436 Compressed Equipment	53	0	0	0	0	53
10	437 Measuring and Regulating Equipment	309	0	0	0	0	309
11	440/441 Land in Fee Simple and Land Rights	927	0	0	0	0	927
12	442 Structures and Improvements	5,455	0	0	0	0	5,455
13	443 Gas Holders - Storage	17,348	0	598	0	0	17,946
14	446 Compressor Equipment	0	0	0	0	0	0
15	447 Measuring and Regulating Equipment	0	0	0	0	0	0
16	448 Purification Equipment	0	0	0	0	0	0
17	449 Local Storage Equipment	16,734	0	0	0	0	16,734
18	TOTAL MANUFACTURED GAS / LOCAL STORAGE	41,792	0	598	0	0	42,390
19							
20	460 Land in Fee Simple	7,444	0	0	0	0	7,444
21	461 Land Rights	41,241	0	1,784	0	0	43,025
22	462 Compressor Structures	15,181	0	408	0	0	15,589
23	463 Measuring Structures	4,363	0	0	0	0	4,363
24	464 Other Structures and Improvements	4,881	0	0	0	0	4,881
25	465 Mains	700,751	4,158	3,258	(163)	0	708,004
26	466 Compressor Equipment	103,928	0	49	0	0	103,977
27	467 Measuring and Regulating Equipment	44,255	0	5,421	0	0	49,676
28	468 Communication Structures and Equipment	1,697	0	695	0	0	2,392
29	469 Other Transmission Equipment	0	0	0	0	0	0
30	TOTAL TRANSMISSION PLANT	923,741	4,158	11,615	(163)	0	939,351
31							
32	470 Land	3,249	0	0	0	0	3,249
33	471 Land Rights	679	0	0	0	0	679
34	472 Structures and Improvements	7,395	0	374	0	0	7,769
35	473 Services	561,185	0	24,336	(3,650)	0	581,871
36	474 House Regulators and Meter Installations	148,679	0	9,615	(481)	0	157,813
37	475 Mains	763,960	0	33,251	(3,325)	0	793,886
38	476 Compressor Equipment						
39							
40	-All Other	575	0	0	0	0	575
41	477 Measuring and Regulating Equipment	77,073	0	10,234	(512)	0	86,795
42	478 Meters	203,514	0	15,863	(793)	0	218,584
43	479 Other Distribution Equipment	0	0	0	0	0	0
44	TOTAL DISTRIBUTION PLANT	1,766,309	0	93,673	(8,761)	0	1,851,221

GAS PLANT IN SERVICE
FOR THE YEARS ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	Balance 12/31/2005	CPCN'S	2006 Additions	Retirements	Transfers/ Recovery	Balance 12/31/2006
	(1)	(7)	(8)	(9)	(10)	(11)	(12)
1	480 Land	$20,962	$0	21	0	$0	$20,983
2	481 Land Rights	0	0	0	0	0	0
3	482 Structures and Improvements						
4							
5	-All Other	83,879	0	649	0	0	84,528
6	483 Office Furniture and Equipment						
7	-Furniture & Equipment	23,803	0	488	(48)	0	24,243
8	-Computers - Hardware	28,924	0	6,709	(5,953)	0	29,680
9	-Computer Software - Non-Infrastructure	34,611	0	2,490	(13,803)	0	23,298
10	-Computer Software - Infrastructure/Custom	94,718	406	6,302	(27,351)	0	74,075
11							
12							
13	484 Transportation Equipment	630	0	49	(13)	0	666
14							
15	485 Heavy Work Equipment	366	0	0	0	0	366
16	486 Tools and Work Equipment	29,261	0	2,230	(167)	0	31,324
17	487 Equipment on Customer's Premises	1,813	0	0	0	0	1,813
18	488 Communication Equipment	15,589	0	1,100	(86)	0	16,603
19	489 Other General Equipment						
20	-Stores Material, Capital	0	0	0	0	0	0
21	-All Other	0	0	0	0	0	0
22							
23	TOTAL GENERAL EQUIPMENT	334,556	406	20,038	(47,421)	0	307,579
24							
25	492 Gas Plant Held for Future Use	0	0	0	0	0	0
26	496 Unclassified Plant	0	0	0	0	0	0
27	497 Allowance for Funds Used						
28	During Construction	0	0	0	0	0	0
29	498 Overhead Charged To Construction	0	0	0	0	0	0
30	499 Plant Suspense	153	0	0	0	0	153
31							
32	TOTAL UNCLASSIFIED PLANT	153	0	0	0	0	153
33							
34	TOTAL CAPITAL	$3,067,485	$4,564	$125,924	($56,345)	$0	$3,141,628

TERASEN GAS INC.

GAS PLANT IN SERVICE
FOR THE YEARS ENDING DECEMBER 31, 2005
($000)

Line No.	Particulars	Balance 12/31/2004	CPCN'S	2005 Additions	Retirements	Transfers/ Recovery	Balance 12/31/2005
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	401 Franchise Consents	$99	$0	$0	$0	$0	$99
2	402 Other Intangible Plant	835	0	0	0	0	835
3	TOTAL INTANGIBLE PLANT	934	0	0	0	0	934
4							
5	430 Manufact'd Gas - Land	31	0	0	0	0	31
6	432 Manufact'd Gas - Struct. & Improvements	438	0	0	0	0	438
7	433 Manufacturing Equipment	139	0	0	0	0	139
8	434 Gas Holders - Manufacturing	358	0	0	0	0	358
9	436 Compressed Equipment	53	0	0	0	0	53
10	437 Measuring and Regulating Equipment	309	0	0	0	0	309
11	440/441 Land in Fee Simple and Land Rights	927	0	0	0	0	927
12	442 Structures and Improvements	5,455	0	0	0	0	5,455
13	443 Gas Holders - Storage	16,766	0	582	0	0	17,348
14	446 Compressor Equipment	0	0	0	0	0	0
15	447 Measuring and Regulating Equipment	0	0	0	0	0	0
16	448 Purification Equipment	0	0	0	0	0	0
17	449 Local Storage Equipment	16,734	0	0	0	0	16,734
18	TOTAL MANUFACTURED GAS / LOCAL STORAGE	41,210	0	582	0	0	41,792
19							
20	460 Land in Fee Simple	7,444	0	0	0	0	7,444
21	461 Land Rights	39,505	0	1,736	0	0	41,241
22	462 Compressor Structures	14,784	0	397	0	0	15,181
23	463 Measuring Structures	4,363	0	0	0	0	4,363
24	464 Other Structures and Improvements	4,881	0	0	0	0	4,881
25	465 Mains	697,742	0	3,167	(158)	0	700,751
26	466 Compressor Equipment	103,079	801	48	0	0	103,928
27	467 Measuring and Regulating Equipment	38,980	0	5,275	0	0	44,255
28	468 Communication Structures and Equipment	1,021	0	676	0	0	1,697
29	469 Other Transmission Equipment	0	0	0	0	0	0
30	TOTAL TRANSMISSION PLANT	911,798	801	11,299	(158)	0	923,741
31							
32	470 Land	3,249	0	0	0	0	3,249
33	471 Land Rights	679	0	0	0	0	679
34	472 Structures and Improvements	7,030	0	365	0	0	7,395
35	473 Services	540,883	0	23,885	(3,583)	0	561,185
36	474 House Regulators and Meter Installations	139,770	0	9,378	(469)	0	148,679
37	475 Mains	734,732	0	32,476	(3,248)	0	763,960
38	476 Compressor Equipment						
39							
40	-All Other	575	0	0	0	0	575
41	477 Measuring and Regulating Equipment	67,612	0	9,959	(498)	0	77,073
42	478 Meters	188,798	0	15,490	(774)	0	203,514
43	479 Other Distribution Equipment	0	0	0	0	0	0
44	TOTAL DISTRIBUTION PLANT	1,683,328	0	91,553	(8,572)	0	1,766,309

GAS PLANT IN SERVICE
FOR THE YEARS ENDING DECEMBER 31, 2005
($000)

Line No.	Particulars	Balance 12/31/2004	CPCN'S	2005 Additions	Retirements	Transfers/ Recovery	Balance 12/31/2005
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	480 Land	$20,941	$0	$21	$0	$0	$20,962
2	481 Land Rights	0	0	0	0	0	0
3	482 Structures and Improvements						
4							
5	-All Other	32,456	50,790	633	0	0	83,879
6	483 Office Furniture and Equipment						
7	-Furniture & Equipment	23,348	0	477	(22)	0	23,803
8	-Computers - Hardware	24,446	0	6,553	(2,075)	0	28,924
9	-Computer Software - Non-Infrastructure	32,903	0	2,430	(722)	0	34,611
10	-Computer Software - Infrastructure/Custom	96,071	100	6,149	(7,602)	0	94,718
11							
12							
13	484 Transportation Equipment	590	0	48	(8)	0	630
14							
15	485 Heavy Work Equipment	370	0	0	(4)	0	366
16	486 Tools and Work Equipment	27,266	0	2,179	(184)	0	29,261
17	487 Equipment on Customer's Premises	1,813	0	0	0	0	1,813
18	488 Communication Equipment	15,118	0	1,074	(603)	0	15,589
19	489 Other General Equipment						
20	-Stores Material, Capital	0	0	0	0	0	0
21	-All Other	0	0	0	0	0	0
22							
23	TOTAL GENERAL EQUIPMENT	275,322	50,890	19,564	(11,220)	0	334,556
24							
25	492 Gas Plant Held for Future Use	0	0	0	0	0	0
26	496 Unclassified Plant	0	0	0	0	0	0
27	497 Allowance for Funds Used						
28	During Construction	0	0	0	0	0	0
29	498 Overhead Charged To Construction	0	0	0	0	0	0
30	499 Plant Suspense	153	0	0	0	0	153
31							
32	TOTAL UNCLASSIFIED PLANT	153	0	0	0	0	153
33							
34	TOTAL CAPITAL	$2,912,746	$51,691	$122,998	($19,950)	$0	$3,067,485

TERASEN GAS INC.

CONTRIBUTIONS IN AID OF CONSTRUCTION
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars		Projected Balance 12/31/2005	2006 Additions	2006 Retirements	Balance 12/31/2006
	(1)		(2)	(3)	(4)	(5)
1	DSEP/GEAP	211-06	$12,671	$0	$0	$12,671
2						
3	NGV Conversion Grants	211-07	0	0	0	0
4						
5	NGV Station Grants	211-08	0	0	0	0
6						
7	Furniture & Equipment	211-10	111	0	0	111
8						
9	Software Tax Savings - Non-Infrastructure	211-11	7,613	802	(625)	7,790
10	- Infrastructure/Custom	211-11	37,143	2,113	(15,842)	23,414
11	Service Installation Fee	211-12	19,449	2,729	0	22,178
12						
13	Other	211-00 to 05	67,805	3,050	0	70,855
14						
15	TOTAL		144,792	8,694	(16,467)	137,019
16						
17						
18						
19	Amortization	211-15 to 22				
20						
21	- Software Tax Savings - Non-Infrastructure		(4,859)	(1,523)	625	(5,757)
22	- Infrastructure/Custom		(18,086)	(4,643)	15,842	(6,887)
23	- Other		(21,783)	(2,204)	0	(23,987)
24						
25						
26	Total Amortization		(44,728)	(8,370)	16,467	(36,631)
27						
28	NET		$100,064	$324	$0	$100,388

CONTRIBUTIONS IN AID OF CONSTRUCTION
FOR THE YEAR ENDING DECEMBER 31, 2005
($000)

Line No.	Particulars		Balance 12/31/2004	2005 Additions	2005 Retirements	Projected Balance 12/31/2005
	(1)		(2)	(3)	(4)	(5)
1	DSEP/GEAP	211-06	12,671	$0	$0	$12,671
2						
3	NGV Conversion Grants	211-07	0	0	0	0
4						
5	NGV Station Grants	211-08	0	0	0	0
6						
7	Furniture & Equipment	211-10	111	0	0	111
8						
9	Software Tax Savings - Non-Infrastructure	211-11	14,137	659	(7,183)	7,613
10	- Infrastructure/Custom	211-11	43,873	2,772	(9,502)	37,143
11	Service Installation Fee	211-12	16,724	2,725	0	19,449
12						
13	Other	211-00 to 05	64,804	3,001	0	67,805
14						
15	TOTAL		152,320	9,157	(16,685)	144,792
16						
17						
18						
19	Amortization	211-15 to 22				
20						
21	- Software Tax Savings - Non-Infrastructure		(9,215)	(2,827)	7,183	(4,859)
22	- Infrastructure/Custom		(22,104)	(5,484)	9,502	(18,086)
23	- Other		(19,708)	(2,075)	0	(21,783)
24						
25						
26	Total Amortization		(51,027)	(10,386)	16,685	(44,728)
27						
28	NET		101,293	($1,229)	$0	$100,064

TERASEN GAS INC.

NET GAS PLANT IN SERVICE
FOR THE YEARS ENDING DECEMBER 31, 2005 TO 2006
($000)

Line No.	Particulars	Projection 2005	Forecast 2006	Reference
	(1)	(2)	(3)	(4)
1	Gas Plant in Service - December 31, Previous Year	$2,912,746	$3,067,485	- Tab A-3, Page 7.1
2				
3	Add: CPCNs on January 1, Beginning of the Year	51,691	4,564	- Tab A-3, Page 7.1
4				
5	Adjusted Opening Gas Plant in Service	2,964,437	3,072,049	
6				
7	Intangible Plant	837	837	- Tab A-1, Page 6
8				
9	Less: Contribution in Aid of Construction	(152,320)	(144,792)	- Tab A-3, Page 8.1
10				
11	Less: Accumulated Depreciation and Amortization	(549,054)	(625,614)	- Tab A-3, Page 15
12				
13	Net Gas Plant in Service as at January 1,	$2,263,900	$2,302,480	- Tab A-1, Page 6

TERASEN GAS INC.

2004 – 2007 MULTI-YEAR PERFORMANCE BASED RATE PLAN
DEFERRED CHARGES
FOR THE YEAR ENDING DECEMBER 31, 2006

The 2006 deferred charges and amortization (Section A, Tab 3, Pages 13 and 13.1) have been determined in accordance with the BCUC Decision dated February 4, 2003 on Terasen Gas' 2003 revenue requirements and the 2004-2007 PBR Plan Settlement Terms approved by Commission Order No. G-51-03.

With the implementation of the Commercial Commodity Unbundling Program the GCRA, effective April 1, 2004, was divided into a Commodity Cost Reconciliation Account (CCRA) and a Midstream Cost Reconciliation Account (MCRA).

CCRA is designated to capture and account for costs and recoveries associated with the baseload supply for all of Terasen Gas' sales customers. MCRA is designated to capture and account for costs and recoveries associated with the remaining resources required to meet design peak day. The CCRA will capture the costs incurred by Terasen Gas to purchase its portion of the baseload gas requirements and the revenue collected by Terasen Gas through gas commodity rates. The MCRA will capture all the costs associated with the midstream function and the revenue collected by Terasen Gas through midstream rates.

Future disposition of CCRA/MCRA balances will be determined based on the net-of-tax balance in accordance with Commission Order No. G-34-03.

As outlined and approved in BCUC Order No. G-112-04 dated December 15, 2004, Terasen Gas has utilized customer security deposits as a substitute for short-term borrowing. As the interest rate for short-term borrowing on the traditional financial market exceeds the rate paid on the security deposits, the difference is a net interest savings to customers. The 2005 net projected interest savings of $288,000 have been captured in the interest rate deferral account. See Section A, Tab 3, Page 13.

The corporate income tax rate for 2006 reflects the provincial income tax rate reduction of 1.5% effective July 1, 2005 as announced in the September 14, 2005 B.C. Budget. The tax rate reduction benefit from July 1, 2005 to December 31, 2005 has been deferred and is being fully credited to customers in 2006 as shown on Section A, Tab 3, Page 13.2

As outlined in Section B, Tab 6, Page 1, Terasen Gas is requesting deferral treatment for the difference in the net book value and the fair market value of the leased vehicles arising as a result of the discontinuation of the current vehicle lease arrangement with BC Hydro.

In accordance with BCUC Order No. G-112-04 dated December 15, 2004, deferral accounts for OSC compliance costs and BCUC levies have been established and are included in this filing. Further details in support of the deferral accounts are as follows:

OSC Compliance Costs

Terasen Gas estimates that its share of the total project costs associated with compliance for 2006 at $527,625. These costs have been determined in accordance with the allocation process as directed by BCUC Order No. G-112-04.

TGI - OSC Compliance Costs

	November 2004 Annual Review		Forecast
	2004	2005	2006
External Fees - Deloitte			
Initial Bare Certification	$ 40,000	$ -	$ -
Scoping, Planning, Disclosure Processes	132,850	-	-
Financial Reporting Processes	142,850	174,800	-
Admin Fee (5%)	16,223	9,200	-
	-	-	-
External Fees - KPMG	-	-	-
Project Steering Committee	12,500	12,500	-
	-	-	-
Incremental Internal Costs	-	-	-
Resourcing	49,073	212,000	253,125
Other*	39,333	12,500	72,000
	-	-	-
SAS70 Style Control Reports	-	-	112,500
	-	-	-
Attestation - External Audit	-	-	90,000
Total	432,829	421,000	527,625
Allocation adjustment per BCUC Decision	(43,284)	(42,100)	-
Total	$ 389,545	$ 378,900	$ 527,625

* Sustainment Tool Implementation / Licencing / Maintenance / Support, Travel, Admin, Contingency

BCUC Levies

Actual 2005 BCUC levies have exceeded the amount provided for in 2005 rates as calculated in accordance with the O&M formula by $163,000. Terasen Gas has deferred this amount in 2005 and will amortize it fully as a cost of service item in 2006.

BCUC levies embedded in 2003 Decision	*$1,345,000*
2005 levies as calculated with O&M formula	*$1,407,000*
2005 projected BCUC Levies	*1,570,000*
Amount to defer in 2005	*$163,000*

The schedule of 2005 projected deferred charges and amortization is found in Section A, Tab 3, Pages 13.2 and 13.3.

UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	Account	Forecast Balance 12/31/2005	Gross Additions	Less-Taxes	Net Additions	Amortization Expense	Amortization Other	Balance 12/31/2006	Mid-Year Average 2006
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Deferred Interest	#17904	($2,279)	$0	$0	$0	$1,656	$0	($623)	($1,451)
2	Deferred Interest - funding benefits via Customer Deposits		($191)	0	0	0	63	$0	(128)	(160)
3										
4	NGV Conversion Grants	#17977	137	0	0	0	(56)	0	81	109
5										
6	2003 Revenue Requirement	#17989	142	0	0	0	(65)	0	77	110
7	2004-2007 Revenue Requirements	#17952	73	0	0	0	(23)	0	50	62
8										
9	Demand Side Management	#17916	1,473	1,500	(495)	1,005	(654)	0	1,824	1,649
10	DSM DRIA	#17961	(145)	0	0	0	145	0	0	(73)
11										
12	Property Tax Deferral	#17915	(128)	0	0	0	336	0	208	40
13										
14	M.C.R.A.	#17926	(31,993)	(2,600)	858	(1,742)	0	33,735	0	(15,997)
15	C.C.R.A.	#18137	25,175	160,000	(52,800)	107,200	0	(132,375)	0	12,588
16	C.C.R.A./M.C.R.A Interest	#17973	(1,704)	0	0	0	0	1,704	0	(852)
17										
18	RSAM	#17927	38,516	0	0	0	0	(12,919)	25,597	32,057
19	RSAM Interest	#17999	351	0	0	0	0	(65)	286	319
20										
21	Revelstoke Propane Cost	#27902	100	(338)	112	(226)	0	0	(126)	(13)
22										
23	Coastal Facilities									
24	- Relocation	#17951	0	0	0	0	0	0	0	(1)
25	- Extraordinary Plant Loss - Lochburn	#17998	64	0	0	0	(27)	0	37	51
26	- Fraser Valley NBV Amortization	#17996	0	0	0	0	0	0	0	0
27	- Noncapital Finance Costs	#17984	0	0	0	0	0	0	0	0
28										
29	2005 BC Tax Rate Reduction Deferral	#17940	(729)	0	0	0	729	0	0	(365)
30										
31	Vehicle Lease Deferral	TBC	949	0	0	0	(316)	0	633	791
32										
33	Note: Lines 14, 15, and 18 are MCRA, CCRA, and RSAM actual activities and balances.									

UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION (CONT'D)
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	Account	Balance 12/31/2005	Gross Additions	Less-Taxes	Net Additions	Amortization Expense	Amortization Other	Balance 12/31/2006	Mid-Year Average 2006
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	ROE Hearing Costs - 2005	#17985	$331	$0	$0	$0	$0	$0	$331	$331
2										
3	Burner Tip Service	#17972	0	0	0	0	0	0	0	0
4										
5	Earnings Sharing Mechanism	#17982	(882)	(6,013)	1,984	(4,029)	0	4,911	0	(441)
6										
7	NGV Compression Equip. Recovery	#17992	994	0	0	0	(249)	0	745	870
8										
9	Overheads Change - Income Tax Refund	#17995	(278)	0	0	0	138	0	(140)	(209)
10	CIAOC Software Tax Savings/OH Change	#17995	(1,615)	0	0	0	808	0	(807)	(1,211)
11	Bad Debt Allowance for Rates 14 & 14A	#17949	40	0	0	0	0	0	40	40
12	Other Post Employment Benefits	#17991/1799	(15,929)	(5,634)	1,859	(3,775)	0	0	(19,704)	(17,817)
13										
14	Deferred 2000 SCP Cost of Service	#17997	126	0	0	0	(64)	0	62	94
15										
16	SCP Net Mitigation Revenues	#17912	(474)	424	(140)	284	484	0	294	(90)
17	SCP West to East Transmission	#17913	469	(314)	104	(210)	(306)	0	(47)	211
18	SCP PG&E Contract Cancellation	#17936	2,651	0	0	0	(662)	0	1,989	2,320
19										
20	CCT Deferral	#17924	(265)	0	0	0	133	0	(132)	(199)
21	CCT Assessment	#17929	444	350	(116)	234	(251)	0	427	436
22										
23	Pension Variance	#17946	(24)	0	0	0	24	0	0	(12)
24	Insurance Variance	#17947	(263)	0	0	0	263	0	0	(132)
25										
26	BCUC Levies	#18149	108	0	0	0	(108)	0	0	54
27	OSC Certification Compliance	#18148	0	373	(123)	250	(250)	0	0	0
28										
29	Total Deferred Charges for Rate Base		$15,244	$147,748	($48,757)	$98,991	$1,748	($105,009)	$10,974	$13,109

UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION
FOR THE YEAR ENDING DECEMBER 31, 2005
($000)

Line No.	Particulars	Account	Projected Balance 12/31/2004	Gross Additions	Less-Taxes	Net Additions	Amortization Expense	Amortization Other	Balance 12/31/2005	Mid-Year Average 2005
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Deferred Interest	#17904	($2,540)	($1,751)	$591	($1,160)	$1,421	$0	($2,279)	($2,410)
2	Deferred Interest - funding benefits via Customer Deposits		0	(288)	97	(191)	0	0	(191)	(96)
3										
4	NGV Conversion Grants	#17977	173	26	(9)	17	(53)	0	137	155
5										
6	2003 Revenue Requirement	#17989	207	0	0	0	(65)	0	142	175
7	2004-2007 Revenue Requirements	#17952	81	18	(6)	12	(20)	0	73	77
8										
9	Demand Side Management	#17916	1,082	1,500	(506)	994	(603)	0	1,473	1,278
10	DSM DRIA	#17961	(304)	0	0	0	159	0	(145)	(225)
11										
12	Property Tax Deferral	#17915	(1,291)	778	(263)	515	648	0	(128)	(710)
13										
14	M.C.R.A.	#17926	($27,621)	(6,600)	2,228	(4,372)	0	0	(31,993)	(29,807)
15	C.C.R.A.	#18137	$2,692	33,937	(11,454)	22,483	0	0	25,175	13,934
16	C.C.R.A./M.C.R.A Interest	#17973	(821)	(1,333)	450	(883)	0	0	(1,704)	(1,263)
17										
18	RSAM	#17927	$38,946	15,337	(5,176)	10,161	0	(10,591)	38,516	38,731
19	RSAM Interest	#17999	172	350	(118)	232	0	(53)	351	262
20										
21	Revelstoke Propane Cost	#27902	113	(20)	7	(13)	0	0	100	107
22										
23	Coastal Facilities									
24	- Relocation	#17951	342	0	0	0	(342)	0	0	171
25	- Extraordinary Plant Loss - Lochburn	#17998	91	0	0	0	(27)	0	64	78
26	- Fraser Valley NBV Amortization	#17996	206	0	0	0	(206)	0	0	103
27	- Noncapital Finance Costs	#17984	0	0	0	0	0	0	0	0
28										
29	2005 BC Tax Rate Reduction Deferral	#17940	0	(729)	0	(729)	0	0	(729)	(365)
30										
31	Vehicle Lease Deferral	TBC	0	1,433	(484)	949	0	0	949	475
32										
33	Note: Lines 14, 15, and 18 are MCRA, CCRA, and RSAM actual activities and balances.									

TERASEN GAS INC.

UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION (CONT'D)
FOR THE YEAR ENDING DECEMBER 31, 2005
($000)

Line No.	Particulars	Account	Projected Balance 12/31/2004	Gross Additions	Less- Taxes	Net Additions	Amortization Expense	Amortization Other	Balance 12/31/2005	Mid-Year Average 2005
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	ROE Hearing Costs - 2005	#17985	$0	$500	($169)	$331	$0	$0	$331	$166
2										
3	Burner Tip Service	#17972	(1)	0	0	0	1	0	0	(1)
4										
5	Earnings Sharing Mechanism	#17982	0	(1,127)	380	(747)	0	(135)	(882)	(441)
6										
7	NGV Compression Equip. Recovery	#17992	1,065	142	0	142	(213)	0	994	1,030
8										
9	Overheads Change - Income Tax Refund	#17995	(416)	0	0	0	138	0	(278)	(347)
10	CIAOC Software Tax Savings/OH Change	#17995	(2,423)	0	0	0	808	0	(1,615)	(2,019)
11	Bad Debt Allowance for Rates 14 & 14A	#17949	4	54	(18)	36	0	0	40	22
12	Other Post Employment Benefits	#17991/1799	(12,222)	(5,596)	1,889	(3,707)	0	0	(15,929)	(14,076)
13										
14	Deferred 2000 SCP Cost of Service	#17997	190	0	0	0	(64)	0	126	158
15										
16	SCP Net Mitigation Revenues	#17912	(1,270)	416	(140)	276	520	0	(474)	(872)
17	SCP West to East Transmission	#17913	1,028	(320)	108	(212)	(347)	0	469	749
18	SCP PG&E Contract Cancellation	#17936	2,607	825	(278)	547	(503)	0	2,651	2,629
19										
20	CCT Deferral	#17924	(398)	0	0	0	133	0	(265)	(332)
21	CCT Assessment	#17929	594	300	(101)	199	(349)	0	444	519
22										
23	Pension Variance	#17946	313	(202)	68	(134)	(203)	0	(24)	145
24	Insurance Variance	#17947	(878)	(377)	127	(250)	865	0	(263)	(571)
25										
26	BCUC Levies	#18149	128	163	(55)	108	(128)	0	108	118
27	OSC Certification Compliance	#18148	141	553	(191)	362	(503)	0	0	71
28	Total Deferred Charges for Rate Base		($10)	$37,989	($13,023)	$24,966	$1,067	($10,779)	$15,244	$7,618

WORKING CAPITAL ALLOWANCE
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	2005 Approved	2006 2005 Rates	2006 Revised Revenue	Change	Reference
	(1)	(2)	(3)	(4)	(5)	(6)
1	**Cash Working Capital**					
2	Cash Required for					
3	Operating Expenses	($15,203)	($21,353)	($21,023)	(5,820)	
4						
5	Minimum Cash Balances/					
6	Customer Deposits	(2,629)	(2,712)	(2,712)	(83)	
7						
8	Less - Funds Available:					
9						
10	Reserve for Bad Debts	(2,700)	(3,070)	(3,070)	(370)	
11						
12	Withholdings From					
13	Employees	(2,344)	(2,221)	(2,221)	123	
14						
15	Subtotal	(22,876)	(29,356)	(29,026)	(6,150)	- Tab A-1, Page 6
16						
17	**Other Working Capital Items**					
18	Inventories	6,900	6,371	6,371	(529)	
19	Transmission Line Pack Gas	3,260	5,055	5,055	1,795	
20	Gas in Storage	111,555	182,935	182,935	71,380	
21						
22						
23	Subtotal	121,715	194,361	194,361	72,646	- Tab A-1, Page 6
24						
25	Total	$98,839	$165,005	$165,335	$66,496	

TERASEN GAS INC.

ACCUMULATED DEPRECIATION
FOR THE YEARS ENDING DECEMBER 31, 2005 - 2006
($000)

Line No.	Particulars (1)	Projection 2005 (3)	Forecast 2006 (7)	Reference (4)
1	Balance, Beginning	$600,082	$670,342	- Tab A-3, Page 15.3
2				
3	CIAOC Amortization Balance, Beginning	(51,027)	(44,728)	- Tab A-3, Page 8
4				
5	Gas Plant Held for Future Use			
6	Balance, Beginning	-	-	
7				
8	Retirement Work in Progress	-	-	
9				
10	Utility Accumulated Depreciation			
11	Balance, Beginning	549,055	625,614	- Tab A-3, Page 9
12				
13	Depreciation Provision			
14	Total Plant	90,210	94,012	- Tab A-3, Page 15.3
15	Less - Gas Plant Held for Future Use	0	0	
16	Less Prior Year Adjustments			
17	Less - Amortization of Contributions in			
18	Aid of Construction	(10,386)	(8,370)	- Tab A-3, Page 8
19				
20		79,824	85,642	
21				
22	Plant Retirements	(19,950)	(56,345)	- Tab A-3, Page 15.3
23				
24	CIAOC Retirements	16,685	16,467	- Tab A-3, Page 8
25				
26	Removal Costs	-	-	
27				
28	Proceeds on Disposals	-	-	
29				
30		(3,265)	(39,878)	
31				
32	Balance, Ending	$625,614	$671,378	- Tab A-1, Page 6

DEPRECIATION AND AMORTIZATION WORKSHEET
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Account	Balance 12/31/2005	Annual Depreciation Rate %	Provision 2006 (Cr.)	Provision Adjust-ments	Provision Retirements	Provision Retirement Costs	Provision Proceeds on Disposal	Accumulated 12/31/2005	Accumulated 12/31/2006
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	117-00 Utility Plant Acquisition Adj.	$0	1.00%	$0	$0	$0	$0	$0	$0	$0
2	175-00 Unamortized Conversion Expense	109	1.00%	1	0	0	0	0	47	48
3	178-00 Organization Expense	728	1.00%	7	0	0	0	0	340	347
4	179-01 Other Deferred Charges	0	1.00%	0	0	0	0	0	0	0
5	401-00 Franchise and Consents	99	1.00%	1	0	0	0	0	46	47
6	402-00 Utility Plant Acquisition Adjustment	63	1.00%	1	0	0	0	0	27	28
7	402-00 Other Intangible Plant - Lease	772	Lease	0	0	0	0	0	115	115
8		1,771		10	0	0	0	0	575	585
9										
10	**GAS PLANT HELD FOR FUTURE USE**									
11	492-00 Structures & Improvements									
12	- Frame Buildings	0	3.00%	0	0	0	0	0	0	0
13	- Masonry Buildings	0	1.50%	0	0	0	0	0	0	0
14	492-00 Manufacturing Equipment	0	3.00%	0	0	0	0	0	0	0
15	492-00 Gas Holder	0	2.00%	0	0	0	0	0	0	0
16	492-00 Compressor Equip/Commun. Equip.	0	5.00%	0	0	0	0	0	0	0
17	492-00 Gas Plant Held for Future Use	0	0.00%	0	0	0	0	0	0	0
18		0		0	0	0	0	0	0	0
19										
20	**MANUFACTURED GAS / LOCAL STORAGE PLANT**									
21	430 Manufact'd Gas - Land	31	0.00%	0	0	0	0	0	0	0
22	432 Manufact'd Gas - Struct. & Improvements									
23	- Frame Buildings	0	3.00%	0	0	0	0	0	0	0
24	- Masonry Buildings	438	1.50%	7	0	0	0	0	77	84
25	433 Manufacturing Equipment	139	3.00%	4	0	0	0	0	33	37
26	434 Gas Holders - Manufacturing	358	2.00%	7	0	0	0	0	144	151
27	436 Compressor Equipment	53	3.00%	2	0	0	0	0	17	19
28	437 Measuring & Regulating	309	3.00%	9	0	0	0	0	114	123
29	440/441 Land in Fee Simple and Land Rights	927	0.00%	0	0	0	0	0	1	1
30	442-00 Structures and Improvements	5,455	4.00%	218	0	0	0	0	1,652	1,870
31	443-00 Gas Holders Storage	17,348	4.00%	694	0	0	0	0	7,174	7,868
32	449-00 Local Storage Equipment	16,734	4.00%	669	0	0	0	0	7,088	7,757
33		41,792		1,610	0	0	0	0	16,300	17,910

DEPRECIATION AND AMORTIZATION WORKSHEET (CONT'D)
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Account	Balance 12/31/2005	Annual Depreciation Rate %	Provision 2006 (Cr.)	Adjust-ments	Retirements	Retirement Costs	Proceeds on Disposal	Accumulated 12/31/2005	Accumulated 12/31/2006
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	**TRANSMISSION PLANT**									
2	461 Land Rights - Byron Creek	$16	5.00%	$1	$0	$0	$0	$0	$16	$17
3	460-00 / 461-00 Land / Land Rights	48,669	0.00%	0	0	0	0	0	(1,035)	(1,035)
4	462-00 Structures and Improvements - Compressor Stn	15,181	3.00%	455	0	0	0	0	3,534	3,989
5	463-00 Measuring & Regulating	4,363	3.00%	131	0	0	0	0	905	1,036
6	464-00 Other Structures - Frame Buildings	4,881	3.00%	146	0	0	0	0	658	804
7	465-00 Mains & Crossings	704,207	2.00%	14,084	0	(163)	0	0	135,971	149,892
8	465-00 Mains & Crossings - Byron Creek	702	5.00%	35	0	0	0	0	688	723
9	466-00 Compressor Equipment	103,928	3.00%	3,118	0	0	0	0	22,514	25,632
10	467-00 Measuring & Regulating	38,260	3.00%	1,148	0	0	0	0	5,465	6,613
11	467-10 Telemetering	5,995	10.00%	600	0	0	0	0	5,223	5,823
12	468-00 Communications Structures & Equip.	1,697	10.00%	170	0	0	0	0	213	383
13	469-00 Other Transmission Equipment	0	5.00%	0	0	0	0	0	0	0
14		927,899		19,888	0	(163)	0	0	174,152	193,877
15										
16	**DISTRIBUTION PLANT**									
17	470 Land	3,249	0.00%	0	0	0	0	0	34	34
18	471 Land Rights	678	0.00%	0	0	0	0	0	0	0
19	471 Land Rights - Byron Creek	1	5.00%	0	0	0	0	0	3	3
20	472-00 Structures & Improvements									
21	-Leasehold Alterations	0	Term - Lease	0	0	0	0	0	0	0
22	-Frame Buildings	7,393	3.00%	222	0	0	0	0	1,776	1,998
23	-Masonry Buildings	0	1.50%	0	0	0	0	0	0	0
24	-Byron Creek	2	5.00%	0	0	0	0	0	2	2
25	473-00 Services	561,185	2.00%	11,224	0	(3,650)	0	0	86,925	94,499
26	474-00 House Regulator & Meter Installation	148,679	3.57%	5,308	0	(481)	0	0	27,722	32,549
27	475-00 Mains	763,960	2.00%	15,279	0	(3,325)	0	0	183,530	195,484
28	476-00 Compressed Natural Gas									
29										
30	-NGV Compressor Equipment	0	5.00%	0	0	0	0	0	0	0
31	-All Other	575	6.67%	38	0	0	0	0	250	288
32	477-00 Measuring & Regulating	71,594	3.00%	2,148	0	(512)	0	0	8,067	9,703
33	477-10 Telemetering	5,316	10.00%	532	0	0	0	0	4,323	4,855
34	477-00 Measuring & Regulating - Byron Creek	163	5.00%	8	0	0	0	0	(59)	(51)
35	478 Meters	203,514	3.57%	7,265	0	(793)	0	0	39,577	46,049
36	479 Other Distribution Equipment	0	4.00%	0	0	0	0	0	0	0
37		1,766,309		42,024	0	(8,761)	0	0	352,150	385,413

TERASEN GAS INC.

DEPRECIATION AND AMORTIZATION WORKSHEET (CONT'D)
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Account	Balance 12/31/2005	Annual Depreciation Rate %	Provision 2006 (Cr.)	Provision Adjust-ments	Provision Retirements	Provision Retirement Costs	Provision Proceeds on Disposal	Accumulated 12/31/2005	Accumulated 12/31/2006
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	**GENERAL PLANT**									
2	480 Land	$20,962	$0	$0	$0	$0	$0	$0	$17	$17
3	482-00 Structures & Improvements									
4	-Leasehold Alterations	4,086	Term - Lease	540	0	0	0	0	13,391	13,931
5	-Masonry Buildings	74,722	1.50%	1,121	0	0	0	0	(8,816)	(7,695)
6	-Frame Buildings	5,071	3.00%	152	0	0	0	0	(3,238)	(3,086)
7	483-00 Office Furniture & Equipment									
8	-Furniture & Equipment	23,803	5.00%	1,190	0	(48)	0	0	9,751	10,893
9	-Computers - Hardware	28,924	20.00%	5,785	0	(5,953)	0	0	20,021	19,853
10										
11	-Computer Software - Non-Infrastructure	34,611	20.00%	6,922	0	(13,803)	0	0	27,569	20,688
12	-Computer Software - Infrastructure/Custom	95,124	12.50%	11,890	0	(27,351)	0	0	48,047	32,586
13										
14	484-00 Transportation Equipment	630	15.00%	95	0	(13)	0	0	2,636	2,718
15	485-00 Maintenance & Repair Equipment	366	5.00%	18	0	0	0	0	(309)	(291)
16	486-00 Tools & Work Equipment	29,261	5.00%	1,463	0	(167)	0	0	11,055	12,351
17	487-00 Equipment on Customers' Premises	1,230	5.00%	62	0	0	0	0	737	799
18	487-XX - VRA Compressor	0	10.00%	0	0	0	0	0	0	0
19	487-XX - VRA Compressor Installation Cost	583	33.33%	194	0	0	0	0	692	886
20	488-00 Communication - Structures & Equip.	10,217	5.00%	511	0	(86)	0	0	2,046	2,471
21	488-00 Communication - Radios	5,372	10.00%	537	0	0	0	0	3,566	4,103
22	489-00 Other General Equipment	0	5.00%	0	0	0	0	0	0	0
23		334,962		30,480	0	(47,421)	0	0	127,165	110,224
24										
25	**UNCLASSIFIED PLANT**									
26	499 Plant Suspense	153	0.00%	0	0	0	0	0	0	0
27										
28	TOTAL	$3,072,886		$94,012	$0	($56,345)	$0	$0	$670,342	$708,009

DEPRECIATION AND AMORTIZATION WORKSHEET
FOR THE YEAR ENDING DECEMBER 31, 2005
($000)

Line No.	Account	Balance 12/31/2004	Annual Depreciation Rate %	Provision 2005 (Cr.)	Adjust-ments	Retirements	Retirement Costs	Proceeds on Disposal	Accumulated 12/31/2004	Accumulated 12/31/2005
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	117-00 Utility Plant Acquisition Adj.	$0	1.00%	$0	$0	$0	$0	$0	$0	$0
2	175-00 Unamortized Conversion Expense	109	1.00%	1	0	0	0	0	46	47
3	178-00 Organization Expense	728	1.00%	7	0	0	0	0	333	340
4	179-01 Other Deferred Charges	0	1.00%	0	0	0	0	0	0	0
5	401-00 Franchise and Consents	99	1.00%	1	0	0	0	0	45	46
6	402-00 Utility Plant Acquisition Adjustment	63	1.00%	1	0	0	0	0	26	27
7	402-00 Other Intangible Plant - Lease	772	Lease	0	0	0	0	0	115	115
8		1,771		10	0	0	0	0	565	575
9										
10	**GAS PLANT HELD FOR FUTURE USE**									
11	492-00 Structures & Improvements									
12	- Frame Buildings	0	3.00%	0	0	0	0	0	0	0
13	- Masonry Buildings	0	1.50%	0	0	0	0	0	0	0
14	492-00 Manufacturing Equipment	0	3.00%	0	0	0	0	0	0	0
15	492-00 Gas Holder	0	2.00%	0	0	0	0	0	0	0
16	492-00 Compressor Equip/Commun. Equip.	0	5.00%	0	0	0	0	0	0	0
17	492-00 Gas Plant Held for Future Use	0	0.00%	0	0	0	0	0	0	0
18		0		0	0	0	0	0	0	0
19										
20	**MANUFACTURED GAS / LOCAL STORAGE PLANT**									
21	430 Manufact'd Gas - Land	31	0.00%	0	0	0	0	0	0	0
22	432 Manufact'd Gas - Struct. & Improvements									
23	- Frame Buildings	0	3.00%	0	0	0	0	0	0	0
24	- Masonry Buildings	438	1.50%	7	0	0	0	0	70	77
25	433 Manufacturing Equipment	139	3.00%	4	0	0	0	0	29	33
26	434 Gas Holders - Manufacturing	358	2.00%	7	0	0	0	0	137	144
27	436 Compressor Equipment	53	3.00%	1	0	0	0	0	16	17
28	437 Measuring & Regulating	309	3.00%	9	0	0	0	0	105	114
29	440/441 Land in Fee Simple and Land Rights	927	0.00%	0	0	0	0	0	1	1
30	442-00 Structures and Improvements	5,455	4.00%	218	0	0	0	0	1,434	1,652
31	443-00 Gas Holders Storage	16,766	4.00%	671	0	0	0	0	6,503	7,174
32	449-00 Local Storage Equipment	16,734	4.00%	669	0	0	0	0	6,419	7,088
33		41,210		1,586	0	0	0	0	14,714	16,300

DEPRECIATION AND AMORTIZATION WORKSHEET (CONT'D)
FOR THE YEAR ENDING DECEMBER 31, 2005
($000)

Line No.	Account	Balance 12/31/2004	Annual Depreciation Rate %	Provision 2005 (Cr.)	Provision Adjust-ments	Provision Retirements	Provision Retirement Costs	Provision Proceeds on Disposal	Accumulated 12/31/2004	Accumulated 12/31/2005
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	**TRANSMISSION PLANT**									
2	461 Land Rights - Byron Creek	$16	5.00%	$1	$0	$0	$0	$0	$15	$16
3	460-00 / 461-00 Land / Land Rights	46,933	0.00%	0	0	0	0	0	(1,035)	(1,035)
4	462-00 Structures and Improvements - Compressor Stn	14,784	3.00%	444	0	0	0	0	3,090	3,534
5	463-00 Measuring & Regulating	4,363	3.00%	131	0	0	0	0	774	905
6	464-00 Other Structures - Frame Buildings	4,881	3.00%	146	0	0	0	0	512	658
7	465-00 Mains & Crossings	697,040	2.00%	13,941	0	(158)	0	0	122,188	135,971
8	465-00 Mains & Crossings - Byron Creek	702	5.00%	35	0	0	0	0	653	688
9	466-00 Compressor Equipment	103,880	3.00%	3,116	0	0	0	0	19,398	22,514
10	467-00 Measuring & Regulating	32,985	3.00%	990	0	0	0	0	4,475	5,465
11	467-10 Telemetering	5,995	10.00%	600	0	0	0	0	4,623	5,223
12	468-00 Communications Structures & Equip.	1,021	10.00%	102	0	0	0	0	111	213
13	469-00 Other Transmission Equipment	0	5.00%	0	0	0	0	0	0	0
14		912,600		19,506	0	(158)	0	0	154,804	174,152
15										
16	**DISTRIBUTION PLANT**									
17	470 Land	3,249	0.00%	0	0	0	0	0	34	34
18	471 Land Rights	678	0.00%	0	0	0	0	0	0	0
19	471 Land Rights - Byron Creek	1	5.00%	0	0	0	0	0	3	3
20	472-00 Structures & Improvements									
21	-Leasehold Alterations	0	Term - Lease	0	0	0	0	0	0	0
22	-Frame Buildings	7,028	3.00%	211	0	0	0	0	1,565	1,776
23	-Masonry Buildings	0	1.50%	0	0	0	0	0	0	0
24	-Byron Creek	2	5.00%	0	0	0	0	0	2	2
25	473-00 Services	540,883	2.00%	10,818	0	(3,583)	0	0	79,690	86,925
26	474-00 House Regulator & Meter Installation	139,770	3.57%	4,990	0	(469)	0	0	23,201	27,722
27	475-00 Mains	734,732	2.00%	14,695	0	(3,248)	0	0	172,083	183,530
28	476-00 Compressed Natural Gas									
29										
30	-NGV Compressor Equipment	0	5.00%	0	0	0	0	0	0	0
31	-All Other	575	6.67%	38	0	0	0	0	212	250
32	477-00 Measuring & Regulating	62,133	3.00%	1,864	0	(498)	0	0	6,701	8,067
33	477-10 Telemetering	5,316	10.00%	532	0	0	0	0	3,791	4,323
34	477-00 Measuring & Regulating - Byron Creek	163	5.00%	8	0	0	0	0	(67)	(59)
35	478 Meters	188,798	3.57%	6,740	0	(774)	0	0	33,611	39,577
36	479 Other Distribution Equipment	0	4.00%	0	0	0	0	0	0	0
37		1,683,328		39,896	0	(8,572)	0	0	320,826	352,150

TERASEN GAS INC.

DEPRECIATION AND AMORTIZATION WORKSHEET (CONT'D)
FOR THE YEAR ENDING DECEMBER 31, 2005
($000)

Line No.	Account	Balance 12/31/2004	Annual Depreciation Rate %	Provision 2005 (Cr.)	Adjust-ments	Retirements	Retirement Costs	Proceeds on Disposal	Accumulated 12/31/2004	Accumulated 12/31/2005
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	**GENERAL PLANT**									
2	480 Land	$20,941	$0	$0	$0	$0	$0	$0	$17	$17
3	482-00 Structures & Improvements									
4	-Leasehold Alterations	4,086	Term - Lease	540	0	0	0	0	12,851	13,391
5	-Masonry Buildings	74,089	1.50%	1,111	0	0	0	0	(9,927)	(8,816)
6	-Frame Buildings	5,071	3.00%	152	0	0	0	0	(3,390)	(3,238)
7	483-00 Office Furniture & Equipment									
8	-Furniture & Equipment	23,348	5.00%	1,167	0	(22)	0	0	8,606	9,751
9	-Computers - Hardware	24,446	20.00%	4,889	0	(2,075)	0	0	17,207	20,021
10										
11	-Computer Software - Non-Infrastructure	32,903	20.00%	6,581	0	(722)	0	0	21,710	27,569
12	-Computer Software - Infrastructure/Custom	96,171	12.50%	12,021	0	(7,602)	0	0	43,628	48,047
13										
14	484-00 Transportation Equipment	590	15.00%	89	0	(8)	0	0	2,555	2,636
15	485-00 Maintenance & Repair Equipment	370	5.00%	19	0	(4)	0	0	(324)	(309)
16	486-00 Tools & Work Equipment	27,266	5.00%	1,363	0	(184)	0	0	9,876	11,055
17	487-00 Equipment on Customers' Premises	1,230	5.00%	62	0	0	0	0	675	737
18	487-XX - VRA Compressor	0	10.00%	0	0	0	0	0	0	0
19	487-XX - VRA Compressor Installation Cost	583	33.33%	194	0	0	0	0	498	692
20	488-00 Communication - Structures & Equip.	9,746	5.00%	487	0	(603)	0	0	2,162	2,046
21	488-00 Communication - Radios	5,372	10.00%	537	0	0	0	0	3,029	3,566
22	489-00 Other General Equipment	0	5.00%	0	0	0	0	0	0	0
23		326,212		29,212	0	(11,220)	0	0	109,173	127,165
24										
25	**UNCLASSIFIED PLANT**									
26	499 Plant Suspense	153	0.00%	0	0	0	0	0	0	0
27										
28	TOTAL	$2,965,274		$90,210	$0	($19,950)	$0	$0	$600,082	$670,342

TERASEN GAS INC.

2004 – 2007 MULTI-YEAR PERFORMANCE BASED RATE PLAN
2006 OPERATING AND MAINTENANCE EXPENSE
FOR THE YEAR ENDING DECEMBER 31, 2006

In accordance with the PBR settlement, the 2006 operating and maintenance costs are determined on a formula-based approach that starts from a base of the 2003 Decision O&M, escalated by growth in customers and inflation less an adjustment factor of 66% of CPI (BC). The forecast of 2006 inflation based on CPI (BC) is 2.20% as discussed under Section A, Tab 2.

For the purpose of 2006 rates setting, 2005 O&M formula-based O&M expense has been adjusted based on updated 2005 customer accounts. Per Commission Order No. G-51-03, there is no true-up on CPI. Also, there is no customer count-related true-up for 2005 overhead capitalization. The detail calculation of adjusted 2005 O&M base is shown on Page 2 of the same Tab.

For 2006, the annual operating and maintenance expenses are based on the following formula:

Gross O&M = 2005 Adjusted O&M X [(1 + customer growth) X (1 + CPI – adjustment factor)] + Pension & Insurance Variance

Gross 2006 O&M	$ 196.919 million
Capitalized Overhead	(27.243) million
Fort Nelson O&M and Vehicle Lease	(2.585) million
Net 2005 O&M	$ 167.091 million

Details in support of the above calculation can be found on Page 2 of this Tab.

As per Commission Order No. G-51-03, variances between PBR formula based pension and insurance costs and cost of service based have also been included as 2006 O&M expenses. Based on the calculation shown on Page 3 of this tab, an incremental amount of $1,525,000 is added to O&M expenses.

Consistent with the 2003 Decision and the terms of the Settlement, the Company has kept the overheads capitalized rate at 16% for the 2006 year.

TERASEN GAS INC.

FORMULA CALCULATION OF
OPERATING AND MAINTENANCE EXPENSE
FOR THE YEAR ENDING DECEMBER 31, 2006
($000) - Except where noted

Line No.	Description		2003 Decision Adjusted for TPIP	Approved 2004	Actual 2004	Approved 2005	Adjusted Base 2005	Change	Forecast 2006
	(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Average Number of Customers - Forecast		770,368	777,779		790,385		12,669	804,316
2	Percentage Growth in Average Customers							1.60%	
3									
4	Average Number of Customers - True up (Actual/Projection)				779,461		791,647		
5									
6	Annual Inflation Rate - CPI			1.70%	1.70%	2.00%	2.00%	2.20%	
7	Adjustment Factor			0.85%	0.85%	1.00%	1.00%	1.45%	
8									
9	Total Gross O & M Expense before TPIP		$176,915						
10	TPIP		5,505						
11	Total Gross O & M Expense		182,420	185,740	186,080	190,575	190,888	4,506	195,394
12	Pension & Insurance Variance			2,144	2,144	11	11	1,514	1,525
13	Adjusted Total Gross O&M Expense			187,884	188,224	190,586	190,899		196,919
14									
15	Less: Adjustments for Overhead Capitalized Purpose								
16	Fort Nelson	($581)							
17	Vehicle Lease	(1,833)							
18	DRIA	(1,652)							
19	OPEB	(6,329)							
20	Capital-related Portion - CustomerWorks	(8,978)							
21	Total Items Not Subject to Overheads	($19,373)	(19,373)	(19,726)	(19,762)	(20,239)	(20,273)		(20,752)
22	Less: TPIP Not Subject to Overhead		(5,505)	(5,605)	(5,616)	(5,751)	(5,761)		(5,897)
23	Total O&M Subject to Capitalized Overhead		157,542	162,553	162,846	164,596	164,865	5,405	170,270
24									
25	Capitalized Overhead at 16%		25,207	26,009	26,009	26,335	26,335		27,243
26	Gross O&M Less Capitalized Overhead		157,213	161,875	162,215	164,251	164,564	5,112	169,676
27									
28	Less: Fort Nelson		(581)	(592)	(593)	(607)	(608)	(14)	(622)
29	Vehicle Lease		(1,833)	(1,866)	(1,870)	(1,915)	(1,918)	(45)	(1,963)
30	Total Utility O&M		$154,799	$159,417	$159,752	$161,729	$162,038	$5,053	$167,091

TERASEN GAS INC.

FORMULA CALCULATION OF O & M EXPENSE
PENSION AND INSURANCE VARIANCE
FOR THE YEAR ENDING DECEMBER 31, 2006
($000) - Except where noted

Line No.	Particulars	Decision 2003	Approved 2004	Adjusted Base 2004	Approved 2005	Adjusted Base 2005	Change	Forecast 2006	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	**Formula Based**								
2	Pension	$5,543	$5,644	$5,654	$5,791	$5,800	$137	$5,937	
3	Insurance	3,661	3,728	3,735	3,825	3,831	91	3,922	
4	Total	$9,204	$9,372	$9,389	$9,615	$9,631	$228	$9,859	
5									
6	**Cost of Service Based**								
7	Pension		$5,616		$4,626			$6,299	
8	Insurance		5,900		5,000			5,085	
9	Total		$11,516		$9,626			$11,384	
10									
11	**Pension & Insurance Variance**								
12	Pension		($28)		($1,165)			$362	
13	Insurance		2,172		1,175			1,163	
14	**Total Pension and Insurance Variance**		$2,144		$11			$1,525	-Tab 5, Page 2

1. PROPERTY TAX EXPENSE

Under the PBR, property taxes will be forecast each year for the Annual Review process. The Property Tax deferral account will collect all variances from the forecast amount included in rates.

The projected 2005 property tax is expected to be higher than previous forecast by $778,762. Under the terms of the Negotiated Settlement, forecast variances are afforded deferral treatment. For 2006, the forecast property tax is $41,379,233. Details in support of this amount can be found on Page 4 of this tab.

Property taxes are levied against the Company by Provincial, Municipal and other local governments.

1% Tax

The 1% tax in lieu of general municipal taxes ("1% tax") is calculated based on the amount of revenues collected within municipal boundaries multiplied by 1% (1.25% for the City of Vancouver). Payments of the 1% tax to municipalities are lagged relative to increases and decreases in revenues due to provisions in the applicable legislation and agreements. 2006 budget payments are based on actual 2004 revenues, except for Vancouver which will be based on 2005 revenues. It is estimated that Vancouver revenues will increase by 1.6%.

General, School and Other

Property taxes include general, school and other property taxes as well as Oil and Gas Commission fees. Assessed values for land and improvements are estimated using 2005 actual assessments and applying various market adjustments. The 2006 forecast includes:

a) An adjustment of 3% to improvements other than pipe to cover expected increases in material and construction costs.

b) An adjustment of 15% to fee-owned land for offices, and 5% for all other fee lands to cover expected increases in land prices. The provincial average in 2005 was 17%, and is expected to be similar in 2006.

c) An average increase of 6.4% to transmission pipeline, based on the final year of pipeline rates negotiations which finalized in 2002. The increase also includes an additional 3% as proposed by BC Assessment to incorporate increased costs of material and labour.

d) An average decrease of 1% in distribution pipelines to correct for errors in the update factors applied in 2005.

e) Net additions to distribution pipeline of $20,364,009.

Mill rates for general property taxes are forecast to increase from 0% to 2% range and are set separately by each local government taxation authority, except for rural taxes which are set by the Provincial government. The provincial government also sets school tax rate and no change is expected in 2006. Other property taxes are collected by local government taxation authorities on behalf of other taxation authorities such as regional districts and hospitals and are expected to increase by 2% in 2006.

Beyond the changes mentioned above and revenue-driven changes in the 1% tax, no additional property tax increases are included. As indicated in the Application section, Terasen Gas seeks continuation of the deferral account treatment for variances in property taxes from forecast.

2. B.C. CORPORATION CAPITAL TAX (CCT)

The CCT was eliminated in 2002, therefore no provision for CCT expense has been made for 2006.

3. LARGE CORPORATIONS TAX (LCT)

LCT is calculated based on taxable capital determined pursuant to the applicable sections of the *Income Tax Act* at a rate of 0.175% for 2005, 0.125% for 2006, 0.0625% for 2007, and eliminated thereafter (0.200% for 2004) . For details, see Section A, Tab 6, Page 9. LCT is reduced by the Federal corporate surtax calculated in accordance with the applicable provisions of the *Income Tax Act*.

4. INCOME TAX EXPENSE

Income tax expense is determined based on taxable earnings calculated on the basis of revenues and costs in accordance with the applicable provisions of the *Income Tax Act*, multiplied by the combined provincial and federal income tax rates. For regulatory purposes, income tax expense is calculated following the taxes payable method of accounting for income taxes. For 2005, the combined corporate income tax rate is set at 34.87% (including 1.12% surtax) (2004 – 35.62%). For 2006 and thereafter, the combined corporate income tax rate is set at 34.12%. The corporate income tax rates for 2006 reflects the provincial income tax rate reduction of 1.5% effective July 1, 2005 as announced in the September 14, 2005 B.C. Budget. The tax rate reduction benefit from July 1, 2005 to December 31, 2005 has been deferred and is being fully credited to customers in 2006.

PROPERTY AND SUNDRY TAXES
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	B.C.U.C. Account Number	2005 Approved	2006 Total Expenses	2006 Revised Revenue, Total Expenses	Change	Reference
	(1)	(2)	(3)	(3)	(4)	(6)	(7)
1	Property Taxes	305-010					
2							
3	1% in Lieu of General Municipal Tax		13,178	$12,992	$12,992	($186)	
4							
5	General, School and Other		26,395	28,387	28,387	1,992	
6							
7			39,573	$41,379	$41,379	1,806	
8							
9	B.C. Corporation Capital Tax		0	0	0	0	
10							
11	Total		$39,573	$41,379	$41,379	$1,806	- Tab A-1, Page 7

INCOME TAXES / REVENUE DEFICIENCY
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	2005 Approved	2006 ----Revised Rates----- 2005 Rates	Revised Revenue	Total	Change	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	CALCULATION OF INCOME TAXES						
2	Earned Return	$182,628	$171,360	$14,505	$185,865	$3,237	- Tab A-1, Page 7
3	Deduct - Interest on Debt	(111,229)	(111,164)	(9)	(111,173)	56	
4	Add- Non-Tax Ded. Expense (Net)	(424)	(1,348)	0	(1,348)	(924)	- Tab A-6, Page 6
5							
6	Accounting Income After Tax	70,975	58,848	14,496	73,344	2,369	
7	Add (Deduct) - Timing Differences	(10,273)	(6,115)	0	(6,115)	4,158	- Tab A-6, Page 6
8	Add - Large Corporation Tax	3,049	2,170	(243)	1,927	(1,122)	- Tab A-6, Page 9
9							
10	Taxable Income After Tax	$63,751	$54,903	$14,253	$69,156	$5,405	
11							
12	Income Tax Rate (Current Tax)	35.620%	34.120%	34.120%	34.120%	-1.500%	
13	1 - Current Income Tax Rate	64.380%	65.880%	65.880%	65.880%	1.500%	
14							
15	Taxable Income (L10 / L13)	$99,023	$83,338	$21,634	$104,972	$5,949	
16							
17							
18	Income Tax - Current (L12 x L15)	$35,272	$28,435	$7,381	$35,816	$544	
19	- Deferred Income Tax						
20	- Large Corporation Tax	3,049	2,170	(243)	1,927	(1,122)	- Tab A-6, Page 9
21							
22	Total	$38,321	$30,605	$7,138	$37,743	($578)	- Tab A-1, Page 7
23							
24	REVENUE DEFICIENCY						
25	Earned Return	$182,628		$14,505	$185,865		- Tab A-1, Page 7
26	Add - Income Taxes	38,321		7,138	37,743		- Tab A-1, Page 7
27	Deduct - Utility Income Before Taxes,						
28	Present Rates	(223,145)		0	(201,965)		- Tab A-1, Page 7
29	Corporate Capital Tax	0		0	0		
30							
31	Deficiency After Corporate Capital Tax	($2,196)		$21,643	$21,643		

TERASEN GAS INC.
NON-TAX DEDUCTIBLE EXPENSES (NET) AND TIMING DIFFERENCE ADJUSTMENTS
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	2005 Approved	2006	Change	Reference
	(1)	(2)	(4)	(4)	(5)
1	ITEMS OF A PERMANENT NATURE INCREASING TAXABLE INCOME				
2					
3	Amortization of Deferred Charges	($1,074)	($1,748)	($674)	- Tab A-3, Page 13.1
4					
5	Non-tax Deductible Expenses	650	400	($250)	
6					
7					
8					
9	Total Permanent Differences	($424)	($1,348)	($924)	- Tab A-1, Page 8
10					
11	TIMING DIFFERENCE ADJUSTMENTS				
12					
13	Depreciation	$80,794	$85,642	$4,848	- Tab A-6, Page 7
14	Amortization of Debt Issue Expenses	1,497	1,215	(282)	
15	Debt Issue Costs	(1,174)	(971)	203	
16	Capital Cost Allowance	(79,457)	(81,814)	(2,357)	- Tab A-6, Page 8
17	Cumulative Eligible Capital Allowance	(1,168)	(1,158)	10	
18	Unfunded Pension	215	1,319	1,104	
19	Overheads Capitalized Expensed for Tax Purposes	(9,879)	(10,216)	(337)	
20	Discounts on Debt Issue and Other	(1,101)	(132)	969	
21					
22	Total Timing Differences	($10,273)	($6,115)	$4,158	- Tab A-1, Page 8

TERASEN GAS INC.
DEPRECIATION AND AMORTIZATION EXPENSES
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	2005 Approved	2006	Change	Reference
	(1)	(2)	(3)	(4)	(5)
1	Depreciation Provision				
2					
3	Total Depreciation Expense	$90,736	$94,012	$3,276	- Tab A-3, Page 15.3
4					
5	Less: Amortization of Contributions in Aid of Construction	(9,942)	(8,370)	1,572	- Tab A-3, Page 8
6		80,794	85,642	4,848	
7					
8	Amortization Expense				
9					
10	Amortization of Deferred Charges	($1,074)	($1,748)	($674)	- Tab A-3, Page 13.1
11					
12					
13		(1,074)	(1,748)	(674)	
14					
15	TOTAL	$79,720	$83,894	$4,174	- Tab A-1, Page 7

TERASEN GAS INC.
CAPITAL COST ALLOWANCE
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Class	CCA Rate %	12/31/2005 UCC Balance	2006 Net Additions	2006 CCA	12/31/2006 UCC Balance
	(1)	(2)	(3)	(4)	(5)	(6)
1	1	4%	$1,318,444	$93,592	($54,609)	$1,357,427
2	2	6%	210,260	0	(12,616)	197,644
3	3	5%	3,470	0	(174)	3,296
4	6	10%	312	0	(31)	281
5	8	20%	20,803	4,471	(4,608)	20,666
6	9	25%	2	0	(1)	1
7	10	30%	11,427	59	(3,437)	8,049
8	12	100%	0	0	0	0
9	13		7,279	745	(1,088)	6,936
10	14		10	0	(2)	8
11	17	8%	312	0	(25)	287
12	29	100%	0	0	0	0
13	38	30%	50	0	(15)	35
14	39	25%	1	0	0	1
15	45	45%	7,684	7,780	(5,208)	10,256
16						
17		Total	$1,580,054	$106,647	($81,814)	$1,604,887

TERASEN GAS INC.

CALCULATION OF LARGE CORPORATION TAX
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	Reference	2005 Approved	2006 2005 Rates	2006 Revised Rates	Change
	(1)	(2)	(3)	(4)	(5)	(6)
1	Large Corporation Tax					
2						
3	Utility Capital (Line 26)		2,412,823	$2,523,709	$2,524,039	111,216
4	Add: Security Deposits		2,629	2,712	2,712	83
5	Long Term Construction Advances		1	8	8	7
6	Deferred Income Tax		364	364	364	0
7	Work in Progress Attracting AFUDC		7,628	3,178	3,178	(4,450)
8	Sub-total		2,423,445	2,529,971	2,530,301	106,856
9						
10	Utility Portion of $50,000,000 or $0 Deduction					
11	(Line 38 x $50,000,000 or $0)		(47,505)	(47,835)	(47,835)	(330)
12						
13	Taxable Capital		$2,375,940	$2,482,136	$2,482,466	$106,526
14						
15	Large Corporation Tax Rate		0.175%	0.125%	0.125%	-0.050%
16						
17	Large Corporation Tax		$4,158	$3,103	$3,103	(1,055)
18	Less: Surtax	1.12%	(1,109)	(933)	(1,176)	(67)
19						
20	Large Corporation Tax		$3,049	$2,170	$1,927	($1,122)
21						
22						
23	Net Plant in Service, Ending	- Tab A-1, Page 6	2,295,282	$2,334,068	$2,334,068	38,786
24	All Other Rate Base Items - Lines 26 - 31 of	- Tab A-1, Page 6	117,541	189,641	189,971	72,430
25						
26	Utility Capital		2,412,823	2,523,709	2,524,039	111,216
27						
28	Non-Rate Base Items					
29	Net Book Value of Lower Mainland Premium		114,700	101,970	101,970	(12,730)
30	Disallowed Plant Costs		2,090	1,990	1,990	(100)
31	Plant Held for Future Use		0	55	55	55
32	Fort Nelson Division		4,103	4,203	4,203	100
33	Squamish Gas Co. Ltd.		5,900	6,050	6,050	150
34						
35	Total Capital		$2,539,616	$2,637,977	$2,638,307	$98,691
36						
37						
38	Proportion of Utility Capital to Total Capital		95.01%	95.67%	95.67%	0.66%

TERASEN GAS INC.

2004 – 2007 MULTI-YEAR PERFORMANCE BASED RATE PLAN
2006 RETURN ON CAPITAL
FOR THE YEAR ENDING DECEMBER 31, 2006

Under the terms of the 2004 – 2007 PBR Settlement the short term interest rate and new long term issues will be updated each fall for the Annual Review process. The interest deferral account will collect short term rate variances and all variances with respect to long term issues.

Long-Term Debt

Under favorable market conditions, the planned 2005 long-term debt financing was completed in February, seven months earlier than scheduled. The size of the issue was reduced from the planned $220 million to $150 million.

The rollover of the $150 million 2003 medium-term debt is planned for October 31, 2005.

A $100 million long-term debt issue with a coupon rate of 5.05% is planned for June 30, 2006.

Unfunded Debt

The unfunded debt rate for 2006 is set at 4.0% based on the current outlook for short-term rates in the year.

Common Equity

The revenue requirement information included is based on the allowed 2005 return on equity ("ROE") at 9.03%. Any variances from the 2005 allowed ROE level compared to the ROE subsequently approved by the Commission, or changes in the capital structure of Terasen Gas to be used for rate making purposes, will result in corresponding changes to the final 2006 revenue requirement.

TERASEN GAS INC.

EMBEDDED COST OF LONG-TERM DEBT
FOR THE YEAR ENDING DECEMBER 31, 2006
($000)

Line No.	Particulars	Issue Date	Maturity Date	Coupon Rate	Principal Amount of Issue	Issue Expense	Net Proceeds of Issue	Effective Interest Cost	Average Principal Outstanding	Annual Cost	Average Embedded Cost
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	Series A Purchase Money Mortgage	3-Dec-1990	30-Sep-2015	11.800%	$58,943	$855	$58,088	12.054%	$58,943	$7,105	
2	Series B Purchase Money Mortgage	30-Nov-1991	30-Nov-2016	10.300%	157,274	2,228	155,046	10.461%	157,274	16,452	
3											
4	2005 Long Term Debt Issue - Coastal Facilities	1-Jan-2005	1-Jan-2008	6.100%	50,300	50	50,250	6.113%	50,300	3,075	
5											
6	Medium Term Note - Series 9	21-Oct-1997	2-Jun-2008	6.200%	55,000	454	54,546	6.308%	55,000	3,469	
7	Med.Term Note - Series 9 (Re-opened)	19-Nov-1998	2-Jun-2008	6.200%	58,000	681	57,319	6.036%	58,000	3,501	
8	Med.Term Note - Series 9 (Re-opening)	21-Sep-1999	2-Jun-2008	6.200%	75,000	2,053	72,947	6.578%	75,000	4,933	
9											
10	Medium Term Note - Series 11	21-Sep-1999	21-Sep-2029	6.950%	150,000	2,137	147,863	7.065%	150,000	10,597	
11	Medium Term Note - Series 13	16-Oct-2000	16-Oct-2007	6.500%	100,000	728	99,272	6.632%	100,000	6,632	
12	Medium Term Note - Series 16	30-Jul-2001	31-Jul-2006	6.150%	100,000	887	99,113	6.360%	57,808	3,677	
13	2004 Long Term Debt Issue - Series 18	29-Apr-2004	1-May-2034	6.500%	150,000	1,856	148,144	6.595%	150,000	9,893	
14	2005 Long Term Debt Issue - Series 19	25-Feb-2005	25-Feb-2035	5.900%	150,000	1,663	148,337	5.980%	150,000	8,970	
15	2005 Medium Term Note - Series 20	31-Oct-2005	31-Oct-2007	3.850%	150,000	474	149,526	4.015%	150,000	6,023	
16	2006 Long Term Debt Issue - Series 21	30-Jun-2006	30-Jun-2016	5.050%	100,000	1,000	99,000	5.179%	50,685	2,625	
17											
18	LILO Obligations - Kelowna							6.969%	29,033	2,023	
19	LILO Obligations - Kelowna Addition							5.500%	2,656	146	
20	LILO Obligations - Nelson							5.924%	5,003	296	
21	LILO Obligations - Vernon							7.155%	15,037	1,076	
22	LILO Obligations - Prince George							6.230%	38,285	2,385	
23	LILO Obligations - Creston							5.470%	3,562	195	
24											
25									$1,356,586	$93,073	
26	Debentures:										
27	Series D	17-Dec-1986	17-Dec-2006	9.750%	20,000	244	19,756	9.945%	$19,178	$1,907	
28	Series E	8-Jun-1989	7-Jun-2009	10.750%	59,890	637	59,253	10.927%	59,890	6,544	
29									$79,068	$8,451	
30											
31	Sub-Total								$1,435,654	$101,524	
32	Less - Fort Nelson Division Portion of Long Term Debt								(2,735)	(193)	
33	**Total**								$1,432,919	$101,331	7.072%

TERASEN GAS INC.

2004 – 2007 MULTI-YEAR PERFORMANCE BASED RATE PLAN
2005 PROJECTIONS

Terasen Gas is projecting a 2005 return on common equity of 10.02%, or 0.99% higher than the authorized return of 9.03%. This is due primarily to productivity improvements made possible by the integration activities of the Company with TGVI which were facilitated by the performance based rate regulation (PBR) settlement. Under the PBR, which includes an earnings sharing mechanism, Terasen Gas is to share pre-tax earnings variances between authorized level of earnings as determined annually under the settlement and the actual earnings of the utility on a 50:50 basis with its customers. Accordingly, the customers' portion of the 2005 incentive earnings surplus is projected to be $6.0 million on a pre-tax basis. Details in support of this calculation can be found on Page 6 of this Tab.

Terasen Gas proposes to distribute $7.3 million to customers, representing the projected 2005 earnings surplus sharing plus a true up of prior year's earnings sharing, in 2006 via a rider.

TERASEN GAS INC.
UTILITY RATE BASE
SCHEDULE II
($000)

Line No.	Description	2005 Approved	2005 Projected	Difference	Reference
	(1)	(2)	(3)	(4)	(5)
1	Plant in service, Beginning	$2,922,348	$2,889,618	($32,730)	
2	CPCN's	53,749	51,691	(2,058)	
3					
4	Additions/Transfers	117,728	104,291	(13,437)	
5	Disposals/Retirements	(20,340)	(19,994)	346	
6	Plant in service, Ending	$3,073,485	$3,025,606	($47,879)	
7					
8	Add - Intangible plant	837	837	0	
9		$3,074,322	$3,026,443	($47,879)	
10					
11	Contributions in aid of construction	(153,989)	(148,229)	5,760	
12					
13	Less - Accumulated depreciation / amortization	(625,051)	(621,660)	3,391	
14					
15	Net plant in service, Ending	$2,295,282	$2,256,554	($38,728)	
16					
17	Net plant in service, Beginning	$2,266,265	$2,248,594	($17,671)	
18					
19	Net plant in service, Mid-year	$2,280,774	$2,252,574	($28,200)	
20	Adjustment to 13-month average	0	5,269	5,269	
21	Work in progress, no AFUDC	12,358	14,881	2,523	
22	Sub-total	2,293,132	2,272,724	(20,408)	
23					
24	Construction advances	(2)	(3)	(1)	
25	Unamortized deferred charges	6,710	7,618	908	
26	Cash working capital	(22,876)	(17,623)	5,253	
27	Other working capital	121,715	160,805	39,090	
28	Deferred income tax, mid-year	(364)	(364)	0	
29	Capital Incentive Mechanism	0	0	0	
30	LILO Benefit	(2,564)	(2,376)	188	
31	**Utility rate base**	$2,395,751	$2,420,781	$25,030	

TERASEN GAS INC.
UTILITY INCOME AND EARNED RETURN
($000)

Line No.	Description	2005 Approved	2005 Projected	Difference	Reference
	(1)	(2)	(3)	(4)	(5)
1	**ENERGY VOLUMES (TJ)**				
2	Sales	119,302	113,543	(5,759)	
3	Transportation	105,684	100,596	(5,088)	
4	Total	224,986	214,139	(10,847)	
5					
6	Average Rate per GJ				
7	Sales	$11.051	$11.953	$0.902	
8	Transportation	$0.648	$0.704	$0.056	
9	Average	$6.164	$6.668	$0.504	
10					
11	**UTILITY REVENUE**				
12	Sales - Present Rates	$1,320,326	$1,357,141	$36,815	
13	- Decrease	(1,939)	0	1,939	
14	Transportation - Present Rates	68,711	70,788	2,077	
15	- Decrease	(257)	0	257	
16	**Total Revenue**	1,386,841	1,427,929	41,088	
17					
18	Cost of Gas Sold (Including Gas Lost)	908,924	962,045	53,121	
19	**Gross Margin**	477,917	465,884	(12,033)	
20	RSAM Revenue	0	15,337	15,337	
21	**Adjusted Gross Margin**	477,917	481,221	3,304	
22					
23	Operation & Maintenance	161,729	149,202	(12,527)	
24	Operating Leases	1,915	1,915	0	
25	Property Tax	39,573	39,573	0	
26	Depreciation and Amortization	79,720	76,425	(3,295)	
27	Other Operating Revenue	(25,969)	(22,671)	3,298	
28		256,968	244,444	(12,524)	
29	Utility Income before Income Taxes	220,949	236,777	15,828	
30	Income Taxes	38,321	44,852	6,531	- Tab 8, Page 4
31	**EARNED RETURN**	$182,628	$191,925	$9,297	
32	**UTILITY RATE BASE**	$2,395,751	$2,420,781	$25,030	- Tab 8, Page 2
33					
34	**RETURN ON RATE BASE**	7.623%	7.928%	0.305%	

TERASEN GAS INC.
INCOME TAXES
SCHEDULE III
($000)

Line No.	Description	2005 Approved	2005 Projected	Difference	Reference
	(1)	(2)	(3)	(4)	(5)
1	CALCULATION OF INCOME TAXES				
2	Earned Return	$182,628	$191,925	$9,297	
3	Deduct - Interest on Debt	(111,229)	(111,899)	($670)	
4	Add - Non-Tax Deductible Expense (Net)	(424)	(667)	(243)	
5					
6	Accounting Income After Tax	$70,975	$79,359	$8,384	
7	Deduct: Timing Differences	(10,273)	(10,059)	214	
8	Add: Large Corporation Tax	3,049	4,191	1,142	
9					
10	Taxable Income After Tax	$63,751	$73,491	$9,740	
11					
12	Income Tax Rate (Current Tax)	35.620%	35.620%	0.000%	
13	1 - Current Income Tax Rate	64.380%	64.380%	0.000%	
14					
15	Taxable Income Before Income Tax	$99,023	$114,152	$15,129	
16	Add - Amount Required to Provide for				
17	Deferred Income Tax	0	0	0	
18					
19	Taxable Income	$99,023	$114,152	$15,129	
20					
21	Income Tax				
22	Current	$35,272	$40,661	$5,389	
23	Deferred Income Tax	0	0	0	
24	Large Corporation Tax	3,049	4,191	1,142	
25					
26	Total	$38,321	$44,852	$6,531	- Tab 8, Page 3

TERASEN GAS INC.
RETURN ON CAPITAL
SCHEDULE IV
($000)

Line No.	Description	2005 Approved	2005 Projected	Difference	Reference
	(1)	(2)	(3)	(4)	(5)
1	Unfunded debt	$160,469	$177,239	$16,770	
2	proportion	6.70%	7.32%	0.62%	
3	rate of return	4.000%	4.000%	0.000%	
4	return component	0.27%	0.29%	0.02%	
5					
6	Long term debt	$1,444,684	$1,444,684	$0	
7	proportion	60.30%	59.68%	-0.62%	
8	rate of return	7.255%	7.255%	0.000%	
9	return component	4.38%	4.33%	-0.05%	
10					
11	Preference shares	$0	$0	$0	
12	proportion	0.00%	0.00%	0.00%	
13	rate of return	0.000%	0.000%	0.000%	
14	return component	0.00%	0.00%	0.00%	
15					
16	Common equity	$790,598	$798,858	$8,260	
17	proportion	33.00%	33.00%	0.00%	
18	rate of return	9.030%	10.016%	0.986%	
19	return component	2.98%	3.31%	0.33%	
20					
21					
22		$2,395,751	$2,420,781	$25,030	
23					
24					
25	Return on rate base	7.623%	7.928%	0.305%	- Tab 8, Page 3
26					
27					
28	Utility rate base	$2,395,751	$2,420,781	$25,030	- Tab 8, Page 2

TERASEN GAS INC.
EARNINGS SHARING CALCULATION
($000)

Line No.	Description (1)		2005 Projected (2)	Reference (3)
1	Utility rate base		$2,420,781	- Tab 8, Page 2
2				
3	Common Equity Component	33.0%	798,858	- Tab 8, Page 5
4				
5				
6	Achieved ROE on Common Equity		10.016%	- Tab 8, Page 5
7				
8	Authorized ROE on Common Equity		9.030%	- Tab 8, Page 5
9				
10	ROE Surplus / (Deficit)		0.986%	
11				
12	After Tax Surplus Available for Sharing		$7,877	
13				
14				
15	Customers' 50% Share of Surplus (net-of-tax)		$3,938	
16				
17				
18	**Customers' 50% Share of Surplus (pre-tax)**		**$6,013**	

Pursuant to the 2004 – 2007 PBR Settlement, the following provides information relating to Terasen Gas' 5 Year Major Capital Plan.

Major Capital Projects are defined in this plan as those discrete projects that are in excess of $1.0 million (excluding AFUDC).

1.0 PEAK LOAD PROJECTIONS

Terasen Gas operates two types of gas delivery systems delineated by operating pressure:

- Transmission systems operating in pressures in excess of 2,069 kPa and
- Distribution systems operating in pressures below 2,069 kPa.

The Terasen Gas transmission pressure system is divided into three subsets:

- the Coastal Transmission system
- the Interior Transmission system and
- the Transmission Pressure laterals from the Duke Energy Gas Transmission and TransCanada Pipeline systems.

The Terasen Gas distribution pressure system is divided into three subsets based on pressure range:

- the Intermediate Pressure systems operating between 690 - 2,069 kPa
- the Distribution Pressure systems operating between 14 - 690 kPa and
- the Low Pressure systems operating below 14 kPa.

The distribution pressure system is made up of approximately 15 Intermediate Pressure systems and 70 Distribution and Low Pressure systems.

Loads from the lower pressure distribution systems are rolled-up and are ultimately captured in the peak load projections for the transmission pressure system.

The following table shows the peak load projections (forecast design loads) used in this 5 Year Major Capital Project Pan 2006-2010 for the areas of capacity shortfalls.

Peak Load Projections (Forecast Design Loads) 2006 - 2010

Coastal Transmission System		**2006**	**2007**	**2008**	**2009**	**2010**
$10^3 m^3$/hr	Peak Hour	1,772	1,799	1,939	1,957	1,976
Interior Transmission System		**2006**	**2007**	**2008**	**2009**	**2010**
$10^3 m^3$/day	Peak Day	7,687	7,755	7,823	7,892	7,962

Note that the Peak Load Projection for the Interior Transmission System is stated on a daily rather than hourly basis to reflect the significant role played by the line pack for the Interior. Transmission System.

2.0 AREAS OF CAPACITY SHORTFALL

The projects identified in this section are all required to maintain minimum gas system pressures at the tail-ends of the respective gas systems.

The five year gas system peak load projections are updated annually to reflect actual customer load growth and areas of capacity shortfall. The gas system hydraulic models are evaluated using this updated load information. The results of the hydraulic evaluations are analyzed and system improvement projects are prioritized based on the timing and severity of the capacity shortfalls in each pressure system.

When interruptible loads are identified as the drivers for system reinforcement, as in items: 2.4.2, 2.4.3 and 2.4.4 below, each project will be subject to detailed load forecast verification and economic assessments prior to construction.

All projects are prioritized based on the latest years that construction completion would be required to ensure that capacity is available to meet minimum tail-end system pressures of the respective gas systems if all loads are verified as currently forecasted.

2.1 Coastal Transmission System

Based on the Coastal Transmission System peak load projections (forecast design loads) for 2006-2010 , including service to Vancouver Island and to Burrard Thermal there is one major project that has been identified.

Terasen Gas provides a wheeling service across the CTS for both BC Hydro and TGVI as follows:

- TGVI wheeling agreement allows for up to 142 TJ/d delivered to Coquitlam from Huntingdon.
- BC Hydro’s Bypass Transportation Agreement (“BTA”) allows for up to 275 TJ/d to be delivered to either Burrard or Coquitlam.

Terasen Gas, TGVI and BC Hydro have been parties to a Capacity Assignment Agreement (“CAA”) that allows BC Hydro to assign some of its BTA capacity to TGVI and allows Terasen Gas to restrict deliveries to Burrard during periods of high demand. As of the date of this filing, the parties are negotiating an extension of these arrangements. The arrangements allow TGVI to optimize its system capacity without requiring Terasen Gas to expand its CTS facilities.

However, BC Hydro's current IEP indicates that it will rely on the total output at Burrard and ICP for system capacity beginning in the winter 2008/09. In this scenario, Terasen Gas will be required to begin looping between Nichol and Coquitlam Stations in the Lower Mainland. However, if BC Hydro's long term plans for Burrard Thermal change significantly, the timing of any pipeline looping project may be deferred. The timing could also change if BC Hydro converts the ICP to a peaking plant, as it has indicated it is considering.

2.1.1 Nichol to Port Mann Loop

The Nichol to Port Mann loop is the first portion of a complete pipeline loop required from Nichol Station to Coquitlam Station. At this time, based on the current BC Hydro's requirements, the Nichol to Port Mann loop is planned to be constructed in 2010 and the completion of the full loop to Coquitlam Station is currently planned to be constructed and completed in 2012. As noted above, a change in BC Hydro's plans for use of Burrard Thermal or ICP may cause a change in the dates for construction.

The 2010 Nichol Station to Port Mann loop consists of 4.4 km of 762mm O.D. pipeline, with an estimated cost of $15.8 million (excluding AFUDC) and is expected to be in service in 2010.

This project and the subsequent project to extend the pipeline loop from Port Mann to Coquitlam Station are both expected to be subject to CPCN Applications.

2.2 Interior Transmission System

Based on the Interior Transmission System peak load projections (forecast design loads) for 2006-2010 there are no major projects that have been identified.

2.3 Transmission Pressure Laterals

Based on the Transmission Pressure Laterals peak load projections (forecast design loads) for 2006-2010 there is one major project that has been identified.

2.3.1 Prince George #2 Lateral Loop

This project is currently planned to be constructed in 2006. It consists of a 3.3 km loop of 323mm O.D. pipeline operating at 6,619 kPa which is required to support firm load growth. The estimated cost of this project is $1.0 million (excluding AFUDC) and is expected to be in service in 2006.

2.4 Intermediate Pressure Systems

Based on the Intermediate Pressure systems peak load projections (forecast design loads) for 2006-2010 the following major projects have been identified:

2.4.1 Riverside Road, Abbotsford

This project is currently planned to be constructed in 2007. It consists of a 1.6 km loop of 323mm O.D. pipeline operating at 1,900 kPa. The estimated cost of this project is $1.1 million (excluding AFUDC) and is expected to be in service in 2007.

This system improvement is required to restore capacity in the King Intermediate Pressure (IP) system feeding Abbotsford and Mission to ensure that tail end pressures remain above minimum acceptable levels. The capacity of the King IP system has been eroded over time by load growth in Abbotsford and to a lesser extent in Mission.

2.4.2 72nd Street to 36th Avenue, Delta

This project is currently planned to be constructed in 2007. It consists of a 2.6 km loop of 323mm O.D. pipeline operating at 1,200 kPa. The estimated cost of this project is $1.8 million (excluding AFUDC) and is expected to be in service in 2007.

This system improvement is required to accommodate interruptible gas load to greenhouses in the Delta area. With current high commodity costs, it is unclear whether this load will materialize. This system improvement will only be installed if the affected greenhouses convert some, or all, of their interruptible load to firm load. With this loop installed greenhouses would not need to be curtailed until colder ambient temperatures are reached.

2.4.3 Goudy Road and 36th Avenue, Delta

This project is currently planned to be constructed in 2007. It consists of a 1.75 km loop of 323mm O.D. pipeline operating at 1,200 kPa. The estimated cost of this project is $1.2 million (excluding AFUDC) and is expected to be in service in 2007.

This system improvement is required to increase capacity to offset aggressive long term interruptible load growth projections that have been provided by the greenhouses in the Delta area, which are now questionable with the recent run-up in commodity costs. This system improvement will only be installed if the affected greenhouses convert some, or all, of their interruptible load to firm load.

2.4.4 34B Avenue to 57th Street, Delta

This project is currently planned to be constructed in 2008. It consists of a 1.5 km loop of 323mm O.D. pipeline operating at 1,200 kPa. The estimated cost of this project is $1.0 million (excluding AFUDC) and is expected to be in service in 2008.

This system improvement is required to increase capacity to offset aggressive long term interruptible load growth projections that have been provided by the greenhouses in the Delta area, which are now questionable with the recent run-up in commodity costs. This system improvement will only be installed if the affected greenhouses convert some, or all, of their interruptible load to firm load.

2.5 Distribution Pressure Systems

2.5.1 E. 6th Avenue & Quebec Street, Vancouver

This project is currently planned to be constructed in 2008. It consists of the installation of 1.3 km of 462mm O.D. pipeline operating at 690 kPa on Quebec Street from E. 6th Ave and Quebec to Station Street and National Avenue. The estimated cost of this project is $1.7 million (excluding AFUDC) and is expected to be in service in 2008.

This system improvement is required to restore capacity in the Vancouver area due to firm load growth to ensure that tail end pressures remain above minimum acceptable levels.

2.6 Low Pressure Systems

Based on the Low Pressure systems peak load projections (forecast design loads) for 2006-2010 there are no major projects that have been identified.

3.0 PROJECTS FOR SYSTEM MODIFICATION OR EXPANSION

3.1 Secondary Containment

To comply with Provincial and Federal legislation all storage containers that hold a volume greater than 250 litres of flammable or combustible liquid require secondary containment facilities.

In 2002 Terasen Gas embarked on a five year program to construct secondary containment facilities. The total estimated cost of this project is $9.2 million (excluding AFUDC) and is expected to be complete in 2006. The remaining expenditure is forecasted at: $2.4 million in 2006 (excluding AFUDC).

3.2 Low Pressure System – Vancouver Low Pressure (LP) System Replacement

Approximately 95km of LP mains are still in service in a densely populated and established areas of Vancouver. The LP system serves approximately 7,500 customers including: commercial establishments; residences; schools and hospitals. It is planned to replace the steel/iron LP system with a polyethylene system, operating at Distribution Pressure, over a 4 year period commencing in 2006 with an expected completion in 2009. The estimated 2006 expenditure is forecasted at: $4.9 million (excluding AFUDC).

It is anticipated that TGI will submit a CPCN Application in Q1 2006 estimated to be approximately $20 million (excluding AFUDC) to complete the 4 year replacement program.

4.0 COST PROJECTIONS FOR REGULAR CAPITAL AND CPCN'S

4.1 Cost Projections for Regular Capital

This section identifies the cost projections for regular capital expenditures in 2006 – 2010. The projections of capital expenditures are based on the Company's internal challenge targets, which differ from the formulaic driven capital expenditures that are added to rate base (as per Section A, Tab 3, Page 4).

The economic outlook for the Province over the next 5 years is predicted to be fairly strong with GDP growing annually at approximately 3%. Based on this, it is anticipated that housing starts will continue at rates similar to those projected for 2006. However, it is also expected that the trend will continue whereby the proportion of multi-family dwellings will increase and the proportion of single family dwellings will decrease over time. Additionally, Terasen Gas believes that uncertainty with respect to commodity costs and resulting competitiveness v. alternative energy sources, will continue to place pressure on the Company's customer capture rates. Although current long term forward strip prices and long term gas costs forecasts suggest that commodity prices may fall off somewhat from their current levels, the forecast long term prices are significantly greater than what they were even one year ago. The effect that sustained higher gas prices will have on customer capture is uncertain. However, the Company anticipates that customer additions would fall off in the event of a sustained higher gas price environment.

In response to this degradation of the competitiveness vs. alternative energy sources, the Company has been pursuing strategies and focusing sales and marketing efforts in an attempt to maintain or increase customer capture rates in certain market segments. The Company anticipates that it will have some success in these efforts and has reflected in its challenge targets modest improvements in customer capture, although there is a large degree of uncertainty with respect to the potential success of these efforts.

The Company presents below two alternative scenarios with respect to customer growth and corresponding capital additions. The Company submits that each forecast is reasonable in light of the tremendous uncertainty facing the company and its competitive landscape over the next 5 years and beyond. The difference between the two scenarios is the underlying gas cost forecasts and resulting impacts on customer capture rates that the Company anticipates may occur. Under both scenarios it is assumed that the Company will continue pursuing its sales and marketing efforts, with modest success, in increasing customer capture in certain market segments, and as such the additions forecast represents the Company's challenge targets.

In the first scenario (Scenario A below), longer term commodity drop and customer capture rates for the period are consistent with levels currently experienced, with some modest increases reflecting sales and marketing efforts.

In the second scenario, it is assumed that commodity prices are sustained at the current high levels with the result that customer capture rates will be eroded. Accordingly, Terasen Gas has prepared this alternative forecast of customer additions and capital expenditures (Scenario B below) that reflects a reduction in the number of customers captured of approximately 25%. The modest increases in customer capture over the forecast period related to the sales and marketing strategies described above are included in this scenario.

SCENARIO A

Cost Projections for Regular Capital Expenditure 2006-2010 - Challenge Targets

Forecasted Customer Additions - Challenge Targets	12,718	12,276	12,903	13,575	14,043
Customer Driven Capital	**2006**	**2007**	**2008**	**2009**	**2010**
Mains	6,611	6,573	7,116	7,711	8,216
Services	12,143	12,073	13,070	14,163	15,091
Meters - Customer Additions	3,913	3,890	4,212	4,564	4,863
	22,667	**22,536**	**24,398**	**26,438**	**28,170**
Other Regular Capital	**2006**	**2007**	**2008**	**2009**	**2010**
Meters - Replacement	12,292	12,865	15,983	16,792	17,659
System Integrity & Reliability					
Transmission Plant	6,363	5,932	5,145	4,841	5,063
Distribution Plant	16,921	8,999	9,449	7,793	7,949
Other Regular Capital					
Non - IT	11,692	11,946	12,222	12,466	12,716
IT	10,500	13,500	11,400	11,700	11,900
	57,768	**53,242**	**54,199**	**53,592**	**55,287**
Total Regular Capital	**80,435**	**75,778**	**78,597**	**80,030**	**83,457**

Note: All estimates exclude AFUDC

SCENARIO B

Cost Projections for Regular Capital Expenditure 2006-2010 - Challenge Targets

Forecasted Customer Additions - Challenge Targets	12,718	9,206	9,677	10,181	10,532
Customer Driven Capital	**2006**	**2007**	**2008**	**2009**	**2010**
Mains	6,611	4,929	5,337	5,783	6,162
Services	12,143	9,054	9,802	10,622	11,318
Meters - Customer Additions	3,913	2,917	3,159	3,423	3,647
	22,667	**16,900**	**18,298**	**19,828**	**21,127**
Other Regular Capital	**2006**	**2007**	**2008**	**2009**	**2010**
Meters - Replacement	12,292	12,865	15,983	16,792	17,659
System Integrity & Reliability					
Transmission Plant	6,363	5,932	5,145	4,841	5,063
Distribution Plant	16,921	8,999	9,449	7,793	7,949
Other Regular Capital					
Non - IT	11,692	11,946	12,222	12,466	12,716
IT	10,500	13,500	11,400	11,700	11,900
	57,767	**53,242**	**54,199**	**53,592**	**55,286**
Total Regular Capital	**80,435**	**70,142**	**72,497**	**73,421**	**76,413**

Note: All estimates exclude AFUDC

4.2 Cost Projections for CPCN's

The following table identifies the cost projections for major capital projects subject to CPCN applications for 2006 – 2010:

Cost Projections for Major Capital Projects Subject to CPCN Applications 2006-2010

CPCN Applications	**2006**	**2007**	**2008**	**2009**	**2010**
4.2.1 Mission Bridge IP Directional Drill	5,800	-	-	-	-
4.2.2 Residential Unbundling	9,000	16,000	-	-	-
4.2.3 Vancouver LP System Replacement	-	5,202	5,306	5,412	-
4.2.4 Nichol to Port Mann Loop	-	-	-	-	15,766
	14,800	**21,202**	**5,306**	**5,412**	**15,766**

Note: All estimates exclude AFUDC

4.2.1 Intermediate Pressure System – Mission Bridge IP Directional Drill

The existing intermediate pressure line currently located on the Mission Bridge, spanning the Fraser River at Mission/Matsqui, provides the only supply of gas to the Mission distribution system that serves approximately 10,000 customers. Replacement using horizontal directional drilling is planned to commence in 2006, at an estimated cost of $5.8 million (excluding AFUDC) and the new pipeline is expected to be in service by year end 2006. This project is subject to a CPCN application.

4.2.2 Residential Commodity Unbundling

Since the release of the BC Energy Policy in 2002, Policy Action #19 stating that "Natural gas marketers will be allowed to sell directly to small volume customers", Terasen Gas has been facilitating providing commodity choice for small volume customers. The Commercial Commodity Unbundling program was launched in November 2004 with Residential Commodity Unbundling tentatively targeted to start in 2007.

Enhancements to business processes and systems, including the Energy Customer Information System, are required to support providing commodity choice to residential customers in the Terasen Gas service territory.

The project, if approved by the Commission is expected to be in service in 2007 and the preliminary estimate of capital expenditure is as follows:

- 2006 - $9.0 million (excluding AFUDC)
- 2007 - $16.0 million (excluding AFUDC)

The Company anticipates that, following the completion of the Scoping Phase of the project, which is currently underway, that it will submit a CPCN application in late March, 2006 for Commission approval.

4.2.3 Vancouver Low Pressure (LP) System Replacement

As detailed in Section 3.2 Projects for System Modification or Expansion (above), forecasted capital expenditure for this project in 2006 – 2010 is as follows:

- 2006 - $4.9 million (excluding AFUDC) funded from Other Regular Capital
- 2007 - $5.2 million (excluding AFUDC) funding subject to a CPCN application
- 2008 - $5.3 million (excluding AFUDC) funding subject to a CPCN application
- 2007 - $5.4 million (excluding AFUDC) funding subject to a CPCN application

It is anticipated that TGI will submit a CPCN Application in Q1 2006 estimated to be approximately $20 million (excluding AFUDC) to complete the 4 year replacement program.

4.2.4 Coastal Transmission System – Nichol to Port Mann Loop

As detailed in Section 2.1.1 Areas of Capacity Shortfall (above), forecasted capital expenditure for this project in 2006 – 2010 is as follows:

- o 2010 - Nichol Station to Port Mann, 4.4 km of 762mm O.D. pipeline, with an estimated cost of $15.8 million (excluding AFUDC) and expected to be in service in 2010.

This project is subject to a CPCN application.

5.0 SCHEDULING OF PROJECTS

The following table shows the scheduling and cost projections of the major capital projects by year from 2006 - 2010.

Scheduling and Cost Projections of Major Capital Projects 2006-2010

Other Regular Capital **Transmission and Distribution Plant**	**2006**	**2007**	**2008**	**2009**	**2010**
2.3.1 Prince George #2 Lateral Loop	1,020	-	-	-	-
3.1 Secondary Containment	2,389	-	-	-	-
3.2 Vancouver LP Replacement	4,900	-	-	-	-
2.4.1 Riverside Road, Abbotsford	-	1,122	-	-	-
2.4.2 72nd St to 36th Avenue, Delta	-	1,836	-	-	-
2.4.3 Goudy Road and 36th Avenue, Delta	-	1,211	-	-	-
2.4.4 34B Avenue to 57th Street, Delta	-	-	1,038	-	-
2.5.1 E. 6th Ave & Quebec St., Vancouver	-	-	1,740	-	-
	8,309	**4,169**	**2,778**	**-**	**-**

Other Regular Capital **Non-IT and IT**	**2006**	**2007**	**2008**	**2009**	**2010**
5.1 Order Fulfillment Enhancements	1,100	-	-	-	-
5.2 MobileUP Replacement	2,000	-	-	-	-
5.3 Desktop & Laptop Refresh	1,070	-	-	-	1,767
5.4 SAP Core Application Upgrade	-	2,040	-	-	-
5.5 IT Infrastucture Network Evergreening	-	1,183	-	-	-
5.6 SCADA System Upgrade	-	1,561	-	-	-
	4,170	**4,784**	**-**	**-**	**1,767**

CPCN Applications	**2006**	**2007**	**2008**	**2009**	**2010**
4.2.1 Mission Bridge IP Directional Drill	5,800	-	-	-	-
4.2.2 Residential Unbundling	9,000	16,000	-	-	-
4.2.3 Vancouver LP System Replacement	-	5,202	5,306	5,412	-
4.2.4 Nichol to Port Mann Loop	-	-	-	-	15,766
	14,800	**21,202**	**5,306**	**5,412**	**15,766**

Note: All project estimates exclude AFUDC

5.1 IT Capital – Order Fulfillment Upgrades

The Order Fulfillment business process is modeled within SAP. In 2006 it is planned to provide upgraded functionality to bridge process gaps and to streamline the receipt and processing of customer generated orders. The estimated cost of this project is $1.1 million (excluding AFUDC) and it is expected to be complete by the end of 2006.

5.2 IT Capital - MobileUP Replacement

The MobileUP application is currently used for the Mobile Data Dispatch of customer service activities and the transfer of customer meter and billing information to the Energy Customer Information System. In 2006 it is planned to replace this application with SAP Mobile Asset Management, together with the Click scheduling engine. This conversion will align customer service activities with construction activities that have recently been transitioned to the SAP and Click platforms. The estimated cost of this project is $2.0 million (excluding AFUDC) and it is expected to be complete by the end of 2006.

5.3 IT Capital – Desktop & Laptop Refresh

This is an annual project to replace desktop and laptop computers. The number of units replaced on an annual basis varies depending of how long the computers have been in service. The estimated cost of units to be refreshed in 2006 is $1.0 million (excluding AFUDC) and the project is expected to be complete by the end of 2006.

The next projected year that the number of desktop and laptop units required to be replaced exceeds $1.0 million is in 2010. The current forecast expenditure for 2010 is $1.8 million (excluding AFUDC).

5.4 IT Capital – SAP Core Application Upgrade

SAP is the enterprise application that supports business processes for: Operate and Maintain; Order Fulfillment; Meter Management and Supply Chain. It also supports other back-office functions such as: Payroll; Finance and Performance Reporting. Vendor support of the current version of the SAP application (R3 v4.6C) expires in Q4 2006. An upgrade to the next supported version is therefore required to be in service in 2007. The total estimated cost of this project is $2.0 million (excluding AFUDC). This project will be completed in 2007.

5.5 IT Capital – IT Infrastructure Network Evergreening

This is an annual project to replace enterprise LAN switches, hubs and firewalls. The number of units replaced on an annual basis varies depending of how long the hardware has been in service. The estimated cost of units to be refreshed in 2007 is $1.2 million (excluding AFUDC) and the project is expected to be complete by the end of 2007.

5.6 IT Capital - SCADA System Upgrade

The SCADA system operates controls and monitors Terasen Gas' transmission and compression facilities in British Columbia. Vendor support of the current version (6.0) of the SCADA application is expected to expire at the end of 2008. An upgrade to the next supported version is therefore required to be in service in 2008. The total estimated cost of this project is $1.6 million (excluding AFUDC). Implementation is expected to begin in 2007 and will be in service in 2008.

6.0 CPCN'S THAT MAY BE NEEDED IN FUTURE YEARS

The 5 Year Major Capital Project Plan is updated on an annual basis. Projections for projects that fall outside of the five year timeframe are not normally subject to detailed project estimating due to the uncertainties in projecting the economic and business environments, and population growth. However, one major project has been identified as detailed in Section 2.1.1 Areas of Capacity Shortfall (above). The Nichol to Port Mann loop is the first portion of a complete pipeline loop from Nichol Station to Coquitlam Station. At this time, and based on BC Hydro's plans for Burrard Thermal and the use of ICP as a baseload plant, the Nichol to Port Mann loop is planned to be constructed in 2010, and the extension of the loop from Port Mann to Coquitlam Station is currently planned to be complete in 2012. A project estimate has not yet been prepared, but it is forecasted that the Port Mann to Coquitlam extension will be subject to a CPCN Application.

As noted earlier, the timing and requirements for this expansion will be directly impacted by BC Hydro's plans for Burrard Thermal and longer term requirements for generation on Vancouver Island.

1 INTRODUCTION

In 2003, the BC Utilities Commission approved the 2004 – 2007 PBR Settlement that Terasen Gas Inc. negotiated with its stakeholders. This agreement includes a commitment to maintaining specified levels of service as measured by Service Quality Indicators (SQIs).

Terasen Gas has ten SQIs that are measured and compared against benchmarks on an annual basis. Also included are two directional indicators that do not have benchmarks but are designed to give an understanding of trends that may develop in these areas relating to customer service.

2 COMPONENTS OF THE SERVICE QUALITY ASSURANCE MECHANISM

The Service Quality Assurance Mechanism includes four components:

1. A set of ten service quality indicators;
2. Benchmarks for each indicator;
3. Two directional indicators; and
4. A process for reviewing Terasen Gas performance.

2.1 Service Quality Indicators and Benchmarks

2.1.1 <u>Choice of Service Quality Indicators</u>

Service Quality Indicators are generally based on the following criteria:

- <u>Value to customer</u>: The indicator must represent a service or service attribute that the customer thinks is important.
- <u>Controllable by the utility</u>: Only those indicators over which the utility has control should be included. SQI's should not be linked to exogenous events over which management decisions have little or no influence.
- <u>Cost effective</u>: The information collection activities associated with the indicator must be cost effective.

- Regulated service: The indicator must represent a regulated service provided by the utility that is not generally available from competitors.
- Simplicity and transparency: The indicator should be simple to administer and results should be easy to understand and interpret.
- Prior tracking: The indicators should have been previously tracked to ensure they are stable over time and this should be considered in future evaluations.
- Quantification: The indicators must be quantifiable.
- Flexibility: The indicators should allow sufficient flexibility to allow modifications, additions and deletions as required over time.

2.1.2 History of Service Quality Indicators

The criteria described in the previous section were taken into account in establishing the Service Quality Indicators for the PBR settlement in 1997. Five Service Quality Indicators were used between 1998 and 2002:

1. Response time to site for emergency calls (only for the Coastal region).
2. Percent of responses within 30 seconds by a person at a call centre (only for the Coastal region).
3. Leaks per kilometre of Distribution mains due to system deterioration.
4. Transmission system annual reportable incidents.
5. Number of third party distribution system damage incidents per 1000 housing starts.

During the 2004-2007 PBR Settlement process, the Service Quality Indicators were reviewed and substantially changed. The criteria described in the previous section were also taken into account in establishing the Service Quality Indicators for the 2004 – 2007 period.

2.1.3 Choice of Benchmarks

Benchmarks are reference points against which levels of service quality can be compared. Benchmarks typically reflect either industry standards or the utility's performance over a recent prior period. Use of the utility's recent historical performance to establish a benchmark is generally used as this has the advantage of being realistic, verifiable, and representative.

2.1.4 Service Quality Indicators and Benchmarks

There were many changes and additions to the Service Quality Indicators as part of the 2004 – 2007 PBR Settlement. The following are individual explanations for each of the ten SQIs that were established during the 2004 – 2007 PBR Settlement to be used throughout the PBR period. Please refer to the table at the end of this section for a summary of the SQIs.

1. Emergency Response Time (Response Time Dispatched to Site for Emergency Calls)

This indicator is the average length of time after notification for a qualified utility representative to arrive on the scene of the emergency (i.e. a pulled main or a situation where gas is blowing) at any location on the Terasen Gas system both during and after working hours. The benchmark was set at the average for the three years from 2000 to 2002: 21.1 minutes. Information for the Interior System has become available only recently, but this information was researched back to 2000 in order to set the benchmark.

Year	Response Time Dispatched to Site for Emergency Calls
2005 (Jan – Aug)	22.3 minutes
2004	21.6 minutes
2003	22.0 minutes
2002	20.5 minutes
2001	21.7 minutes
2000	21.2 minutes
Benchmark	≤ 21.1 minutes

The 2005 current year-to-date response time of 22.3 minutes is 1.2 minutes longer than the benchmark of 21.1 minutes. The response time has crept upwards primarily in the Lower Mainland where increased traffic congestion continues to challenge first responders. Terasen Gas reviewed its emergency response processes and implemented some changes which have led to an improving trend in the response time. Terasen Gas expects to be at or near the 21.1 minute benchmark at year end despite the increased construction activity and corresponding increase in actual number of hit lines.

2. Speed of Answer – Emergency (Percent of responses within 30 seconds by a Person - Emergency Calls)

Call answer time is a common service quality indicator for distribution utilities. Emergency Call Handling for the Lower Mainland Call Centre was a Service Quality Indicator from 1998 to 2002. The introduction of the Interior call centre allowed Terasen Gas to track the Percent of Responses within 30 seconds by a Person for Emergency Calls for both the Coast and Interior since 2000. The benchmark of 95.0% is included as a performance clause in the contract with CustomerWorks. The current service level is an improvement over the three-year historical average and continues the favourable trend of the past five years.

Year	Percent of responses within 30 seconds by a Person for Emergency Calls
2005 (Jan - Aug)	99.1%
2004	97.9%
2003	96.3%
2002	95.9%
2001	91.2%
2000	90.3%
Benchmark	≥ 95.0%

3. Speed of Answer – Non Emergency (Percent responses within 30 seconds by a Person - Non-Emergency Calls)

This SQI tracks the percent of responses within 30 seconds by a person for non-emergency calls including general, bill inquiries and service applications. B.C. Hydro answered the majority of Lower Mainland non-emergency inquiries prior to repatriation in July 2002. The introduction of the Interior call centre allowed Terasen Gas to track the Percent of Responses within 30 seconds by a Person for Emergency Calls for both the Coast and Interior since 2000. The Benchmark of 75.0% is included as a performance clause in the contract with CustomerWorks and is based on the average for the three years from 2000 to 2002.

Year	Percent of responses within 30 seconds by a Person for a Non-Emergency Call
2005 (Jan - Aug)	77.4%
2004	77.5%
2003	76.4%
2002	73.8%
2001	79.0%
2000	72.0%
Benchmark	≥ 75.0%

The 2005 year-to-date percentage for Non-Emergency Speed of Answer at 77.4% is an improvement over the benchmark of 75.0% and is similar to the 2004 result of 77.5%.

4. Transmission System Integrity (Transmission System Annual Reportable Incidents)

This indicator is presently tracked manually and this is expected to continue, as it covers several different kinds of incidents that are reported to government.

Year	Transmission System Annual Reportable Incidents
2005 (Jan - Aug)	3
2004	3
2003	3
2002	1
2001	2
2000	3
Benchmark	≤ 2

The 2005 year-to-date Transmission System Reportable Incidents of 3 is above the benchmark level of 2, but Terasen Gas submits that this SQI is within the range of values experienced over the past five years and there is no significant deterioration in service quality.

5a. Residential & Commercial Customer Billing Activity (Customer Bills Produced meeting Activity Criteria)

This indicator is new for the 2004 – 2007 PBR. The contract with CustomerWorks contains three performance measures that are included together as sub-measures and combined to form a single service quality indicator. These sub-measures are generally described as accuracy, timeliness and completion. The tolerance requirements for the first measure are significantly higher than the second and third, 99.9% v. 95%. As such, in order to align these sub-measures, an index score is used. The objective is to achieve a score of 5.0 or less. No historical information is available prior to 2003 but the benchmark was set based on the performance measures in the contract with CustomerWorks.

	Billing Sub-Measure	Percent Achieved ("PA")	Adjustment Factors	Result
1	Percentage of bills accurate based upon input data	99.9%	IF [PA≥99.9%, 5000*(1-PA), 100*(1.05-PA)]	5.0
2	Percentage of bills delivered to Canada Post within two days of date that the statement file is created	95%	100 – PA	5.0
3	Percentage of customers billed within two business days of the scheduled billing date	95%	100 – PA	5.0
Benchmark	Billing Service Quality Indicator (arithmetic average of sub-measures 1 to 3)			5.0

The Adjustment Factors allow the computation of an index score using a simple average of the three results (5.0 or less is desirable).

Year	Customer Bills Produced meeting Activity Criteria
2005 (Jan - Aug)	1.90
2004	1.93
2003	2.63
Benchmark	≤ 5.0

The 2005 year-to-date result for customer bills meeting criteria at 1.90 is an improvement over the benchmark of 5.0 and an improvement over the 2004 level of 1.93.

5b. Industrial Customer Billing Activity (Percent of Industrial Customer Bills Accurate)

This indicator is new for the 2004-2007 PBR. Historical information is only available beginning in 2003. This service quality indicator tracks the accuracy of billing for Industrial customers.

Year	Percent of Industrial Customer Bills Accurate
2005 (Jan - Aug)	99.9%
2004	96.6%
2003	99.8%
Benchmark	≥ 99.5%

The 2005 year-to-date percentage of industrial bills accurate of 99.9% is an improvement over the benchmark of 99.5%.

6. Meter Exchange Appointment Activity (Percent of Appointments Met for Meter Exchange)

This indicator is new for the 2004-2007 PBR and it tracks the percent of appointments met for meter exchange. Terasen Gas started to track this information with the introduction of the Integrated Resource Management project in late 2001, so historical information is available only since 2002. The benchmark is set at the 2002 level.

Year	Percent of Appointments Met for Meter Exchange
2005 (Jan - Aug)	95.0%
2004	93.5%
2003	92.6%
2002	92.2%
Benchmark	≥ 92.2%

The 2005 year-to-date result of 95.0% of meter exchange appointments met is an improvement over the benchmark of 92.2% and an improvement over the 2004 level of 93.5%.

7. Industrial Meter Measurement
(Industrial Meter Measurement First Report under 10%)

This indicator is new for the 2004 – 2007 PBR. This service quality indicator tracks the percent of time when the deviation is less than 10% between the preliminary billing estimate that is first reported to an industrial customer, compared to the final amount that is billed to the customer. Industrial Shipper Agents are interested in both their daily balanced groups and their monthly balanced groups. This SQI for Industrial Meter Measurement contains both an accuracy measure (percent deviation) and a frequency measure, applied to both daily and monthly groups on a GJ-weighted basis. Customers who do not provide Terasen with a metering phone line are not included in this measure. Historical information is only available beginning in 2003. The benchmark is set at 90%.

Year	Industrial Meter Measurement First Report under 10%
2005 (Jan - Aug)	99.6%
2004	98.0%
2003	97.4%
Benchmark	≥ 90.0%

The 2005 year-to-date result of 99.6% for industrial meter measurement is an improvement over the benchmark of 90.0% and an improvement over the 2004 level of 98.0%.

8. Customer Satisfaction
(Independent Customer Satisfaction Survey)

This indicator is new for the 2004-2007 PBR. Prior to 2005, this service quality indicator tracked customer satisfaction using three surveys conducted by parties outside Terasen Gas. A Residential Survey was conducted quarterly, while a Large Commercial Survey and a Builder/Developer Survey were conducted annually. In order to arrive at the Service Quality Indicator for the Independent Customer Satisfaction Survey, these three surveys were weighted as follows: 80% Residential, 10% Commercial and 10% Builder/Developer.

Starting in 2005, a fourth customer satisfaction study with small commercial customers[1] is included in the calculation of the Service Quality Indicator. Additionally, the formula for deriving the Residential score has been updated to reflect the level of importance customers currently place on various service attributes. The four surveys are weighted as follows: 75% Residential, 10% Large Commercial, 10% Builder/Developer, 5% Small Commercial.

High gas costs and other events beyond the control of Terasen Gas can influence this SQI. It was agreed during the 2004 – 2007 PBR Settlement that there is no performance threshold for this SQI, but that results would be considered in the context of previous results and that consideration would be given to external factors which can influence satisfaction scores.

Year	Independent Customer Satisfaction Survey
2005 (Jan – Aug)	76.6%
2004	75.3%[2]
2003	73.9%
Benchmark	To be compared to 2003

The 2005 year-to-date Independent Customer Satisfaction Survey score of 76.6% is an improvement over the 2003 benchmark comparative of 73.9% and an improvement over the 2004 level of 75.3%[2].

[1] Small commercial customers represent approximately 20% of Terasen Gas' annual revenue and approximately 9% of the total customer base.

[2] The formerly reported 2004 Service Quality Indicator was 73.9%, calculated using the three original surveys and the previous formula for calculating the Residential score. For direct comparison to the 2005 results, the 2004 Service Quality Indicator has been updated to 75.3% using the four surveys and the current formula for the Residential score.

9. Customer Satisfaction (Number of Customer Complaints to BCUC)

This service quality indicator is new for the 2004-2007 PBR. This indicator tracks the number of customer complaints submitted to the BCUC that the Commission then requests, either by Commission Letter or by a Complaint/Inquiry Record, that Terasen Gas provide a written response. Historical information is only available beginning in 2003. High gas costs and other events beyond the control of Terasen Gas can influence the number of complaints to the BCUC. It was agreed during the 2004 – 2007 PBR Settlement, that there is no performance threshold for this SQI, but that results would be considered in the context of previous results and consideration would be given to external factors and any relevant uncontrollable events that can influence results.

Year	Number of Customer Complaints to BCUC
2005 (Jan - Aug)	87
2004	191
2003	101
Benchmark	To be compared to 2003

The 2005 year-to-date customer complaints to BCUC have decreased significantly over 2004 levels. In 2005, as in 2004, the majority of complaints deal with billing and collection matters where Terasen Gas has appropriately applied approved tariffs in an effort to improve collections and reduce bad debts for the benefit of all customers.

10. Customer Satisfaction (Number of Prior Period Adjustments)

This service quality indicator is new for the 2004-2007 PBR. This indicator tracks the number of prior period adjustments for Industrial Transportation Service customers. A prior period adjustment is a billing inaccuracy that is identified after a bill has been issued; if this occurs, the bill is adjusted with any necessary corrections. Historical information is only available beginning in 2003. It was agreed during the 2004 – 2007 PBR Settlement, that there is no performance threshold for this SQI but that results would be considered in the context of previous results.

Year	Number of Prior Period Adjustments
2005 (Jan - Aug)	12
2004	18
2003	24
Benchmark	To be compared to 2003

The 2005 year-to-date prior period adjustments result of 12 is less than the benchmark of 24.

2.1.5 Directional Indicators

Two of the previous Service Quality Indicators were not effective as measures but they are included as Directional Indicators.

1. Number of Third Party Damages

Terasen Gas continues its efforts in preventing third party damages to the distribution system. There is no direct link between Third Party Damages and housing starts, so “Number of Third Party Damages” is tracked and reported as a Directional Indicator, with no benchmark.

Year	Number of Third Party Damages
2005 (Jan - Aug)	937 incidents
2004	1492 incidents
2003	1459 incidents
2002	1242 incidents
2001	1132 incidents
2000	1284 incidents

The 2005 year-to-date number of third party damages at 937 incidents is projected by year-end to be within the range of previous years due to the current high level of construction activity.

2. Leaks per Kilometre of Distribution Mains

The number of leaks may measure integrity to a certain extent, but in practice, there is an apparent incentive to lengthen the frequency between surveys in order to reduce the number of leaks detected. Each year approximately one-fifth of the Distribution System is surveyed for leaks. The number of leaks found will vary, in the short term, more because of the condition of the portion of the system being surveyed in the given year than it will be affected by the quality of the current maintenance program. This statistic will only become valid over a much longer time horizon; probably 15 to 25 years. Terasen Gas believes it should be detecting as many existing leaks as reasonably possible so the results of this measure may run somewhat contrary to the true objective. This measure will continue to be tracked manually and reported as a Directional Indicator, with no benchmark.

Year	Leaks per Km of Distribution Mains
2005 (Jan - Aug)	0.0024 (83 leaks)
2004	0.0045 (150 leaks)
2003	0.0040 (134 leaks)
2002	0.0043 (160 leaks)
2001	0.0034 (126 leaks)
2000	0.0046 (170 leaks)

The 2005 year-to-date number of leaks per km of distribution mains of 83 leaks is projected by year-end to be within the range of previous years.

2.1.6 Conclusion

It is Terasen Gas' submission that service quality continues to be maintained in 2005.

2.2 Summary of Service Quality Indicators

	Performance Measure	Service Quality Indicator	Benchmark
1	Emergency Response Time	Response Time Dispatched to Site for Emergency Calls	21.1 minutes
2	Speed of Answer - Emergency	Percent of responses within 30 seconds by a Person for Emergency Calls	95.0%
3	Speed of Answer - Non Emergency	Percent of responses within 30 seconds by a Person for Non Emergency Calls	75.0%
4	Transmission System Integrity	Transmission System Annual Reportable Incidents	2
5a	Residential & Commercial Customer Billing Activity	Percent of Customer Bills Produced Meeting Accuracy, Timeliness and Completion	5.0
5b	Industrial Customer Billing Activity	Percent of Industrial Customer Bills Accurate	99.5%
6	Meter Exchange Appointment Activity	Percent of Appointments Met for Meter Exchange	92.2%
7	Industrial Meter Measurement	Industrial Meter Measurement First Report under 10%	90.0%
8	Customer Satisfaction	Independent Customer Satisfaction Survey	To be compared to 2003
9	Customer Satisfaction	Number of Customer Complaints to BCUC	To be compared to 2003
10	Customer Satisfaction	Number of Prior Period Adjustments	To be compared to 2003

2.3 Summary of Directional Indicators

	Directional Measure	Directional Indicator
1	Distribution System Integrity	Number of Third Party Damages
2	Distribution System Integrity	Leaks per Kilometre of Distribution Mains

TERASEN GAS INC.

2004 – 2007 MULTI-YEAR PERFORMANCE BASED RATE PLAN
2005 DSM STATUS REPORT

1. INTRODUCTION

Under the terms of the 2004 – 2007 Multi-Year PBR Settlement, Terasen Gas is required to submit an annual Demand Side Management ("DSM") Status Report to the Commission as part of the Annual Review process. This report follows the 2004 Status report in form and content and provides an overview of Terasen Gas' DSM activities in 2005 with details pertaining to the progress of individual DSM programs against forecasted targets and objectives for the year. As in prior years, Terasen Gas has offered several types of programs most of which are in progress at the time of this writing; therefore, impacts are estimated rather than actual results.

2. OVERVIEW OF DSM PROGRAMS AT TERASEN GAS

In 2005, Terasen Gas has continued efforts to promote natural gas conservation and efficiency to its customers through a combination of awareness, education and incentive programs. Energy conservation and efficiency is also being promoted by a number of other utilities, agencies and industry members; Terasen Gas has attempted, whenever feasible, to partner with others to leverage utility DSM funds—for example, of the $11 million of the *Opportunities Envelope* funding described later, nearly $3 million is earmarked for Terasen programs for 2005-2007.

Proposed programs are subjected to economic cost-benefit tests (most notably a standardized Total Resource Cost test) prior to launch and, when completed, major initiatives are subjected to third party evaluations. The evaluations have proved to be an important tool for process improvement (for example, by indicating delivery problems that should be corrected if the program is to be made available in the future) and for determining if the actual impact of the program is sufficient (for example, by measuring actual natural gas savings). In the case of programs where the energy-saving measures adopted by the customer are significant, as would be the case if a furnace or boiler is changed to a high efficiency model, Terasen Gas has utilized analysis of customer billing data.

DSM initiatives may also produce benefits for the utility, the customer, and society in general which are not considered part of the Total Resource Cost test. Of particular interest are the emission reductions which essentially lead to a reduction in greenhouse gases and improved local air quality.

3. PRIOR YEARS INITIATIVES EVALUATION

***Impact of Terasen Gas Pilot Fireplace Program (2004)*, Habart & Associates Consulting Inc., March 3, 2005.**

This report, is a preliminary evaluation of the 2004 Fireplace Pilot that provided incentives to consumers for upgrading their decorative log-sets to a heater-style fireplace with an EnerGuide Fireplace Efficiency Rating of 55% or higher.

The program generated considerable activity in the market, with three quarters of the trade allies reporting a 50% increase in queries during the program period. The increased level of queries continued after the program terminated.

The program had two types of impacts. It encouraged people with decorative log-sets who were not in the market to replace them, and it encouraged people who were in the market to move to more efficient fireplaces.

Both program participants and non-participants who were aware of the program expressed strong support for Terasen Gas incentive programs to encourage efficient use of natural gas; on a five point scale, participants rated this as 4.7 while non-participants rated this at 4.5.

A full copy of the report is appended after this DSM status report.

4.0 ONGOING INITIATIVES

Destination Conservation

Destination Conservation (DC) is a K-12 school program involving students, teachers and school facilities management staff.

The program is organized by the Pacific Resource Conservation Society, a BC based not-for-profit group, and offered to school districts. It features energy conservation curricula and support materials for participating teachers and technical assistance to school facilities management staff. Terasen Gas has contributed a portion of the first year operating costs for the program to a number of school districts in prior years. In 2005, Terasen Gas is supporting the Abbotsford and Richmond School Districts with funds for 16 schools.

The DC program includes an energy monitoring component which allows school districts to monitor, analyze and report energy usage information. Utilizing software programs such as 'Utility Manager 4.0 Pro' coupled with operator training, Schools are able to report weather-normalized energy savings resulting from implementation of energy efficiency measures. Terasen considers this approach to be a cost-effective means of monitoring program impacts. In addition, DC also supports ongoing monitoring of savings through third party evaluations.

Commercial Energy Utilization Advisory

This program is being offered to larger Rate 3/23 and Rate 5/25 customers by the Terasen Gas Commercial Energy Services group. The offer includes an initial benchmarking consultation and an onsite assessment of natural gas conservation and efficiency opportunities along with recommendations and estimated savings. To date there have been 44 completed assessments in 2005, and an expected total of 84 by year end. Typically, half of the customers who receive the assessment implement the recommended measures and average 600 GJs in annual savings.

Evaluation report pertaining to this program: BC Gas Commercial DSM Evaluation, R.A. Malatest and Associates Ltd., September 2002

Publications

Terasen Gas publishes a number of brochures and pamphlets to encourage residential customers to adopt energy savings measures and practices. In 2005 the Hot Tips booklet, Heart of your Home (a guide to energy efficient heating systems) and a number of data sheets were updated and published. These booklets and data sheets are available to customers on request. All publications are also available online at the utility web site.

Additional conservation tips and advice have been made available through Homeswest Magazine (a Terasen Gas advertiser-supported publication). And, as a new means of program promotion and education, energy efficiency is being promoted this fall via a trailer in the Terasen TV commercials.

Community Participation

Terasen Gas continues to be an active participant in community-based conservation initiatives (for example, the Community Energy Association) and collaborates with the provincial and federal governments to review energy efficiency standards.

5. SHORT TERM INITIATIVES

Residential Heating System Upgrade Program

An expanded version of programs offered by Terasen Gas in 2003 and 2004, this year's Residential Heating System Upgrade program once again offers financial incentives to residential customers to replace older furnaces and boilers with ENERGY STAR qualified high efficiency natural gas models. The program was launched September 1, 2005 and terminates December 31, 2006. TGI is partnering with Natural Resources Canada (NRCan), Ministry of Energy, Mines and Petroleum Resources (MEMPR), BC Hydro, FortisBC, Pacific Northern Gas, and 15 participating manufacturers who are contributing up to $3.1 million towards promotional costs and customer incentives.

Residential customers are offered a $250 utility bill credit towards the purchase of an ENERGY STAR qualified high efficiency natural gas furnace or boiler of which TGI is contributing $100, MEMPR is contributing $150, and BC Hydro and FortisBC are jointly funding an additional $100 incentive with NRCan if the selected furnace has a variable speed motor.

Additional supplier-funded incentives ranging from $150 to $1000 in value toward the purchase of 15 brands of ENERGY STAR qualified furnaces and boilers are being promoted by Terasen Gas as part of this program. Most of the major suppliers of high efficiency heating systems in BC are participating—contributing $2,000 towards the direct promotional costs of the campaign and, in some cases, conducting their own independent promotional campaigns. The manufacturers administer their own coupons and they are only valid between September 1, 2005 and December 31, 2005.

The program design for the 2005/6 program estimates the average annual natural gas savings at 13.8 GJ per participant and 8000 participants overall. The GJ savings and corresponding GHG reductions for the program provide a TRC of 1.73 and a reduction of 112 kilotonnes of CO_2E.

Evaluation report pertaining to this program: 2003 Residential DSM Campaign Evaluation, Habart & Associates Ltd., August 2004.

New Construction Energy Star Heating Systems

Historically, 95% of the natural gas furnaces installed in newly-constructed single family dwellings are mid-efficient. The Residential New Construction Heating program launched January 1, 2005 runs through December 31, 2006 and provides a $500 incentive to builders for installation of a natural gas DHW and ENERGY STAR qualified space heating equipment. Although the program runs through 2006, applications must be submitted by December 31, 2005. At the time of writing, over 1200 applications have been received with approximately 600 pertaining to homes being built in 2005.

The program design for the 2005/6 program estimates the average annual natural gas savings at 12.7 GJ per participant and 1500 participants overall. The GJ savings and corresponding GHG reductions for the program provide a TRC of 1.85 and a reduction of 19 kilotonnes of CO_2E.

Efficient Boiler Program

Similar in nature to the company's Efficient Boiler Program offered between 1994 and 2000, this initiative provides formula based incentives to purchasers of high efficiency natural gas condensing and "near-condensing" boilers and is available to both the new construction and retrofit markets. It is estimated that 45 commercial customers will be installing high efficiency boilers receiving program approval by December 31 and will therefore be eligible for a future incentive payment attributable to the 2005 program.

The program design for the 2005/6 program estimates the average annual natural gas savings at 1570 GJ per participant and 130 participants overall. The GJ savings and corresponding GHG reductions for the program provide a notable TRC of 3.0 and a reduction of 260 kilotonnes of CO_2E.

NRCan has been a key partner in the program and has heralded the program to other utilities. Since the launch of the program, NRCan has included the program criteria in CBIP (Commercial Building Incentive Program) and allowed access to the program across Canada. They are also considering launching a standalone boiler-program modelled after the TGI program.

6. RESEARCH INITIATIVES

Vertical Sub-Divisions (individually metered condominiums)

During high-rise construction, many developers select electric baseboards for in-suite heating due to the lower capital costs and simplicity of installation. There is also a lack of reliable information on design, installation and operational costs of more complex natural gas systems. In cooperation with BC Hydro, Terasen Gas is conducting research this fall on the life-cycle costs of various high-rise energy systems both gas and electric. The research is slated for completion in the first quarter of 2006 and will study approximately 20 buildings of various ages and locations and reconcile differences between modelled energy use and actual consumption. The purpose of the research will be to provide industry with information on the benefits of the various energy system configurations and assist TGI in the design of future DSM programs.

Multi-Utility Studies

In 2005, TGI participated in a number of multi-utility research initiatives including participating in the CGA Task Force steering committee for the "*DSM best practices: Canadian natural gas distribution utilities' best practices in DSM*", the "*Framework for natural gas DSM as part of the greenhouse gas domestic offset credit system*", and the *DSM Potential in Canada* study. TGI is also working with Enbridge and CANMET Energy Technology Centre - Ottawa (CETC-Ottawa) (in cooperation with several other North American utilities) on testing "near-market" technologies where the identification of reliable savings is needed before utilities could screen the technology for use in DSM. Results of the studies will provide a framework for future program design.

Conservation Potential Review

Terasen Gas is nearing completion of a Conservation Potential Review (CPR) to provide a 10-year analysis of Demand Side Management (DSM) potential by geographical area identifying the interrelationship between gas and electricity for the residential and commercial sectors. The review is being done in cooperation with BC Hydro and includes analysis of both energy conservation and Energy Choice (fuel substitution) potential.

Marbek Resource Consultants is conducting the TG CPR who were also the lead consultant on the 2002 BC Hydro CPR and are therefore able to leverage developed models, market profiles, data classifications and arch-types.

Key Deliverables of the CPR

The CPR is focussing on economic screening of natural gas and fuel-independent technologies as well as the combined utility economic analysis of *fuel substitution* (from electric to natural gas). It is examining resource potential at specified milestones, by specific market and end-use, over the 2005-2015 forecast period.

The primary outcome will be the identification of reference case forecast and the resulting change in gas and electric consumption for each of the identified opportunities. The study will also document the assumptions for each of the potential measures so both Terasen Gas and BC Hydro can re-test the opportunities in their respective cost-benefit models.

The deliverables for each of the outcomes are defined in the following table:

Outcome	Content
Analysis of natural gas DSM measures by geographical area	• Stock definition and update of technologies • technology profiles • economic potential • Sensitivity analysis (uncertain fuel costs) • GHG Impact
Analysis of fuel substitution economics by geographical area	• base year calibration • reference case development • impact on peak demand for gas and electric • consider costs of the marginal source of electrical supply based on geographical area • GHG Impacts
DSM Achievable potential	• A set of multi-participant workshops to consider delivery, timing and funding constraints

Need for Joint Fuel Substitution analysis

The scope of the 2002 BC Hydro CPR did not include an examination of fuel substitution. Terasen Gas believes there is a growing importance for this analysis—there seems to be a market failure in the selection of fuels by market players which could be corrected or improved to the benefit of gas and electric rate payers if the CPR identifies the measures as cost effective. The reasons for the failure could be attributable to some of the following:

- Builders and developers tend to focus on reduction of upfront capital cost versus long run operating costs by the eventual home owner. The capital cost of natural gas equipment may be a barrier. Anecdotal evidence from builders suggests a growing percentage of electric baseboard installations.
- Home buyers and realtors seem to largely ignore the role of home heating systems in the ongoing operating costs of the home.
- Growth in the popularity of electric fireplaces
- Postage stamp electrical rates do not reflect the varying cost of energy delivery based on service territory.
- Historical electric rates based on heritage supply give misleading price signals to the market that electrical rates may remain near current levels in the long term.

The CPR, however, will focus on the economic benefits: it examines fuel substitution, identifies the benefits of reducing peaking versus flat load, cost per kWh and GJ of the energy saved, and identifies the achievable potential of province wide programs.

Results of the CPR

Early indications are that approximately 1% of the TGI core-market load could be conserved through economic energy efficiency measures—which is nearly ten times the current DSM target. The identification of the fuel substitution potential is in progress at the time of writing.

It is anticipated that TGI will prepare an application to the commission in early 2006 proposing a portfolio of programs, their net benefit, likely partner funding and the likely change in incentive and program funding levels required to launch a more significant portfolio of programs.

Partnering Opportunities

Terasen Gas has attempted, whenever feasible, to partner with others to leverage utility DSM funds; Natural Resources Canada, BC Hydro, Fortis, and appliance manufacturers have all participated in Terasen programs benefiting customers.

In recent years, there has been a confluence of activity with hundreds of organisations interested in energy savings and reduction of GHGs. With MEMPR promising the seed funding from the federal “Opportunities Envelope” for $11 million over a three year period, TGI has met with over 50 organisations in the last year including municipalities, regional districts, provincial and federal governments and affiliated organisations, utilities, financial institutions, and educational institutions to facilitate combined offerings and move the market towards energy efficiency, conservation and action on climate change.

7. PROPOSED 2006 INITIATIVES

Notwithstanding a likely application in early 2006 for a much broader DSM portfolio, the following planned 2006 activities highlight new initiatives and supplementary activity to currently running programs.

a. Residential Programs

New Construction Energy Star Heating Systems

The existing new construction program requires applications to be submitted by the end of 2005 and installation to be completed by the end of 2006. After evaluation of the existing applications and discussions with the builders and developers, TGI intends to launch a complementary new construction program running parallel to the existing program to capture incremental new constructive activity in 2006.

Energy Star Heating System Upgrade

The existing Energy Star program runs until to December 31, 2006, however, the manufacturer coupons expire December 31, 2005. It is anticipated that a similar manufacturer coupon offer will be launched in the fall of 2006.

Fireplace Upgrade Program

One of the findings of the 2004 pilot program is that the demand for EnerGuide–rated fireplaces was significant during and after the three-month program offering, and contractors and dealers were largely unprepared for the level of interest that the program generated—many potential program participants were unable to find a contractor to install the equipment within the program period—installation wait times were in some cases 4-6 weeks. TGI plans to offer a modified fireplace program in 2006, considering a longer program period and an allowance for installation after the program end-date. Meetings with the industry produced a commitment from dealers and suppliers that they will be better prepared for the increase in activity.

b. Commercial Programs

Efficient Boiler Upgrade

The efficient boiler program, launched in April 2005, runs until December 31, 2006 with participants having 24 months to install the equipment after receiving their letter of approval from TGI.

Commercial Utilization Advisory

The continuation of this program is proposed for 2006.

Vertical Subdivision Program

At the conclusion of the 2005 study of high-rise energy systems, TGI intends to launch a program for new high-rise developers to assist builders in installing efficient and cost effective energy systems that lower the ongoing operating cost for the eventual residents.

Building Operator Training

TGI has been working with Douglas College, BC Hydro, MEMPR and BOMA to survey building managers and operators to identify training needs of building operators in order to improve the overall operating efficiency of existing building stock. The survey will be complete in late 2005, after which a training program will be developed and offered to the industry.

Gas Contractor Training

TGI, MEMPR, HVCI, the BC Safety Authority, and HRAI are currently surveying the 2000 registered gas contractors in the province to profile existing practices of gas contractors and identify training opportunities. The survey will be complete in late 2005, after which a training program will be developed and offered to the industry.

CHBA-BC Projects - Built-Green and EnerGuide80

Multiple partners including TGI, MEMPR, BC Hydro, Canadian Homebuilders Association--BC Chapter (CHBA-BC), and the Homeowner Protection office are working together to launch a "*Built Green-BC*" label modeled after *Built Green-Alberta*. The label will be applied to homes based on their score of a checklist. The brand is complementary to TGI DSM programs and the provincial target of having 2000 homes Energuide80 rated by March 2007.

8. SUMMARY OF 2005 SAVINGS

With most programs spanning into 2006, the forecast below is pro-rated to the likely 2005 participants:

Program	Participants		Savings (GJ)	
	Target	Projected	Target	Projected
Residential				
Heating System Upgrade	3000	3500	41,400	48,300
New Construction Program	750	600	9,518	7,614
Commercial				
Utilization Advisory	90	84	31,500	29,400
Efficient Boiler Program	15	45	23,535	70,605
Community Based				
Destination Conservation	20	16	4,000	3,200
Other Activities				
Awareness and Education	n/a	n/a	n/a	n/a
Research & Program Design	n/a	n/a	n/a	n/a
	3,875	4,245	**109,953**	**159,119**

Total Resource Cost Test and DSM Achievement Incentive Status

The Total Resource Cost (TRC) test is a measure of the net benefits of a utility's DSM programs. Terasen Gas calculates overall TRC impact on a 'portfolio' basis, that is, by examining the impact of the combined group of programs for the year.

For the 2005 portfolio (as identified in the table above), the TRC net benefit has been forecast at $5.8 million with a combined TRC ratio of 2.92. Assuming projected savings and participation levels remain as forecast, TGI would be eligible for an incentive payment of $174,000 through the DSM incentive mechanism.

Greenhouse Gas Reduction

In its residential rebate offers, Terasen Gas informs participating customers of its intent to record resulting emission reductions as part of the company's Greenhouse Gas Management Program. The net impact of these residential program savings amount to approximately 56 kilotonnes of CO_2E (metric tonnes of carbon dioxide equivalent); the net impact for all programs based on current projections is approximately 170 kilotonnes CO_2E

9. SUMMARY OF COSTS

Program and administration costs as well as customer incentive costs will have remained below the allowed levels in 2005.

	Allowed ($000)	Projected ($000)
Administration, marketing and research	1,624	1,500
Customer Incentives	1,500	1,500

TAB B-3 DSM STATUS REPORT

ATTACHMENT A

Final Report

Impact of Terasen Gas Pilot Fireplace Program (2004)

Prepared for: Terasen Gas

Prepared by:

Habart & Associates Consulting Inc.

March 3, 2005

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i. Executive Summary

Terasen Gas Inc. (TGI) and its predecessor company BC Gas have pursued demand side management programs since the mid 1990's. Past efforts in the residential sector have included: furnace tune-up; home weatherization and insulation; and high efficiency furnaces. In 2004 Terasen Gas added the promotion of more efficient fireplaces to replace decorative log-sets to the list of initiatives. The pilot program, which ran from mid-June to mid-September 2004, provided an incentive for upgrading from a decorative natural gas log-set with a heater style fireplace having an EnerGuide Fireplace Efficiency rating of 55% or higher.

The program generated considerable activity in the market, with three quarters of the trade allies reporting a 50% increase in queries during the program period. The increased level of queries continued after the program terminated.

The program had two types of impacts. It encouraged people with decorative log-sets who were not in the market to replace them, and it encouraged people who were in the market to move to more efficient fireplaces.

At the same time, participation in the program was less than half the number expected at the outset. While this is the first time that Terasen Gas has offered a fireplace program, and hence there is no experience to build projections on, there may be three sets of reasons for the shortfall. First, the marketing budget was about 25% of the level provided for the 2004 furnace program. Second unlike the furnace market, fireplace replacements are a discretionary purchase by the home owner, and are expensive, with an installed cost in the range of $ 2,500. There is evidence that many consumers who inquired needed more time to make a decision, or decided not to proceed at this time. Third, condominiums were an important market, but Terasen Gas did not have direct contact with the suite owners. Information was routed to property managers and strata councils, but did not appear to reach the suite owners in time to allow significant participation.

A range of advertising and promotional activities were carried out to raise program awareness and participation. For participants the main sources of awareness were the insert in the Terasen Gas bill, and the fireplace vendor. For non-participants, who were defined as customers who had a decorative log-set but did not participate in the program, the main source was the bill insert. However overall awareness by non-participants was low at 23%.

Estimated net savings are between 2.4 and 2.8 TJ of natural gas per year. In addition, there are between 7 and 18 MWh of electricity saved by those customers with electric main space heating. Hours of operation of the new fireplace constitute a major uncertainty as participants reported a significant increase in usage after the new fireplace was installed. It is not known if, or how much this usage will drop off over time. Therefore low and high estimates are provided. When the billing analysis is carried out in the fall of 2005, this uncertainty should be reduced.

A series of questions was asked to determine the importance of the program and incentive in the customer's decision to replace their log-set with a fireplace insert. Analysis of this information provided an attribution rate of 76%.

Customer and trade ally satisfaction with the program was quite high. Based on a five point scale where 5 is very satisfied and 0 is not at all satisfied, participants reported satisfaction levels averaging 4.0 or more for application procedures, information on the rebate, program timing and information about efficient fireplaces. The lowest level of satisfaction was with the range of fireplaces eligible, which was rated 3.5. Trade Allies reported satisfaction of 4.0 or higher for the amount of the rebate and application procedures. They rated information on the rebate and information on EnerGuide efficiency rating the lowest at 3.0. The significant issues relate to the EnerGuide rating as it is new in the market resulting in a number of products not yet tested to the standard, and there was some confusion with other efficiency rating systems.

Customers expressed a high level of satisfaction with their fireplaces. Measured on a five point scale, participants rated overall comfort as 4.7 while appearance was rated 4.6. Price of the fireplace was rated lowest at 3.9, while 97 % of participants were satisfied with their choice of fireplace.

One of the objectives of the evaluation was to determine if there was a difference in demographics between participants and non-participants. A standard series of questions were asked covering both customer characteristics and housing characteristics. While there were some differences between participants and non-participants, such as age with participants being slightly older, and having smaller household sizes (likely related to the difference in age), these differences are not significant enough to allow differential marketing activities. Similarly, differences in the housing and natural gas usage did not appear significant.

The most significant difference between participants and non-participants is in the use of the fireplaces, with 91% of participants using the fireplace for heating while only 64% of the non-participants use it for heating.

Both program participants and non-participants who are aware of the program express strong support for Terasen Gas incentive programs to encourage efficient use of natural gas. On a five point scale, participants rated this as 4.7 while non-participants rated this at 4.5.

1. Introduction

1.1 Program Overview

Terasen Gas Inc. (TGI) and its predecessor company BC Gas have pursued demand side management programs since the mid 1990's. Past efforts in the residential sector have included: furnace tune-up; home weatherization and insulation; and high efficiency furnaces. In 2004 Terasen Gas added the promotion of more efficient fireplaces to replace decorative log-sets to the list of initiatives. The pilot program, which ran from June 15 to September 15 2004, provided an incentive for upgrading from a decorative natural gas fireplace (often referred to as a "gas log-set") with a heater style fireplace having an EnerGuide Fireplace Efficiency rating of 55% or higher.

This was launched as a pilot program, and the purpose of the evaluation is to review the performance of both the program and of the fireplaces themselves. The evaluation is structured in two phases, the first to provide program process evaluation results and preliminary impact estimates as soon as practical after the end of the program, while the second phase will occur later in 2005 when sufficient billing data is available to better understand the load impact.

The pilot was intended to attract between 1,000 and 1,500 customers who currently use a decorative log-set (one with no fixed glass) and incent them to upgrade to a heater-style fireplace with an EnerGuide Fireplace Efficiency rating of 55% or higher. The incentive included a $200 rebate (credited to the customer's Terasen Gas bill) and a $100 manufacturer's discount for each new qualifying natural gas fireplace installation. The $200 utility rebate is composed of $100 from Natural Resources Canada and $100 from Terasen Gas, unless the customer uses electricity as their primary heating source, in which case BC Hydro will pay the Terasen Gas portion of the incentive.

Program documentation includes an estimate that the program will save an average of 14.5 GJ annually per customer.

1.2 Evaluation Objectives

The objectives of the study are as follows:

a. Determine energy savings from change in normalized gas consumption (and electricity consumption for electrically heated homes) considering changes in behavioural use.
b. Determine factors driving participation / non-participation.
c. Determine the percentage of free riders.
d. Evaluate customer satisfaction with the program.
e. Evaluate customer satisfaction with the new replacement fireplace.
f. Establish the demographic profile of participants versus non-participants.
g. Determine marketing effectiveness.

1.3 Outline of the Report

This report provides a process, market and impact evaluation of the Fireplace Upgrade Program. Section 1 provides an overview of the Fireplace Upgrade Program and of this study. Section 2 discusses the study objectives, approach, evaluation areas and methods used. Section 3 describes the key program elements including program design, program marketing and program delivery. Section 4 presents the results of the consumer survey. Section 5 presents the results of the trade ally survey. Section 6 summarizes the impact results including the effect of the program on fireplace sales and market share, fireplace prices, energy savings and carbon dioxide emissions. Section 7 provides the conclusions of the study.

2. Objectives and Approach

2.1 Study Objectives and Approach

Governments, regulators and utilities are looking to incentive programs to deliver cost effective energy savings and reduce greenhouse gas emissions. Evaluation of space heating and appliance incentive programs leads to analysis of three key objectives: first, to what extent does the incentive program result in incremental or additional purchases of the efficient measure; second, how large are the energy savings that can validly be attributed to the program; and third, what are the program impacts on GHG emissions?

The evaluation design includes a second phase of impact evaluation based on the analysis of billing consumption once the fireplaces have been installed for a full heating season. It is anticipated that this work will be undertaken during the fall of 2005.

2.2 Study Areas and Methods

Following the initial team discussions, the following study areas emerged for this evaluation:

- Determine factors driving participation / non-participation.
- Determine the percentage of free riders.
- Evaluate customer satisfaction with the program.
- Evaluate customer satisfaction with the new replacement fireplace.
- Establish the demographic profile of participants versus non-participants.
- Determine marketing effectiveness.
- Determine energy savings from change in normalized gas consumption (and electricity consumption for electrically heated homes) considering changes in behavioural use.

Given the scope of these study areas, a number of data sources and methods were used in this study. An outline of the evaluation areas, data sources and methods is shown in Exhibit 2.2.1.

This evaluation will be done in two phases. The first phase includes the market research and analysis required to meet the objectives noted above, although the substantive work to determine the energy savings from the billing history will constitute the second phase. The evaluation included program participants from the 2004 pilot and non-participants who were eligible to participate (ie: had a decorative log-set), but did not participate in the program. The survey work was done between November 15 and December 3 of 2004. The completion rate for participants was 89%, while the completion rate for non-participants was 9.7%. The lower completion rate for non-participants reflects the requirement that non-participants have a decorative log-set, and the relatively low incidence of these in the general population. However, the use of the random sample did allow an estimate the incidence of decorative fire logs in the general population. This can be used to refine the information in the REUS, where it became apparent from the responses that some people were unable to distinguish between log-sets and inserts.

Phase 1 includes the data collection and an initial impact analysis based on HOT2000 energy simulation estimates and stated attribution to the program. However, this approach does not allow the savings estimates to be based on actual consumption, or billing history, as customers have not had the new fireplaces installed for a full year. Once the billing history is available, we will complete phase 2 and re-calculate the energy impact for the program based on the actual billing history. For the 2004 pilot participants, the billing history is expected to be available by the end of 2005.

Exhibit 2.2.1. Evaluation Areas, Data Sources and Methods

Evaluation Issue	Data Sources	Methods
Phase 1.		
1. Determine factors driving participation and non-participation	Customer survey Trade ally survey	Cross tabulations
2. Determine free rider rates	Customer survey Trade ally survey	Cross tabulations
3. Determine customer satisfaction with the program	Customer survey	Cross tabulations
4. Determine trade ally satisfaction with the program.	Trade ally survey	Cross tabulations
5. Determine customer satisfaction with the new fireplace	Customer survey	Cross tabulations
6. Establish the demographic profile of participants vs non-participants	Customer survey	Cross tabulations
7. Determine marketing effectiveness.	Customer survey Trade ally survey	Cross tabulations
8. Determine energy savings for program.	Program records Customer survey	HOT 2000 modelling
9. Determine CO2 reductions attributable to the program	Program records Previous research	Engineering algorithms
Phase 2		
10. Determine pre/post change in weather adjusted natural gas consumption	Billing records Weather files	Weather adjusted billing analysis
10a. Revise estimates of fireplace impact to determine energy savings	Billing Analysis Previous research	Engineering algorithms
10b. Revise estimates of fireplace impact to determine carbon dioxide reductions.	Billing Analysis Previous research	Engineering algorithms

The customer survey collected information on the following:

- Incidence of fireplaces
- Usage patterns of fireplaces
- Rationale for replacing the fireplace
- Customer awareness of the program.
- Customer satisfaction with the program and its components.
- Customer satisfaction with new fireplace and contractor.
- Awareness and use of fireplace efficiency ratings.
- Customer demographic characteristics.
- Housing characteristics including size and fuel types.
- Program barriers and opportunities.
- Program design issues.

The trade ally survey collected information on the following:

- Fireplace market and trends.
- Typical fireplace pricing.
- Trade ally perceptions of program impact.
- Trade ally satisfaction with the program and its components.
- Trade ally firm characteristics.
- Program barriers and opportunities.
- Program design issues.

It was determined that telephone surveys would be the best way to collect timely information while minimizing the response burden. The surveys were designed to provide as much comparability between survey groups as possible. This maximized the number of issues for which responses could be compared The draft survey instrument was pre-tested and modified to improve several questions.

As the evaluation design includes the use of billing analysis to determine the impact of the program, care was taken to screen potential respondents for acceptable billing histories prior to launching the telephone survey[1]. All participants were screened, and approximately 297 of the 435 were determined to have valid consumption history for the year prior to the program. In addition, a list of 2,500 potential candidates was developed for use in surveying a comparison group. This large list was required as the comparison group was defined as household that had a decorative log-set and hence would be eligible to participate in the program. This list was also screened against the participants list to eliminate the probability of surveying a person twice.

The telephone surveys were conducted between November 15 and December 3 of 2004 using a CATI system. Interviewers were fully briefed before the surveys were conducted to ensure that they understood the intent of the overall survey as well as each individual question. Up to five calls were made to each potential respondent to minimize response bias. Qualifying questions were asked to ensure that the appropriate individual completed the survey. As the responses were given, they were entered into an electronic database. Responses were then edited and cleaned.

Analysis of energy savings due to the program requires some care, because of:

- Unknown efficiency of the gas log-sets.
- Unknown impact of heat loss due to the open vent for decorative log-sets.
- Changes in hours of use and usage patterns with fireplaces.
- Interaction between the heat produced by the fireplace and the central heating system.

The impact analysis will be done in two Phases. For the initial phase, the modeling tool, HOT2000 will be used, as this will provide some understanding of the interaction between the fireplace and the heating system. Four cases will be

[1] The methodology used for screening the billing history is included as Appendix A.

modeled:

- Single family dwelling with natural gas space heating;
- Single family dwelling with electric space heating;
- Apartment with natural gas space heating; and
- Apartment with electric space heating.

Hot2000 was developed, and is supported by Natural Resources Canada. It uses state-of-the art heat loss/gain and system modelling algorithms to calculate household energy use. It addresses:

- Electric, natural gas, oil, propane and wood space heating systems and domestic hot water systems (DHW).
- A range of primary and supplemental heating options to capture the impact of natural gas fireplaces on total space heating fuel consumption.
- Space heating and DHW systems from conventional to high-efficiency condensing systems
- The impact of internal gains from appliance energy use and passive solar.

The energy impact results from the modelling will then be multiplied by net program sales to provide an initial estimate of the impact from the program.

Direct annual energy savings are based on Equation (1).

(1) Energy savings =HOT2000~Savings$_j$*(1 - FR)*(Gross participants$_j$)

where HOT2000~Savings$_J$ is the estimated savings for segment$_J$, multiplied by the number of participants in segment$_j$ and the free rider rate. These savings pertain to the expected life of the fireplace.

Unlike furnace usage, where operation is driven by outdoor temperature (degree days), fireplace usage is driven by behaviour more than temperature. Of particular concern is that usage may increase for a period of time after the installation due to the novelty of the new fireplace but then decline. The market research determined usage both before and after the installation, and as usage did change, a range of savings estimates are provided. The billing analysis may provide a better estimate of this impact as it will include a full year's usage rather than just the first 3 months.

Peak savings are based on Equation (2).

(2) Peak savings =Peak~Day~Use*(FP~Input~Red+Central~Heat~Red)*(1 - FR)*(Gross participants).

Where Peak~Day~Use the is the number of hours per day the fireplace is used in January, FP~Input~Red is the reduction in input capacity between the decorative log-set and the heater insert, Central~Heat~Red is the reduction in heat required from the central heating system due to the useful heat from the fireplace, and 1-FR is the program attribution rate.

Reductions in CO_2 emissions are based on Equation (3).

(3) Emission reduction = Energy savings * emissions factor.

Where energy savings is derived from Equation (1) and the Terasen Gas emissions factor of 50.69 tonnes of carbon dioxide per terajoule is used to estimate the total greenhouse gas emission reduction related to reduced natural gas usage while the Natural Resources Canada (NRCan) factor of 64.23 tonnes of carbon dioxide per terajoule is used for electricity.

3. Program Description

3.1 Program Design and Implementation

The pilot program, which ran from June 15 to September 15 2004, provided an incentive for upgrading from a decorative natural gas fireplace (often referred to as a "gas logs-set") to a heater style fireplace with an EnerGuide Fireplace Efficiency rating of 55% or higher.

The program had two principle target markets, individual customers such as single family dwellings and row houses where each customer receives a bill from Terasen Gas, and condominium / apartments where one gas meter serves multiple accounts. The latter market is more difficult to reach as Terasen Gas does not have contact information for the individual residents.

The pilot was intended to attract between 1,000 and 1,500 customers who currently use a decorative log-set (one with no fixed glass) and incent them to upgrade to a heater-style fireplace with an EnerGuide Fireplace Efficiency rating of 55% or higher. The incentive included a $200 rebate (credited to the customer's Terasen Gas bill) and a $100 manufacturer's discount for each new qualifying natural gas fireplace installation. The $200 utility rebate is composed of $100 from Natural Resources Canada and $100 from Terasen Gas, unless the customer uses electricity as their primary heating source, in which case BC Hydro will pay the Terasen Gas portion of the incentive.

Exhibit 3.1.1 Manufacturers' Rebates

Manufacturer / Product	Terasen Gas and NRCan Rebate	Manufacturer Offer
Pacific Energy	$200	$100 off Granville fireplace (DV – 61.2% efficient)
Enviro	$200	$100 off Enviro Focus (DV – 60.1% efficient)
Regency	$200	$100 off Regency Energy Gas Insert (multiple models)
Vermont Castings / Majestic	$200	$100 of Vermont Castings DVRT41 (DV – 66.1% efficient)
Valor	$200	$100 off Valor Legend G3 – includes digital programmable remote control (DV - 57.5% efficient)
Napoleon	$200	$100 off Napoleon GDIZC (DV – 65.5% efficient)
Jotul	$200	$100 off Jotul Allagash

Note: Model noted is referenced in literature. All participating manufacturers had other qualifying models.
Efficiency rating is EnerGuide Gas Fireplace Efficiency Rating
DV – Direct Vent

3.2 Program Marketing

The Fireplace Upgrade Program used a variety of mechanisms to ensure that potential clients are aware of the program. These mechanisms have included:

- Bill inserts and messages.
- Advertising in the Vancouver Sun.
- Advertising in Homewest magazines.
- Direct mail.
- Terasen Gas web site advertising.
- Shell Busey
- Promotion at retail outlets (POP).
- The manufacturers' dealer networks.
- Trades and contractors.
- Call center operators.

While a wide range of mechanisms were used, the intensity of advertising for the program was less than that used for the Furnace program, with half the number of bill inserts and only about 25% of the overall marketing budget.

In addition, Terasen Gas sent an information package to the strata councils and property managers for apartments / condominiums to advise them of the program and to request that they pass the program information on to the individual residents.

To support the program, a contractor "kit" was sent to all 2000 registered contractors in the service territory, and a fireplace dealer kit was sent to 300 dealers province wide.

3.3 Delivery

In order to receive a rebate, the customer had a qualifying fireplace installed within the specified time period, completed a rebate coupon, attached a copy of the invoice, and forwarded the coupon and the invoice to Terasen Gas' billing area (managed by Accenture Business Services for Utilities (ABSU)). If the required criteria were met, the rebate was processed and the customer's information entered into the program database. If the relevant criteria were not met, a letter was sent to the customer informing them that the rebate was refused and explaining the reason why. If critical information was missing, a letter was sent to the customer with information on what was missing. The $100 manufacturers rebate (typically shared equally between the manufacturer and the vendor) was applied to the invoice while the $200 rebate was applied to the Terasen Gas bill.

3.4 Rationale

The rationale for the Fireplace Upgrade Program is based on the premise that by providing customers with information on the advantages of efficient fireplaces together with a financial incentive, customers will be encouraged to replace their existing log-sets. This will result in significant energy conservation and measurable reductions in energy consumption and carbon dioxide emissions.

Exhibit 3.1 outlines the rationale for the program and its activities. In summary, for each activity, the main linkages among inputs-outputs-outcomes and impacts are shown. There are strong and plausible linkages for each part of this chain confirming the logic of program design.

Exhibit 3.4.1 Program Logic Model

	Program design and implementation	Program marketing	Program delivery
Inputs	Assess customer & manufacturer needs and develop a program to meet these needs	Promotional activities including bill inserts, website, direct mail. Issue with apartments	Processing of applications and dispatch of letters to customers
Outputs	Program designed and implemented	Customer awareness of and interest in program increased	Provision of rebates to qualifying customers
Outcomes	Systems in place and operational	Increased customer intent to participate	Improved replacement rate for decorative log-sets
Impacts	Reduced residential energy and peak consumption Reduced residential energy bills Reduced greenhouse gas emissions		

While the program logic model is valid, the program did not successfully reach the apartment / condominium market in time to obtain significant participation. Due to the program operating during the summer, there appeared to be a delay such that residents did not receive notification of the program until August, if at all. This appears to result from delays with information arriving at the property managers and not being acted on due to holidays, and strata councils not meeting during the summer. This lack of contact information for residents of apartments / condominiums also meant they could not be included in the non-participant sample to provide better information on this component of the program.

3.5 Program Response

Program results are summarized below. ABSU received 500 applications, of which 442 have been accepted. Exhibit 3.5.2 summarizes the reasons for the rejections. The primary reasons are that the installed fireplaces did not meet the EnerGuide efficiency standard of 55% or that the installation date was invalid.

Exhibit 3.5.1 Program Summary Statistics

	Total	LM	Interior	VI
Applications accepted	442	358	70	14
Applications declined	58	49	8	1
Total Applications	500	407	78	15

Exhibit 3.5.2 Application Rejections

	Number
Does not meet efficiency minimum	33
Invalid installation date	14
No invoice / work order	4
Duplicate	3
No installation permit	1
Received after Post Mark date	2
Non registered contractor	1

Efficiency levels and input capacities of the fireplaces were estimated from the most common models installed as part of the program. These represent 174 out of the 442 fireplaces. The efficiency level of the new fireplaces is estimated at 58% as shown below.

Exhibit 3.5.3. Efficiency Level of New Fireplace

	Participants (%)
EnerGuide Efficiency Rating	58

The input capacity of the new fireplace is shown in BTUs per hour in Exhibit 3.5.4. This information is derived from the fireplace make and model from sales records and the rated input capacity from NRCan testing records.

Exhibit 3.5.4. Input Capacity of New Fireplace (Btu per hour)

	Participants (BTU)
Fireplace Input Capacity	24,000

3.6 Fireplace Incidence

As part of the market research, additional questions were posed to all people contacted from the non-participants sample to determine the incidence of fireplaces. The following table compares this data with the REUS survey from 2003.

Exhibit 3.6.1 Fireplace Incidence

	FP Evaluation (2004)	REUS (2003)
Heater style fireplace	24%	28%
Decorative style fireplace	10%	27%
Wood	30%	30%
No fireplace	36%	24%
Fireplace saturation	1.7	1.3

The fireplace evaluation shows a lower incidence for decorative style fireplaces than the REUS study. For this study a decorative log-set fireplace was described as one which has no fixed glass in front of the flame. As some decorative log-sets now have a fixed glass, this may have resulted in some log-sets being misclassified by respondents as heater-style. However, this is likely still a better representation of the actual penetration as there were problems with the definition of decorative fireplaces used in the REUS study. The incidence of wood fireplaces is similar, but there is a significant difference in the reported houses with no fireplace and the overall fireplace saturation. The explanation of these differences is not readily apparent.

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4. Customer Survey Results

4.1 Customer Awareness

Awareness of a program is the first step in the chain of actions that may eventually lead to program participation. Awareness of the Fireplace Upgrade Program for non-participants[2] is shown in Exhibit 4.1.1 as 23%. This is quite low by the standard of other Terasen Gas programs. For example the furnace program tends to run about 40% awareness among non-participants. However, this is the first year a fireplace program has been offered, and as noted earlier, the level of marketing support was only about 25% of furnace program.

It is interesting to note that those non-participants who purchased a fireplace had an awareness level that was over twice as high as non-participants who did not purchase a fireplace, which may indicate that awareness of the message increases as people become interested in a product.

Exhibit 4.1.1. Awareness of Fireplace Program

	Non-Participants 2004 (%)	Non-Participant (no purchase) (%)	Non-Participant (purchased FP) (%)
Base	101	86	15
Yes	23	19	47
No	77	81	53
DK/NR	0	0	0

Understanding the importance of sources of program awareness is critical in evaluating the success of promotional strategies. The sources of overall awareness of the program, for those who indicated their awareness of the program in the previous question, are shown in Exhibit 4.1.2. For participants and non-participants, the most important sources are: insert in Terasen Gas bill, the fireplace vender, and in-store materials. This is an issue for multi-family market where they do not receive a Terasen Gas bill.

[2] Non-participants were defined as Terasen Gas customers who had a decorative log-set, but who did not participate in the Fireplace Upgrade program. Fifteen of these non-participants had purchased a new fireplace outside of the program.

Exhibit 4.1.2. Source of Program Awareness

	Total (%)	Participants (%)	Non-participants (%)
Base	123	100	23
Insert in Terasen Gas bill	63	64	61
Fireplace vender	9	11	-
In-store (adv / POS)	5	6	-
Vancouver Sun	3	4	-
Letter to Strata Council	3	3	4
Shell Busey	2	2	4
Mail Flyer	2	1	9
Word of Mouth	2	0	9
Radio advertisement	1	1	-
Other	3	3	4
DK/NR	6	5	9

4.2 Customer Satisfaction

Respondents who were aware of the program were asked how satisfied they were with the program, on a scale from 1 to 5 where 1 was not at all satisfied and 5 was very satisfied. Response was quite favorable with program administration features (application procedures, and information about the rebate and fireplaces) and program timing at 4 or above while amount of the rebate, duration of the rebate period, and time allowed for installation all rated at 3.9. Number and type of fireplaces eligible rated lowest at 3.5, and likely reflects the newness of the EnerGuide rating system where not all products are rated and issues about eligibility of some fireplaces. Non-participants generally rated the program lower than participants, with time allowed to complete the installation rated lowest, which may indicate that some non-participants were precluded by this factor.

Exhibit 4.2.1. Satisfaction with the Rebate Program (Mean on 5-point scale)

	Total (%)	Participants (%)	Non-participants (%)
Base	123	100	23
Application procedures	4.3 (0.1)	4.4 (0.1)	3.3 (0.3)
Information about the rebate	4.1 (0.1)	4.2 (0.1)	3.6 (0.3)
Program offered during summer	4.1 (0.1)	4.2 (0.1)	3.7 (0.3)
Information about eff. Fireplaces	4.0 (0.1)	4.1 (0.1)	3.6 (0.3)
Duration of rebate period	3.9 (0.1)	4.0 (0.1)	3.2 (0.3)
Time allowed to complete installation	3.9 (0.1)	4.0 (0.1)	2.9 (0.4)
Amount of the rebate	3.9 (0.1)	4.0 (0.1)	3.1 (0.3)
Number / type of fireplaces eligible	3.5 (0.1)	3.5 (0.2)	3.3 (0.4)

Note: Standard error in parenthesis.

Customers were asked the importance of various factors affecting the choice of a fireplace using the same 5-point scale. Exhibit 4.2.2 shows that efficiency (including the amount of natural gas consumed), appearance and impact on the environment all rated higher than 4. Brand ranked lowest in importance at 2.7.

Exhibit 4.2.2. Factors Affecting Fireplace Choice (mean on 5-point scale)

	Total	Participants	Non-participants
Base	201	100	101
Fireplace Energy Efficiency	4.6 (0.1)	4.7 (0.1)	4.4 (0.1)
Amount of natural gas consumed	4.3 (0.1)	4.4 (0.1)	4.2 (0.1)
Appearance of the fireplace	4.3 (0.1)	4.5 (0.1)	4.1 (0.1)
Impact on the environment	4.2 (0.1)	4.2 (0.1)	4.3 (0.1)
Price of the fireplace	3.9 (0.1)	3.9 (0.1)	3.9 (0.1)
Fireplace features	3.9 (0.1)	4.2 (0.1)	3.5 (0.1)
Availability of a rebate	3.9 (0.1)	4.1 (0.1)	3.8 (0.1)
Brand name	2.7 (0.1)	3.2 (0.1)	2.2 (0.1)

Note: Standard error in parenthesis.

Customers were asked to indicate their level of satisfaction with the various aspects of their fireplace on a five-point scale where one is not at all satisfied and five is very satisfied. Exhibit 4.2.3 shows the reported levels of satisfaction with the standard errors shown in parentheses. Satisfaction levels exceed 4.0 in all areas except for price of the fireplace. There was no significant difference between participants and non-participants.

Exhibit 4.2.3. Customer Satisfaction with Their Fireplace (mean on 5-point scale)

	Total	Participants	Non-participants (who purchased fireplace)
Base	115	100	15
Overall comfort	4.7 (0.1)	4.7 (0.1)	4.5 (0.2)
Appearance of the fireplace	4.6 (0.1)	4.6 (0.1)	4.5 (0.2)
Ease of installation	4.4 (0.1)	4.5 (0.1)	4.1 (0.3)
Price of the fireplace	3.9 (0.1)	4.0 (0.1)	3.8 (0.3)

Note: Standard error in parentheses.

Respondents were also asked if they had any problems with their new fireplace. Exhibit 4.2.4 shows that 97% of respondents were satisfied, with only 1 participant reporting dissatisfaction due to the fireplace producing too much heat for the space and then cycling on the thermostat.

Exhibit 4.2.4. Satisfaction with Choice of Fireplace

	Total (%)	Participants (%)	Non-participants (%)
Base	115	100	15
Yes	97	97	100
No	1	1	-
DK/NR	2	2	-

Respondents were also asked about their satisfaction with the dealer who installed the new fireplace. As Exhibit 4.2.5 shows, 97% of program participants (and 100% of non-participants who had purchased a fireplace) were satisfied with the dealer. Of the four percent of program participants who were not satisfied, the reasons were: poor workmanship (2 mentions); removed decorative doors without informing customer; no follow-up, and not aware of the rebate.

Exhibit 4.2.5. Satisfaction with Dealer / Contractor

	Total (%)	Participants (%)	Non-participants (who purchased a fireplace) (%)
Base	115	100	15
Yes	97	96	100
No	3	4	-
DK/NR	-	-	-

Respondents who were aware of the fireplace program were also asked how important it was to them that Terasen Gas offers incentive programs that help customers use natural gas more efficiently. This received strong support from both participants and non-participants with a rating of 4.6 on a five point scale where 1 is not at all important and 5 is very important.

Exhibit 4.2.6. Importance of Terasen Gas Efficiency Incentive Programs (mean on a 5-point scale)

	Total (%)	Participants (%)	Non-participants (%)
Base	123	100	23
Yes	4.6 (0.1)	4.7 (0.1)	4.5 (0.2)

4.3 Customer Characteristics

Information was collected on a variety of respondent characteristics. Exhibit 4.3.1 shows the age distribution of respondents. For participants, the largest group was in the age range 55-64 years and the second largest group was in the age range 45-54 years. For non-participants the largest group was in the age range of 45-54 years while the second largest group was in the 35-44 years age range. Participants appear to be older than non-participants.

Exhibit 4.3.1. Age of Respondents

	Total (%)	Participants (%)	Non-participants (%)
Base	201	100	101
Under 25 years	*	0	1
25-34 years	4	5	3
35-44 years	21	15	27
45-54 years	31	24	38
55-64 years	24	31	17
65 years +	18	23	13
DK/NR	2	2	2

* Less than 1%

Marital status of respondents is shown in Exhibit 4.3.2. The participant sample has 6% singles, 80% married or common law; 5% divorced or separated; and 6% widowed. The non-participant sample has 8% single, 80% married or common law; 3% divorced or separated; and 4% widowed. There does not appear to be any significant differences between the marital status of participants and non-participants.

Exhibit 4.3.2. Marital Status

	Total (%)	Participants (%)	Non-participants (%)
Base	201	100	101
Single	7	6	8
Married/common law	80	80	80
Divorced/separated	4	5	3
Widowed	5	6	4
DK/NR	4	3	5

Highest level of education attained by respondents is shown in Exhibit 4.3.3. There appears to be no significant difference between participants and non-participants in terms of education.

Exhibit 4.3.3. Highest Level of Education Attained

	Total (%)	Participants (%)	Non-participants (%)
Base	201	100	101
Some high school	4	3	5
Completed high school	21	21	22
Some university/college	12	14	10
Completed university/college	34	34	35
Some trade/technical school	*	0	1
Completed trade/technical school	5	3	8
Post graduate	17	19	15
DK/NR	5	6	5

* Less than 1%

The number of people in the house is shown in Exhibit 4.3.4 with standard errors in parentheses. The total sample has an average of 3.0 people per house, the participant sample an average of 2.8 people per house and the non-participant sample an average of 3.3 people per house. This may reflect the younger age group in the non-participant group, which is further reflected in Exhibit 4.3.5.

Exhibit 4.3.4. Number of People in House

	Total	Participants	Non-participants
Base	201	100	101
Average	3.0 (0.1)	2.8 (0.1)	3.3 (0.1)

Note: Standard error in parentheses.

Exhibit 4.3.5 Number of People in House by Age

	Total	Participants	Non-participants
Base	201	100	101
0 – 24	0.9 (0.1)	0.8 (0.1)	1.1 (0.1)
25 – 34	0.2 (0.0)	0.2 (0.1)	0.3 (0.1)
35 – 44	0.4 (0.1)	0.4 (0.1)	0.5 (0.1)
45 – 54	0.6 (0.1)	0.5 (0.1)	0.7 (0.1)
55 – 64	0.4 (0.1)	0.5 (0.1)	0.4 (0.1)
65 and older	0.4 (0.1)	0.4 (0.1)	0.4 (0.1)
DK/NR	5%	4%	7%

Exhibit 4.3.6 shows the reported income by respondents. The non-response levels to this question are quite high, and interestingly are almost twice as high for participants than non-participants. When adjusted for this non-response bias, while there appears to be some difference between the participants and non-participants in the $ 80,000 to $ 99,999 and the $ 100,000 to $ 124,000 ranges, the average income of those who responded is almost identical at $78,400 for participants and $ 77,300 for non-participants.

Exhibit 4.3.6. Income

	Total (%)	Participants (%)	Non-participants (%)
Base	201	100	101
< $ 20,000	3	2	5
$ 20,000 - $ 39,999	8	6	10
$ 40,000 - $ 59,999	9	8	11
$ 60,000 - $ 79,999	14	14	15
$ 80,000 - $ 99,999	9	11	7
$100,000 - $124,999	8	3	14
$125,000 and over	12	11	14
DK/NR	35	45	25

4.4 Fireplace Characteristics and Usage

As part of the market research, a series of questions were asked to determine the prevalence of fireplaces. Exhibit 4.4.1 shows an average number of fireplaces of 1.7, while Exhibit 4.4.2 shows the breakdown of fireplaces by fuel type. It shows that natural gas is predominant. The difference in incidence of natural gas fireplace types reflects participation in the program. The "other" category included one electric fireplace and one propane fireplace as well as 3 "other" units.

Exhibit 4.4.1 Number of Fireplaces per home

	Total	Participants	Non-participants
Base	201	100	101
Mean	1.7 (0.0)	1.7 (0.1)	1.7 (0.1)
1	39%	37%	41%
2	50%	52%	48%
3 or more	11%	11%	11%

Exhibit 4.4.2 Fireplaces by Fuel

	Total	Participants	Non-participants
Base	201	100	101
Natural Gas – decorative log-set	0.6 (0.0)	0.2 (0.0)	1.0 (0.1)
Natural Gas – heater-style	1.0 (0.1)	1.3 (0.1)	0.6 (0.1)
Wood	0.1 (0.0)	0.2 (0.0)	0.1 (.0.)
Other	*	*	*

However, almost one third of these fireplaces are not used regularly. Exhibit 4.4.3 shows that out of the average of 1.7 fireplaces per house, 0.5 are used for less than one hour per month during the winter season.

Exhibit 4.4.3 Fireplaces used less than 1 hour per month (winter)

	Total	Participants	Non-participants
Base	201	100	101
Mean	0.5 (0.0)	0.4 (0.1)	0.7 (0.1)
0	55%	68%	43%
1	34%	23%	45%
2	8%	6%	11%
3 or more	1%	1%	1%

Respondents were asked a range of questions about the replaced fireplaces. The average age of fireplaces for participants at time of replacement was about 15 years overall, and about 92% were still operating when replaced. For non-participants, the age data appears incorrect with an average age of over 55 years. Natural gas fireplaces did not become common until the mid 1970's.

Participants stated that 92% of their fireplaces were still operational when replaced while only 67% of the non-participants' units were operational. This tends to support that the program encourages people to replace their fireplaces prior to failure.

Exhibit 4.4.4. Characteristics of the Replaced Fireplace

	Total	Participants	Non-participants
Base	201	100	15
Age of the fireplace at time of replacement (years)	20.5 (2.2)	14.9 (1.1)	55.8 (11.0)
Was fireplace working at time of replacement (respondent share stating fireplace was working)	90%	92%	67%

Note: Standard error in parentheses.

Respondents were asked about the rationale for their fireplace usage, whether it was for heating, ambiance or both. The results are shown in Exhibit 4.4.5 below, and show that 67% of participants used the fireplace primarily for heating while only 37% of non-participants used it primarily for heating. Non-participants who replaced their fireplaces showed a higher level of usage that those who did not. The high level of usage for heating is somewhat surprising, as the decorative log-sets are very inefficient.

Exhibit 4.4.5. Usage of Replaced / Highest Use Fireplace

	Participants	Non-participants (Did not replace fireplace)	Non-participant (Replaced fireplace)
Base	100	86	15
Heating	67%	36%	40%
Ambiance	9%	35%	27%
Both	24%	26%	33%
DK/NR	0%	3%	0%

Respondents were asked about the hours of use of their existing fireplace in the past year, and the use of the new fireplace since it was installed. The results are shown in Exhibit 4.4.6 below. Participants used their fireplaces much less than the non-participants.

Exhibit 4.4.6. Seasonal Fireplace Usage

	Participants (hrs / week)	Non-participants (Did not replace fireplace) (hrs / week)	Non-participant (Replaced fireplace) (hrs / week)
Base	100	86	15
Fall 2003	4.8	11.9	10.0
Winter 2004	5.2	13.7	10.3
Spring 2004	1.2	3.1	1.5
Summer 2004	0.2	0.4	0.4

However, once the new fireplace was installed, the hours of use by program participants increased significantly. Exhibit 4.4.7 shows that hours of use increased to 20.7 hours per week from 4.8 hours for the participants while non-participants remained almost constant, dropping from 10 hours to about 9.5 hours per week. As the program ended in mid-September this usage corresponds with fall 2003. One of the basic questions for the program will be how the hours of use evolves after the "newness" of the fireplace wears off. The higher efficiency of the new fireplace will result in more heat generated into the living area which may limit the increase in usage over time.

Exhibit 4.4.7. Usage of New Fireplace

	Participants (hrs / week)	Non-participants (Replaced fireplace) (hrs / week)
Base	100	15
Use of new fireplace	20.7	9.5

Respondents were also asked about the pilot lights on their fireplaces, as these are considered to be a significant consumer of natural gas. Natural Resources Canada (in the HOT2000 model) estimates that the pilot lights can consume about 6.5 GJ of natural gas per year. Exhibit 4.4.8 shows that the penetration of pilot lights is very high at 93%.

Exhibit 4.4.8 Share of New Fireplaces Which Use a Pilot Light.

	Total (%)	Participants (%)	Non-participants (%)
Base	115	100	15
Pilot light	93	93	93

Respondents were queried about the use of the pilot light, and if it was turned off for part of the year when the fireplace was not in use. Exhibit 4.4.9 shows that about 49% of respondents who have a pilot light turn it off, and that it is turned off for an average of 5.4 months per year. On average, participants turn the pilot light off for 2.4 months per year.

Exhibit 4.4.9 Pilot Light Usage.

	Total (%)	Participants (%)	Non-participants (Replaced fireplace) (%)
Base	107	93	14
Turn off pilot light	49	45	71
Months / year off	5.4 (0.3)	5.4 (0.2)	5.6 (0.9)

Note: Standard Error in brackets.

4.5 Housing Characteristics

Dwelling type for respondents is shown in Exhibit 4.5.1. Single detached homes dominated the sample, with the share of single detached dwellings at 83% for the whole sample. There is no significant difference between participants and non-participants.

Exhibit 4.5.1. Dwelling Type

	Total (%)	Participants (%)	Non-participants (%)
Base	201	100	101
Single detached	83	84	82
Semi detached (duplex)	3	3	3
Apartment/condominum	4	6	3
Row/townhouse	9	7	12

The average age of the house is shown in Exhibit 4.5.2. The average age of dwelling was 27 years overall, 28 years for participants, and 25 years for non-participants.

Exhibit 4.5.2. Age of Home

	Total	Participants	Non-participants
Base	201	100	101
Years	26.5 (1.3)	27.9 (1.7)	25.0 (2.0)

Note: Standard error in parentheses.

Exhibit 4.5.3 shows the heated area of the home. The difference in home size between participants and non-participants is not significant.

Exhibit 4.5.3. Heated Area of Home

	Total	Participants	Non-participants
Base	201	100	101
Square Feet	2325 (60.5)	2238 (77.7)	2410 (92.0)

Note: Standard error in parentheses.

Natural gas uses in the dwelling are shown in Exhibit 4.5.4. In addition to fireplaces, the main uses are space heating, water heating, cooking and barbequing. Less important uses are clothes drying, hot tubs, pool heating and patio heaters.

Exhibit 4.5.4. Natural Gas Uses in the Home

	Total (%)	Participants (%)	Non-participants (%)
Base	201	100	101
Main Space heating	86	79	92
Water heating	83	80	86
Cooking	29	26	33
Barbeque	30	29	31
Clothes drying	9	7	11
Hot tub	5	3	7
Outdoor pool heating	6	5	7
Patio Heater	1	1	1
NR	3	5	2

4.6 EnerGuide Fireplace Rating

A series of questions was asked to determine the level of visibility of the EnerGuide fireplace rating system. Exhibit 4.6.1 shows that about 76% of program participants were aware of it while 67% of non-participants who had purchased a fireplace were aware.

Exhibit 4.6.1. Awareness of EnerGuide Fireplace Rating

	Total (%)	Participants (%)	Non-participants (Replaced fireplace) (%)
Base	115	100	15
Yes	75	76	67
No	23	22	33
DK/NR	2	2	-

Of the people who were aware of the EnerGuide rating, Exhibit 4.6.2 shows that 86% of participants reported that vendors mentioned the EnerGuide rating to them as part of the sales process, while 70% of the non-participants also reported this.

Exhibit 4.6.2. Vendor Discussed EnerGuide Fireplace Rating

	Total (%)	Participants (%)	Non-participants (Replaced fireplace) (%)
Base	86	76	10
Yes	84	86	70
No	9	9	10
DK/NR	7	5	20

Respondents who were aware of EnerGuide were asked if they found information about the EnerGuide fireplace efficiency rating on the materials for the fireplace. Overall, about 71% reported finding this information.

Exhibit 4.6.3. Found EnerGuide Fireplace Rating Materials

	Total (%)	Participants (%)	Non-participants (Replaced fireplace) (%)
Base	86	76	10
Yes	71	72	60
No	9	9	10
DK/NR	20	18	30

4.7 Program Design

A number of issues were explored with the non-participants who had purchased a fireplace outside of the program to better understand the factors that affect people's choices around fireplaces. However, care must be taken when extrapolating this data, as it is based on less than 10 responses.

Exhibit 4.7.1 shows the types of fireplaces purchased, and reflects that heater-style fireplaces dominate the market today.

Exhibit 4.7.1 Type of fireplace purchased.

	Non-participants (Replaced fireplace) (%)
Base	9
Decorative log-set	22
Heater style	67
DK/NR	11

Exhibit 4.7.2 reflects the major influencers on non-participants' (who had purchased a fireplace) choice of heater-style fireplace. The two people who chose the decorative log-set both did so because they "liked the appearance of the open flame".

Exhibit 4.7.2 Reasons for choosing a heater-style fireplace

	Non-participants (Replaced fireplace) (%)
Base	6
Lower natural gas cost	50
Had desired features	33
Heats a larger space	33
Was more attractive	17

Respondents were asked why they replaced their existing fireplace. The primary reasons were: wanted a more efficient fireplace; wanted a fireplace that heated the room; the existence of the rebate, and wanted a more attractive fireplace.

Exhibit 4.7.3 Reasons for replacing their existing fireplace

	Total (%)	Participants (%)	Non-participants (Replaced fireplace) (%)
Base	109	100	9
Wanted a more efficient fireplace	61	61	67
Wanted a fireplace that heated the room	48	50	22
Existence of the rebate	20	22	na
Wanted more attractive fireplace	19	20	11
Fireplace had failed, too many repairs or anticipated failure	14	14	11
Fireplace made other parts of the house feel cold	12	13	-
Heated floor area increased	3	3	-
Wanted a safer fireplace	3	2	11
Wanted a remote control	2	2	-
Burning wood / Presto logs messy	2	-	22
Other	1	-	11
DK/NR	1	-	11

Respondents who had purchased a fireplace were also asked if they had enough information to make an informed decision on the choice of a fireplace. As shown below, 95% of program participants and 87% of non-participants felt they had sufficient information.

Exhibit 4.7.4 Had enough information to make informed decision

	Total (%)	Participants (%)	Non-participants (Replaced fireplace) (%)
Base	115	100	15
Yes	94	95	87
No	6	5	13

Exhibit 4.7.5 shows the range of information required, but the small sample size should be noted when considering the comments, as they come from only 7 people.

Exhibit 4.7.5 Additional information required

	Total (%)	Participants (%)	Non-participants (Replaced fireplace) (%)
Base	7	5	2
More information about prices / final cost	43	20	100
Good estimate of the BTUs required for the room	29	40	-
More information about features	14	20	-
More information about the efficiency of various models	14	20	-
More information about parts availability	14	20	-
More information about quality	14	-	50
More information about appearance	14	-	50

Respondents with wood fireplaces were also asked about their level of interest in a similar incentive program, but one that was available to people with a wood fireplace. On a scale of 1 to 5, where 5 is very interested, participants indicated a 4.5 level of interest, while non-participants were perhaps less interested. However the small sample size should be noted for this question.

Exhibit 5.7.6 Interest in an incentive program for wood fireplaces
(Mean on a 5 point scale)

	Total	Participants	Non-participants
Base	29	17	12
Mean response	3.9 (0.3)	4.5 (0.2)	3.0 (0.6)
DK/NR	3%	-	8%

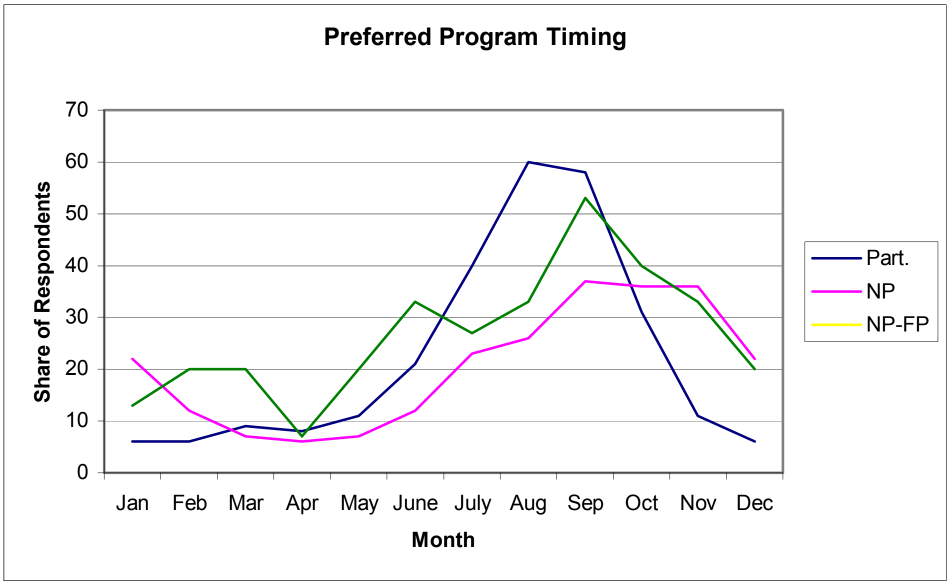
Respondents were also asked the best time to conduct a fireplace program. As shown in the results in Exhibit 5.7.7, customers indicated the best time would be the period between July and October.

Exhibit 5.7.7 Best Time to Offer a Program

	Share (%)
Base	201
January	13
February	9
March	9
April	7
May	10
June	18
July	32
August	43
September	49
October	34
November	23
December	14

Figure 5.7.1 shows this data graphically to illustrate the differing preferences for program timing between participants and non-participants. The graph shows that, while non-participants showed a higher preference for a fall program, there is reasonable overlap with the mid July to mid September time period.

Figure 5.7.1 Best Time of Offer a Program



4.8 Free Rider and Spill Over Analysis

Program participants were asked how important the Fireplace Upgrade Program was in their decision to install a high efficiency fireplace, where one was not at all important and five was very important as shown in Exhibit 4.8.1. To summarize the impact of the program, a weighted average of the importance scores was calculated, where the weights were as follows: score of five has a weight of 1.00, score of four has a weight of 0.75, score of three has a weight of 0.50, score of two has a weight of 0.25 and score of one has a weight of 0.00. The weighted average of the importance scores is one minus the free rider rate, and indicates a free rider rate of about 24%.

Exhibit 4.8.1. Free Rider Analysis – Fireplace program

Total	Very important (5)	(4)	(3)	(2)	Very un-important (1)	(1 – FR)
Weight	1.00	0.75	0.50	0.25	0.00	-
Score	0.46	0.24	0.20	0.06	0.03	
Product	0.46	0.18	0.10	0.02	0.000	0.76

Participants were asked if they had replaced their fireplace earlier than they would otherwise have done. As shown in Exhibit 4.8.2, 73% reported that they had replaced the fireplace early due to the rebate, which matches well with the 76% attribution shown above.

Exhibit 4.8.2. Replaced Fireplace Earlier Due to the Rebate

	Participants (%)
Base	100
Yes	73
No	27
DK/NR	-

5. Trade Ally Survey Results

Trade allies provide the primary delivery channel for the fireplace program and their support of the program is critical to program success. In addition, the trade provides a valuable source of information about customer needs and response to the program. Terasen Gas's records show that 92 firms installed fireplaces under the program. For this evaluation, twenty trade allies were surveyed to obtain their feedback about the program.

5.1 Trade Ally Satisfaction

Trade allies were asked to indicate their level of satisfaction with program components on a five-point scale where one is not at all satisfied and five is very satisfied. Exhibit 5.1.1 shows the reported levels of satisfaction with the standard errors shown in parentheses. Trade allies reported satisfaction levels averaging 4.0 or more for the amount of the rebate and the application procedures while the timing of the program rated slightly lower at 3.8. They expressed the lowest level of satisfaction with the information provided on the rebate and the EnerGuide information on fireplace efficiency.

Exhibit 5.1.1. Trade Ally Satisfaction with Program (mean on 5-point scale)

	Program Component
Base	20
Amount of the rebate	4.1 (0.2)
Application procedures to obtain the rebate	4.0 (0.3)
Program being offered during the summer months	3.8 (0.3)
Efficiency threshold for qualifying fireplaces	3.5 (0.3)
Number or type of fireplaces eligible for the rebate	3.2 (0.3)
Information provided on the rebate	3.0 (0.3)
EnerGuide information on fireplace efficiency	3.0 (0.3)

Note: Standard error in parentheses.

5.2 Trade Ally Characteristics

The average number of employees in reporting firms was 12.1 with a standard error of 3.3, while the average number of fireplaces sold in a typical year is over 280. If we consider just the sales for the trade allies that participate in the program this represents about 25,000 fireplace sales per year.

Exhibit 5.2.1. Number of Employees

	Employees
Base	20
Mean	12.1 (3.3)
Up to 2	20.0
3 to 5	25.0
6 to 10	10.0
11 to 15	30.0
Over 15	15.0

Note: Standard error in parentheses.

Exhibit 5.2.2. Number of Fireplaces sold in a typical year

	Annual Sales
Base	20
Mean	283 (77.5)
Up to 99	15.0
100 to 200	50.0
Over 200	30.0
DK/NR	5.0

Note: Standard error in parentheses.

The main type of business is shown in Exhibit 5.2.3. The primary types of businesses were fireplace dealer, fireplace and furnace dealer and independent heating contractor. Gas fitters are not a significant delivery channel.

Exhibit 5.2.3. Primary Business

	Share (%)
Base	20
Fireplace dealer	30
Fireplace and furnace dealer	20
Independent heating contractor	20
Gas fitter	5
Other	5

5.3 Fireplace Characteristics

Trade allies were asked a number of questions about the replaced fireplaces. Trade allies indicated that, during the program period, the share of operating fireplaces was about 88%. This is consistent with the customer data and suggests that failure of existing fireplaces was not a major contributor to program participation.

Exhibit 5.3.1. Share of Fireplaces Operational at Time of Replacement

	Share 2003 (Jan-Aug) (%)
Average	88.2 (5.3)
Up to 50%	15
51% to 75%	5
76% to 100%	75
DK/NR	5

Note: Standard error in parentheses.

About 90% of trade allies believe that efficient fireplaces are the best choice for their customers while another 5% believe that they are "sometimes" the best choice for their customers.

Exhibit 5.3.2. Believe that Efficient Fireplaces Best Choice for Customers

	Share 2003 (%)
Base	20
Yes	90
No	5
Sometimes/depends on customer	5

A further question was asked to determine why allies expressed these opinions. On the positive side, the main reasons centered on efficiency and cost savings, and efficiency being part of the company or personal philosophy. On the negative side, the primary reason for not recommending them was higher cost and perhaps a more limited range of efficient fireplaces such that they did not work in all applications.

Exhibit 5.3.3. Why do you say this?

	Share (%)
Base	20
Energy / cost savings / greater efficiency	85
It is part of my company's / my philosophy	18
They are more attractive	10
Saves on non-renewable resource	5
They are expensive / have better ones	5
They don't always fit existing installations	5
Other	5

5.4 Market Characteristics

Trade allies were asked a number of questions pertaining to the market for fireplaces. Trade allies estimated that almost 64% of their market involves replacement units. However, it should be noted that the trade allies covered in this research were those who participated in the Terasen Gas program, and survey results pertaining to the new fireplace market are not necessarily representative of the new construction market.

Exhibit 5.4.1. Share of Sales Involving Replacement Fireplaces

	Shares
Base	20
Mean share	63.7 (6.2)
Up to 25%	15
26% to 50%	20
51% to 75%	25
76% and more	40

Note: Standard error in parentheses.

Trade allies were also asked to provide information on the composition of their fireplace sales by type of fireplace. The table shows that decorative log-sets have a very small share. It also shows a low share for electric fireplaces, but this likely under represents the market as electric fireplaces have broader sales channels, such as London Drugs, than do the more traditional fireplace inserts.

Exhibit 5.4.2 Fireplace inserts by type

	Shares (%)
Base	20
Natural Gas – Decorative log-sets	2.2
Natural Gas – Heater style	71.0
Propane	6.5
Electric	1.4
Wood burning inserts	18.8

Of specific interest for the project was to develop an understanding of the current share of efficient fireplaces (defined as fireplaces with an EnerGuide fireplace rating of 55% or better) in new and existing dwellings and the trend over the past few years.

Exhibit 5.4.3 shows the reported shares of efficient fireplaces, and indicates that new construction, at least as supplied by these firms, have a higher share of efficient fireplaces than do sales to existing dwellings. However, this may not be representative of the overall new construction market, as noted earlier. In similar research on the furnace market, it was determined that specialized firms did much of the installation work on "spec" housing with the lowest cost equipment available while the established dealers did more of the "custom" new houses where the emphasis is on quality / efficiency rather than price. This may also be true for the fireplace market.

Exhibit 5.4.3 Share of Efficient Fireplaces

	Shares Efficient (%)
Base	20
New Dwellings	90.9
Existing Dwellings	83.2

Over half of the respondents reported that the share of efficient fireplaces in new dwellings has increased by more than 20% in recent years. When all responses are considered, the weighted average increase in efficiency is about 10%.

Exhibit 5.4.4: Trend of Efficient Fireplace Shares – New Dwellings

	Change in past few years (%)	Percentage change (%)
Base	19	
Increased	53	23
Decreased	5	(50)
Stayed same	42	-
Weighted average		9.7

There is a similar, but more pronounced pattern in the sales to existing building market, where 60% of respondents reported an efficiency improvement of 30%. Including those who reported no change provides an estimate of about an 18% improvement.

Exhibit 5.4.5: Trend of Efficient Fireplace Shares – Existing Dwellings

	Change in past few years (%)	Percentage change (%)
Base	20	
Increased	60	30
Decreased	0	-
Stayed same	40	-
Weighted average		18

Exhibit 5.4.6 shows that almost three quarters of the fireplace installations in existing buildings do not replace an existing natural gas installation but rather are a new installation and represents natural gas load growth.

Exhibit 5.4.6 Type of installation for Existing Dwellings

	Shares (%)
Base	20
Replace existing ng. installation	27.2
Install new ng. installation	72.8

5.5 Barriers and Opportunities

A number of questions explored trade ally perceptions of program barriers and opportunities.

The primary barrier noted by the trade was the perceived high cost of the fireplace. Other barriers noted include: range of fireplaces included in the program, and a need for more time to make a decision. There were single mentions of a number of other barriers such as: condominium restrictions; program should run from September to December; and program installation period not long enough.

Exhibit 5.5.1 Main Barriers

	Share (%)
Base	20
Cost of the fireplace too high	55
Not enough choice in fireplaces / too many fireplaces excluded	25
Need more time to make a decision	10
Other reasons	30

The trade allies were asked if they thought that customers had enough information to make a decision, and what information customers were missing. While three quarters of the respondents thought customers had enough information, suggestions were made to provide customers with more information on energy efficiency and how to compare between fireplaces, the problem that not all manufacturers currently provide an EnerGuide rating for their products, and not all customers are aware of the EnerGuide rating.

Exhibit 5.5.2. Customers Have Enough Information to Make Informed Decision on Fireplace Choice

	Share (%)
Base	20
Yes	75
No	25

Exhibit 5.5.3. Information customers are missing

	Share (%)
Base	9
Info on efficiency / how to compare	40
Not all mfgrs use EnerGuide rating	40
Customers don't know EnerGuide	20

5.6 Energy Efficiency and EnerGuide

Several questions were asked of the trade allies to better understand the role of energy efficiency in the sales process, and their knowledge of the EnerGuide fireplace standards. While 95% of the respondents reported discussing energy efficiency in general, only about 70% always or mostly discuss the EnerGuide fireplace efficiency ratings.

Exhibit 5.6.1 Does sales staff typically discuss energy efficiency

	Share (%)
Base	20
Yes	95
No	5

Exhibit 5.6.2 Discuss EnerGuide Fireplace Efficiency Rating

	Share (%)
Base	19
Always	26
Mostly	47
Sometimes	11
Rarely	16

The major information gaps for EnerGuide noted by the trades were that EnerGuide ratings are not available for all products, and that there is confusion between the EnerGuide information and other ratings.

Exhibit 5.6.3. What additional EnerGuide information do you require?

	Share (%)
Base	13
All manufacturers should use it / all fireplaces should be rated	23
The real rating / there is a discrepancy between EnerGuide and existing ratings	15
Nothing in particular	62

5.7 Program Design

Several issues of relevance to design of a future program were explored in the survey. The peak quarter for replacement fireplace sales is October to December when almost 50% of the fireplaces for a given year are sold. This is very similar to the pattern of furnace sales.

Exhibit 5.7.1. Peak Quarters for Replacement Fireplace Sales

	Share of respondents Choosing this quarter (%)
Base	20
January - March	14.7 (1.7)
April – June	12.6 (2.2)
July – September	23.9 (2.8)
October – December	48.7 (2.7)
DK/NR	5

* Standard Error in parenthesis

Respondents were asked about the best time for a fireplace program. About 25% suggested that a program should start in September, which corresponds to the heaviest sales period, while 30% supported starting the program in the May / June timeframe and about 15% suggested February, which is a quieter sales period. Most trade allies supported a four month program period, with an additional month being allowed after the end of the program to allow for the completion of installations.

Exhibit 5.7.2 When should program be offered

	Share (%)
Base	20
February	15
March	5
April	5
May	15
June	15
July	5
August	10
September	25
October	5

Exhibit 5.7.3 Program duration

	Share (%)
Base	20
Mean (months)	4.1 (0.3)
2 months	10
3 months	15
4 months	50
5 months	5
6 months	20

Exhibit 5.7.4 Program installation period

	Share (%)
Base	20
1 - 2 weeks	20
3 - 4 weeks	55
5 – 6 weeks	15
7 – 8 weeks	10

Respondents were also asked about the fireplace features that their customers were most interested in. Appearance and efficiency were ranked the highest, followed by a number of features such as: heat output; warranty; price; controls; and quality or reputation of manufacturers. Only 5% were interested in electronic ignition, which may indicate that customers are not aware of the amount of natural gas consumed by a pilot light.

Exhibit 5.7.5 What fireplace features are customers most interested in.

	Share (%)
Base	20
Appearance	60
Is it more efficient	45
Heat output / BTUs	25
Warranty	15
Price	10
Timer	10
Thermostat	10
Remote Control	10
Quality / reputable manufacturer	10
Fan	10
Rebate	5
Electronic ignition	5
Direct vent type insert	5

In response to a request for suggestions on how customers could be encouraged to install efficient heater style fireplaces, the main suggestions were: provide more information about benefits / comparisons and include information with the natural gas bill. However, it should be noted that some of the suggestions, such as "include information with the gas bill" and "information on the web site" indicate that the trade was not fully aware of the program advertising, while other comments such as "target builders" and "include wood fireplaces", both of which were excluded from the program, indicate that they were not cognizant of the program objectives. However, there is no evidence that either of these issues impacted the level of success of the program.

Exhibit 5.7.6. Suggestions on how customers could be encouraged to install heater style fireplaces

	Share (%)
Base	20
More information about benefits / comparison	30
Include information with the gas bill	10
Have information on the Terasen Gas Web site	5
Target builders	5
A surcharge on inefficient products	5
Rebates / low interest financing	5
Include gas inserts for wood burning fireplaces	5
No suggestions	45

5.8 Fireplace Prices

Trade allies were asked to estimate typical equipment and installed prices for a decorative log-set and a heater style fireplace. The results are shown in Exhibit 5.8.1. The estimated installed price of a heater insert of $ 2,561 is very close to the average price of $ 2,428 reported by participants on the rebate applications.

Exhibit 5.8.1. Equipment Price and Installed Price

	Decorative log-set (dollars)	Heater style (dollars)
Base	20	20
Equipment price (average)	910 (103)	1853 (64.6)
Installed price (average)	1450 (155)	2561 (84.9)

Note: Standard error in parentheses.

5.9 Program Impact on Fireplace Sales

The trade ally survey looked at the impact of the program both on the level of impact on customer interest and inquiries and on the impact on sales. Exhibit 5.9.1 shows that the trade experienced a notable increase in inquires both during and after the program period.

Exhibit 5.9.1 Increase in enquires

	Share reporting increase in inquiries (%)	Level of increase in inquiries (%)
Base	20	15
During program period	75	50.7
After program period	80	na

The program hypothesis was that the incentive could have two potential impacts on consumers. It could cause customers who were not considering replacement of their decorative log-sets to purchase a heater style insert and / or it could cause people who were planning to replace their log-set to choose a more efficient model than they otherwise would have. Trade allies were asked if they agreed with either or both of two statements. Exhibit 5.9.2 below reflects that 45% thought that the program brought more customers into the market, 25% thought that it encouraged them to select a more efficient fireplace and 25% thought that the program did both.

Exhibit 5.9.2. Program effect on customer choices

	Share (%)
Base	20
1. The program resulted in people purchasing an efficient fireplace who would otherwise have kept their decorative log-set.	45
2. The program resulted in people who were intending to purchase a new fireplace anyway choosing a more efficient model.	25
3. Both of these statements	25
4. Neither of these statements	5

The trade allies were also asked to compare the share of efficient fireplace sales during the program period with sales over 2003. Exhibit 5.9.3 show that the reported share of efficient sales during the program period increased by 8.4%. The change in share is significant at the 80% level.

Exhibit 5.9.3 Share of fireplace to existing dwellings

	Share during 2003 (%)	Share during program period (%)	Increase in share (%)
Base	20	20	19*
Share of efficient fireplaces to existing dwellings	83.2 (6.7)	90.9 (5.6)	8.4 (6.2)

Note: Standard error in brackets.
* One respondent had 0% in 2003.

Trade allies were asked how important the rebate was in the customers choice of fireplace efficiency. The results in Exhibit 5.9.4 indicate that the trade allies felt the program was achieving its objectives of increasing interest in replacing decorative log-sets and increasing the sales of efficient fireplaces.

Exhibit 5.9.4. Free Rider Analysis – Fireplace program

Total	Very important (5)	(4)	(3)	(2)	Very un-important (1)	(1 – FR)
Weight	1.00	0.75	0.50	0.25	0.00	-
Score	0.35	0.35	0.15	0.00	0.15	
Product	0.35	0.26	0.08	0.00	0.00	0.69

6. Impact Analysis

6.1 Fireplace Energy Impact

Natural gas savings from the replacement of decorative log-sets by more efficient heater inserts are expected to materialize from three areas:

- Reduction in natural gas usage from the fireplace as the heater inserts has a lower natural gas input capacity than the decorative log-sets.
- Reduction in energy usage (either natural gas or electricity) from the central heating system due to the additional heat from the new fireplace.
- Reduction in heat loss due to air infiltration in the house when the decorative log-set, with the open flu required by the building code, is replaced with an insert.

The HOT2000 computer simulation model was used to provide the initial estimate of the impact of the program. Once the units have been installed for a year, a billing analysis will be undertaken to determine the actual change in natural gas usage.

HOT2000 was used to model four building scenarios:

- Single family dwelling (SFD) with natural gas main heating
- Single family dwelling with electric main heating
- Apartment with natural gas main heating
- Apartment with electric main heating

Appendix B provides a summary of the archetypes used in the modelling.

Exhibit 6.1.1 shows the input assumptions used for the modelling. The input size for the decorative log-sets and efficiency come from discussions with the fireplace industry[3]. The average input capacity comes from a review of the operating characteristics of the most common fireplace models in the program. The annual hours of operation were derived from the customer survey by expanding the seasonal usage estimates provided by the customer survey and is used for the base hours of operation for the new fireplace. The extended hours of operation were derived from the reported increase in usage after the new fireplace was installed, and assumes that the relative increase in usage will continue throughout the year. These two estimates of impact may be considered as high and low bounds for the impact of the program.

[3] A set of sensitivity runs was also done assuming 5% efficiency for the log-sets and a mid-efficiency furnace.

Exhibit 6.1.1 Operating characteristics of fireplaces

	Input Capacity (BTU/hr)	Efficiency (EnerGuide)	Hours of Operation (Annual)
Decorative log-set	55,000	0%	148
Heater style FP	24,000	58%	148
Heater style FP Extended usage	24,000	58%	639

The impact of the fireplace upgrades for the four scenarios is summarized in Exhibits 6.1.2 through 6.1.5. Upgrading from the decorative log-set to the heater style insert has a relatively small impact on the total energy consumed for space heating. This is due to two factors. The pilot light consumes about 17.7 MJ per day, or about 5.2 GJ per year[4], and this is assumed to be consistent between the decorative log-sets and the inserts. Further, HOT2000 indicates that internal heat gains offset primary space heating by a factor of 0.4. This reflects the imperfect nature of heat distribution between the fireplace and thermostat that controls the main heating system.

The base consumption for the SFD fireplace was derived from the hours of operation and the input capacity for the log-sets, and is quite similar to conditional demand analysis estimate contained in the 2002 REUS. The estimate for apartments was based on the assumption of a 36,000 BTU log-set, as the 55,000 BTU unit was thought to be too big for the smaller space of the apartment.

The tables also show that there is a reduction in natural gas and electricity use even in the case of the extended hours of use of the fireplace. In this case, there is a relatively larger reduction in central heating usage as more of the fireplace natural gas consumption is going to the production of heat rather than maintaining the pilot light. The HOT2000 simulation assumes that the heater insert is either controlled by a thermostat and the unit cycles on and off during the reported hours of use or operated at less than the rated capacity. Hence the natural gas consumption of the fireplace is less than would be expected from the rated input and the hours of use.

Exhibit 6.1.2 Single Family Dwelling – Natural Gas Primary Heat

	Decorative Log-set (GJ/yr)	Heater Style (base hours) (GJ/yr)	Heater Style (extended hours) (GJ/yr)
Primary heat	81.1	78.7	74.6
Fireplace consumption	14.9	7.9	12.8
Total	96.0	86.6	87.4
Natural Gas reduction	-	9.4	8.6

[4] Based on the average pilot light being used for 9.6 months per year.

Exhibit 6.1.3 Single Family Dwelling – Electric Primary Heat

	Decorative Log-set (GJ/yr)	Heater Style (base hours) (GJ/yr)	Heater Style (extended hours) (GJ/yr)
Primary heat	51.4	49.6	46.8
Fireplace consumption	14.9	7.9	12.8
Total	66.6	57.5	59.6
Natural Gas reduction	-	7.0	2.1
Electricity reduction	-	1.8	4.6
Total energy reduction	-	9.1	7.0

Exhibit 6.1.4 Apartment – Natural Gas Primary Heat

	Decorative Log-set (GJ/yr)	Heater Style (base hours) (GJ/yr)	Heater Style (extended hours) (GJ/yr)
Primary heat	19.3	19.0	18.7
Fireplace consumption	9.9	7.1	9.2
Total	29.2	26.1	27.9
Natural Gas reduction	-	3.1	1.3

Exhibit 6.1.5 Apartment – Electric Primary Heat

	Decorative Log-set (GJ/yr)	Heater Style (base hours) (GJ/yr)	Heater Style (extended hours) (GJ/yr)
Primary heat	13.2	13.0	12.7
Fireplace consumption	9.9	7.1	9.2
Total	23.1	20.1	21.9
Natural Gas reduction	-	2.8	0.7
Electricity reduction	-	0.2	0.5
Total energy reduction	-	3.0	1.2

Exhibit 5.1.6 shows the impact of changing the efficiency of the log-set from 0% to 5%, and changing the natural gas furnace efficiency from 70% to 78%. For SFD, it shows that as the efficiency of the log-set increases to 5% and the furnace efficiency increases to 78%, the estimated savings drop by between 1.4 and 2.2 GJ per year depending on the hours of use. For the apartments, the impact is less significant, with the decrease in savings being a fairly consistent 0.1 GJ per year.

Exhibit 6.1.6 Effect of Increasing Log-set Efficiency on Total Energy Consumption

		Efficiency 0% (GJ/yr)	Efficiency 5% (GJ/yr)	Consumption Change (GJ/yr)
SFD – Natural Gas	Base hours	9.4	7.8	1.6
	Extended hours	8.6	6.4	2.2
SFD - Electric	Base hours	9.1	7.7	1.4
	Extended hours	7.0	5.4	1.6
Apt. – Natural Gas	Base hours	3.1	3.0	0.1
	Extended hours	1.3	1.2	0.1
Apt. - Electric	Base hours	3.0	2.9	0.1
	Extended hours	1.2	1.1	0.1

6.2 Energy Savings and Peak Reduction

To estimate energy savings, unit savings are multiplied by the number of gross participants to get gross savings. Net savings are then equal to gross savings times the net to gross ratio to provide the estimate of net savings.

Two sources of information were used to determine the net to gross ratio. The first was data from the customer survey, the second from the trade ally survey. Exhibit 6.2.1 summarizes this data. The differences between the data are small. It was felt that the customer survey provided better information on the attribution as they were the decision makers and this estimate has been used in the report.

Exhibit 6.2.1 Net to gross ratio

	Customer Survey (1-FR)	Trade Ally Survey (1-FR)
Net to gross ratio	0.76	0.69

Exhibit 6.2.2 shows the estimated savings based on the attribution estimate from the customer survey, the HOT2000 estimates of energy savings and the number of participants in each target market. Estimated net savings are 2,333 GJ per year for the life of the fireplace inserts.

Exhibit 6.2.2. Total Energy Savings – constant hours of use

	Unit savings (GJ/yr)	Gross participants	Gross savings (GJ/yr)	Net to gross ratio	Net savings (GJ/yr)
SFD – Natural Gas primary	9.4	354	3,328	0.76	2,529
SFD – Electric primary	9.1	18	164	0.76	124
Apt. – Natural Gas primary	3.1	62	192	0.76	146
Apt. – Electric primary	3.0	8	24	0.76	18
Total Energy Savings	-	442			2,817

Exhibit 6.2.3 shows the same data as above, but for expanded hours of use. In this case, estimated net savings are 1,837 GJ per year for the life of the fireplace inserts.

Exhibit 6.2.3. Total Energy Savings – expanded hours of use

	Unit savings (GJ/yr)	Gross participants	Gross savings (GJ/yr)	Net to gross ratio	Net savings (GJ/yr)
SFD – Natural Gas primary	8.6	354	3,044	0.76	2,314
SFD – Electric primary	7.0	18	126	0.76	96
Apt. – Natural Gas primary	1.3	62	81	0.76	61
Apt. – Electric primary	1.2	8	10	0.76	7
Total Energy Savings	-	442			2,478

Exhibit 6.2.4 and 6.2.5 break the total energy savings into natural gas and electricity savings. Estimated net savings are 2,323 GJ per year of natural gas and 11 GJ of electricity per year, or about 3 MWh of electricity for constant hours of use and 1,782 GJ per year of natural gas, and 51 GJ of electricity per year, or about 14 MWh of electricity for expanded hours of use.

Exhibit 6.2.4. Total Energy Savings – constant hours of use

	Unit savings (GJ/yr)	Gross participants	Gross savings (GJ/yr)	Net to gross ratio	Net savings (GJ/yr)
SFD – Natural Gas primary	9.4	354	3,328	0.76	2,529
SFD – Electric primary - ng	7.0	18	126	0.76	96
SFD – Electric primary - elec	1.8	18	32	0.76	25
Apt. – Natural Gas primary	3.1	62	192	0.76	146
Apt. – Electric primary - ng	2.8	8	22	0.76	17
Apt. – Electric primary - Elec	0.2	8	2	0.76	1
Total Natural Gas Savings	-	442			2,788
Total Electricity Savings	-	26			26

Exhibit 6.2.5. Total Energy Savings – expanded hours of use

	Unit savings (GJ/yr)	Gross participants	Gross savings (GJ/yr)	Net to gross ratio	Net savings (GJ/yr)
SFD – Natural Gas primary	8.6	354	3,044	0.76	2,314
SFD – Electric primary - ng	2.1	18	38	0.76	29
SFD – Electric primary - elec	4.6	18	83	0.76	63
Apt. – Natural Gas primary	1.3	62	81	0.76	61
Apt. – Electric primary - ng	0.7	8	6	0.76	4
Apt. – Electric primary - Elec	0.5	8	4	0.76	3
Total Natural Gas Savings	-	442			2,408
Total Electricity Savings	-	26			66

In order to estimate peak savings, we assume that fireplace usage is constant over the coldest month (January) and is approximated by the usage estimate from the Customer Survey. This equates to 5.2 hours per week in the constant usage case and 13.2 hours per week with expanded usage. Peak daily demand is then the change in the input capacity of the fireplace insert plus the reduction in furnace consumption times the usage and the number of affected fireplaces.

Exhibit 6.2.6. Peak Day Savings

	Peak Hrs/ day	FP Input Reduction (BTU/hr)	FP Furnace Offset (BTU/hr)	Peak Day Reduction (BTU)	Total Peak Reduction (MBTU)	Total Peak Reduction (GJ)
Constant usage	0.74	31,000	5,280	26,847	11,866	12.5
Extended usage	1.89	31,000	5,280	68,569	30,307	32.0

6.3 Carbon Dioxide Reductions

Natural Resources Canada and Terasen Gas use emissions factors of 50.45 tonnes of carbon dioxide per terajoule and 50.69 tonnes of carbon dioxide per terajoule respectively. NRCan uses the emission factor of 64.23 tonnes of carbon dioxide per GWh of electricity. Exhibit 6.3.1 shows the reductions in carbon emissions under the assumption of an emissions factor of 50.69 tonnes per TJ of natural gas.

Exhibit 6.3.1. Carbon Dioxide Emissions Reductions

	Net savings (TJ)	Emissions factor	CO_2 reductions (tonnes)
Natural Gas	2.788	50.69	141
Electricity	0.010	64.23	2
Total			143

7. Conclusions

Conclusion 1: marketing effectiveness

Advertising and promotional activities are a key means of increasing program awareness and participation. For participants the main sources of awareness were the insert in the Terasen Gas bill, and the fireplace vendor. For non-participants the main source was the bill insert. Overall awareness by non-participants was relatively low at 23% which reflects the relatively modest marketing budget. A higher level of awareness would likely have resulted in a greater level of participation.

In spite of this, three quarters of the dealers surveyed reported a 50% increase in queries during the program period, and 80% of these noted that the increased level of queries continued after the program ended.

Conclusion 2: estimate of energy savings

To estimate energy savings, unit savings are multiplied by the number of gross participants to get gross savings. Net savings are then equal to gross savings times the net to gross ratio. Hours of operation of the new fireplace constitute a major uncertainty as participants reported a significant increase in usage after the new fireplace was installed. It is not known if, or how much this usage will drop off over time. Therefore low and high estimates have been provided. Estimated net savings are between 2.4 and 2.8 TJ of natural gas per year. In addition, there are between 7 and 18 MWh of electricity saved for those customers with electric main space heating. Estimated peak day savings are based on the average daily usage during January, and are estimated at between 13 and 32 GJ.

Pilot lights are a significant source of natural gas consumption. If all 442 inserts had used electronic ignition, load reduction would have increased by 2.3 TJ of natural gas per year, or almost doubled the impact of the program.

Conclusion 3: free riders

A series of questions was asked of both program participants and the trade allies to determine the importance of the program and incentive in the customer's decision to replace their log-set with a fireplace insert. Participants were asked how important the program was in their decision to install the new fireplace insert, and analysis of this response provided an attribution rate of 76%. This rate was supported by another question which indicated that 73% of customers replaced their log-set earlier than they would have done without the program.

Trade allies were asked their opinion of the effect of the program. Seventy percent of those surveyed agreed with the statement that the program resulted in people purchasing a fireplace who otherwise would have kept their existing log-set while 50% agreed with the statement that the program resulted in people choosing a more efficient fireplace than they otherwise would have. Only 5% of respondents disagreed with both statement. Allies were asked how important the rebate was in the choice of fireplace efficiency. Analysis of the response provided an attribution rate of 69%.

Conclusion 4: customer and trade ally satisfaction with program

Maintaining high levels of customer satisfaction is a key concern of program management and staff. Satisfaction with a variety of program components was rated on a five-point scale where one is not at all satisfied and five is very satisfied. Participants reported satisfaction levels averaging 4.0 or more for application procedures, information on the rebate, program timing and information about efficient fireplaces. The lowest level of satisfaction was with the range of fireplaces eligible, which was rated 3.5. Trade Allies reported satisfaction of 4.0 or higher for the amount of the rebate and application procedures. They rated information on the rebate and information on EnerGuide efficiency rating the lowest at 3.0. The program has achieved high levels of customer and trade ally satisfaction.

Conclusion 5: customer satisfaction with the new fireplace

Customers expressed a high level of satisfaction with their fireplaces. Measured on a five point scale, where one is not at all satisfied and five is very satisfied, participants rated overall comfort as 4.7 while appearance was rated 4.6. Price of the fireplace was rated lowest at 3.9, and 97% of participants were satisfied with their choice of fireplace.

Conclusion 6: demographic profile of participants vs. non-participants

A standard series of questions were asked of both participants and non-participants covering both customer characteristics and housing characteristics. While there were some differences between participants and non-participants, such as age with participants being slightly older, and have smaller household sizes (likely related to the difference in age), these differences are not significant enough to allow differential marketing activities. Similarly, differences in the housing and natural gas usage do not appear significant.

Conclusion 7: factors driving participation / non-participation

The customer survey included a number of questions on demographics and housing in order to better understand factors driving program participation. These are reviewed in conclusion 6. The most significant difference between participants and non-participants is in the use of the fireplaces, with 91% of participants using the fireplace for heating while only 64% of the non-participants use it for heating.

The primary barriers for the program appear to be a combination of the discretionary nature of the purchase (unlike a furnace which must be replaced upon failure) combined with the high cost and long payback of the more efficient heater type fireplace.

Conclusion 8: estimate of carbon dioxide reductions

Using an emissions factor of 50 tonnes of carbon dioxide per terajoule of natural gas and 64 Tonnes per GHW of electricity yields an emissions reduction or carbon dioxide savings of 143 tonnes of carbon dioxide for each year of the life of the fireplace inserts.

8. Appendix A – Billing Data Screening

For each premise, consumption information was obtained for a period of 500 days both prior to and after the installation date.

The following elimination criteria are then applied which provides the finalized list:

1. Only keep those customers that have been in the same premise for at least one year prior to and after the installation date.
    - As different customers have different consumption requirements, a bias would be introduce bias if this screen wasn't used.

2. Only keep those customers where the EDF (Error Degrees of Freedom) > 3 (which means we have at least five meter reads for that customer)
    - This filters out suspect meter reads, which are meter reads where the transaction period refers back to a date prior to the last read date output (ie. The read date less the corresponding read days is before the last read date). Meter reads are also filtered out where the consumption is zero. For at least one years' worth of consumption, there should be at least 6 meter reads – therefore this screen basically ensures we haven't skipped over more than one meter read.

The final step is to match those customers in the "pre" analysis with those in the "post" analysis

9. Appendix B – HOT2000 Thermal Model Inputs

Single Family Home Physical and Thermal Description
(Calibrated to approximately 80 GJ heating consumption)

			LM
Location			**Vancouver**
Areas	Main	m^2	120.0
	2nd	m^2	111.0
	Overhang	m^2	8.0
	C/S	m^2	24.0
	Bsmt	m^2	72.0
	Slab	m^2	24.0
	Total Floor Area	m^2	303.0

Windows - Main	N, E, S, W	M^2	3.6
- 2nd	N, E, S, W	M^2	2.4
Doors - Main		M^2	3.6

Ceiling Area	Flat	m^2	17.0
	Attic	m^2	111.0

Heights	Main	m	2.44
	2nd	m	2.44
	C/S	m	1.30
	Bsmt	m	2.74
	Headers	m	0.30
Depth	Bsmt	m	1.68

Volumes	Main	m^3	296.7
	2nd	m^3	270.8
	C/S	m^3	31.2
	Bsmt	m^3	197.3
	Total	m^3	796.0

Perimeter	Main	m	46.00
	2nd	m	43.75
	C/S	m	22.00
	Bsmt	m	34.00
	Slab	m	22.00

Exposed Per.	C/S	m	14.00
	Bsmt	m	18.00

	Slab	m	14.00
Soil conditions			moist

Insulation Thermal Resistance

2003 LCC Analysis			**LM**
			Vancouver
		Deg.Days:	3007
Walls - **NG**	Main & 2nd	RSI	2.45
Walls - **Other**	Main & 2nd	RSI	3.50
	C/S	RSI	2.45
	Bsmt	RSI	2.10
Ceiling	Attic	RSI	7.00
	Flat	RSI	4.90
Floors	overhang	RSI	4.90
	unhtd slab	RSI	1.80
	heated slab	RSI	2.10
Windows			dbl.vinyl
Doors			insulated

Air tightness	**NG**	ACH_{50Pa}	5.10
ELA		cm^2	1432
	Electric	ACH_{50Pa}	3.50
ELA		cm^2	994

Operations			
Temperature	Main & 2nd	C	20.0
	C/S	C	15.0
	Bsmt	C	18.0

Utilities	Appliances	kWh/d	11.3
	Lights	kWh/d	4.0
	Other	kWh/d	8.4
	Outside	kWh/d	2.0
	Total	kWh/d	25.7
Furnace (NG)	type		ind.draft
	capacity	kW	calculated
	operation		Auto
	power	W	calculated
	efficiency	%AFUE	70%
Ventilation	Type		exh.fan
	capacity	L/s	30

	operation	hr/d	8
	power	W	60
DHW	Type		conv.
	demand	L/d	225
	Temp.	C	55
Occupants			4

10 Unit Low-rise Apartment Building Physical and Thermal Description

B.C. New House Archetypes

			LM
			Vancouver
Areas	Main	m^2	300.0
	2^{nd}- 4^{th} floors	m^2	240.0
	Overhang	m^2	30.0
	C/S	m^2	60.0
	Bsmt	m^2	180.0
	Slab	m^2	60.0
	Total Floor Area	m^2	1,020

Windows - N, S	Per floor	m^2	18.0
- E, W	Per floor	m^2	2.4
Doors - Main		m^2	18.0

Ceiling Area	Flat	m^2	90.0
	Attic	m^2	240.0

Heights	Main	m	2.44
	2^{nd} – 4^{th} Floors	m	2.44
	C/S	m	1.30
	Bsmt	m	2.74
	Headers	m	0.30
Depth	Bsmt	m	1.68

Volumes	Main	m^3	734.1
	2^{nd} – 4^{th} Floors	m^3	585.6
	C/S	m^3	78.0
	Bsmt	m^3	493.2
	Total	m^3	1890.9

Perimeter	Main	m	80.00
	2^{nd} – 4^{th} Floors	m	76.00
	C/S	m	64.00
	Bsmt	m	72.00
	Slab	m	64.00

Exposed Per.	C/S	m	34.00
	Bsmt	m	12.00
	Slab	m	34.00
Soil conditions			moist

Insulation Thermal Resistance

2003 LCC Analysis			**LM**
			Vancouver
		Deg.Days:	3007
Walls - **NG**		RSI	2.45
Walls - **Other**		RSI	3.50
	C/S	RSI	2.10
	Bsmt	RSI	2.10
Ceiling	Attic	RSI	7.00
	Flat	RSI	4.90
Floors	overhang	RSI	4.90
	unhtd slab	RSI	1.80
	heated slab	RSI	2.10
Windows			dbl.vinyl
Doors			insulated
Air tightness	**NG**	ACH_{50Pa}	8.80
ELA		cm^2	5811
	Electric	ACH_{50Pa}	4.50
ELA		cm^2	3012
		# houses	64
Operations			
Temperature	Occupied floors	C	20.0
	C/S	C	15.0
	Bsmt	C	18.0
Utilities	Appliances	kWh/d	45.2
	Lights	kWh/d	16.0
	Other	kWh/d	33.6
	Outside	kWh/d	8.0
	Total	kWh/d	102.8
Furnace (NG)	type		ind.draft
	capacity	kW	calculated
	operation		Auto
	power	W	calculated
	efficiency	%AFUE	70%
Ventilation	Type		exh.fan
	capacity	L/s/suite	25
	operation	hr/d	8
	power	W	500
DHW	Type		conv.

	demand	L/d	1800
	Temp.	C	55
Occupants	Per suite		1.5

10. Appendix C – Customer Survey

Terasen Gas
Fireplace Upgrade Program Evaluation
Customer Survey: Final
November 17, 2004

1. Participant (P)
2. Non-participant – No new fireplace (NP)
3. Non-participant – Purchase fireplace in past year (NP-FP)

Import Account Number From Data File: (participants only)

Hello, my name is __________ from Synovate, a marketing research firm in Vancouver. Today I am calling on behalf of Terasen Gas.

The purpose of my call is to collect information that will help Terasen Gas evaluate its efforts to improve the efficiency of natural gas usage in B.C. I would like to speak to the person responsible for decisions related to your natural gas fireplace. Would that person be you? (Could use specific name for participants if in the contact file)

If R says they don't have a Natural Gas fireplace, clarify to determine if they have no fireplace at all or if they have a wood burning fireplace, then thank and terminate.

1. Have wood burning fireplace
2. Have no fireplace at all

If necessary, read; We will use this information to better understand the impact of the recent fireplace incentive program in B.C.

Yes: **CONTINUE**

No: Ask to speak to the person responsible for decisions related to the natural gas fireplace then go to top of introduction. If not available, ask when is a better time to call back. Record time.

Would you be willing to participate in a survey that should take less than ten minutes of your time?

Yes: **CONTINUE**

No: **Ask if there is a better time to call back. Record time.**
If not, thank and terminate

IF NECESSARY: If respondent would like to verify the legitimacy of this study, they can contact Terasen Gas at 604-576-7000 and advise that they would like to verify a market research study.

PARTICIPANTS:

A. Did you purchase and install a new natural gas fireplace in your home in 2004?

Yes: Go To Q1.

No: **PROBE:** Our records show that someone at your address participated in a program and installed a new fireplace. Are you sure that a new fireplace has not been installed at your location? **If they insist they have not installed a new fireplace note contact information, thank and terminate.**

NON-PARTICIPANTS:

B. Do you have either a natural gas or wood burning fireplace in your residence?

1. Yes, have natural gas: CONTINUE
2. Yes, have wood burning : THANK AND TERMINATE
3. No, have neither THANK AND TERMINATE

C. Have you purchased and installed a new natural gas fireplace in the past year?

Yes: SET "NP_FP" FLAG, Skip to Q1
No / DK: SET "NP" Flag, Continue

There are two basic types of natural gas fireplaces. The first is a "decorative log set" which has no fixed glass in front of the flames. These may also be referred to as "gas firelogs" or "sand pans". The second is a "heater-style" fireplace which has a fixed glass in front of the flames and provides heat more efficiently than the decorative log sets.

D. Is at least one fireplace in your residence a decorative log set: that is a fireplace with no fixed glass in front of the flames?

Yes: CONTINUE
No: THANK AND TERMINATE

Q1: How many fireplaces of any type do you have in your home?

Record Number ____ (Range 1+) ?. DK / Refused --Go to Q3

P Read: NP Go to Q1a

There are two basic types of natural gas fireplaces. The first is a "decorative log set" which has no fixed glass in front of the flames. These may also be referred to as "gas firelogs" or "sand pans". The second is a "heater-style" fireplace which has a fixed glass in front of the flames and provides heat more efficiently that the decorative log sets.

Q1a: How many of these fireplaces are:

Natural Gas – decorative log-sets (with no fixed glass in front of the flames) _____
Natural Gas – heater-style (with a fixed glass in front of the flames) _____
Propane _____
Wood _____
Electricity _____
Other _____
?. DK / Refused **Total must = Q1**

Q2: Of these fireplaces, how many are used less than one hour per month during the winter, on average?

Record Number ____ ?. DK / Refused

Q3: **NP-FP ONLY:**

Did the new fireplace replace an existing natural gas fireplace, or was it a new natural gas installation?

1. Yes
2. No

?. DK

Q4: For the fireplace that you replaced what was the average hours of fireplace usage each week in each season for the year prior to installing the new fireplace?
NP: For the fireplace that you use most often, what is the average hours of fireplace usage each week in each season for the past year? **Read a-d**

a. Fall 2003, that is Sept – Dec 2003 _____ hrs per week
b. Winter 2004, that is Jan – Mar 2004 _____ hrs per week
c. Spring 2004, that is Apr – Jun 2004 _____ hrs per week
d. Summer 2004, that is Jul – Aug 2004 _____ hrs per week

Q4a: Do you use this fireplace primarily for heating or ambience?

1. Heating
2. Ambience
3. Both
? DK / Refused

"NP" (Group 2), GO TO Q 22

Q5: Since the new fireplace was installed, about how many hours per week has it been used?

Record number _____ hrs per week

Q6: Just to confirm, compared with Fall 2003, your fireplace usage this fall has changed from **(insert Q4 fall #)** hours per week to **(insert Q5 #).** Does that sound about right?
(Note: If Q4fall = Q5, insert: not changed)
If either Q4 fall or Q5 = DK, go to Q7

1. Yes
2. No – probe to change either last fall's hours: ____
or current hours: ____

DP Note: Calculate % increased/Decreased

Q7: How many years old was the previous fireplace when it was replaced?

Years _____ ?. DK

Q8: Was the previous fireplace still working at the time it was replaced?

1. Yes
2. No
?. DK

Q9: Why did you replace the fireplace? (**DON'T READ. PROBE. INCLUDE ALL THAT ARE MENTIONED)**

1. Wanted more efficient fireplace
2. Wanted a fireplace that heated the room
3. Wanted more attractive fireplace
4. Fireplace had failed
5. Fireplace required too many repairs
6. Anticipated fireplace failure
7. Fireplace made other parts of the house feel cold
8. Heated floor area increased due to additions or renovations
9. Existence of the rebate

96. Other (RECORD) ________________________

P GO TO Q14

Q10: **NP-FP ONLY (Group 3)**
Was this new fireplace a decorative log-set (one with no fixed glass) or a heater-style fireplace?

1. Decorative log-set
2. Heater-style >> Go to Q13

?. DK >> Go to Q14

Q11: Why did you choose a decorative log-set rather than a heater-style fireplace **(DON'T READ. PROBE. INCLUDE ALL THAT APPLY)**

1. Liked appearance of the open flame
2. Heater-style fireplace lacked desired features
3. Heater-style fireplace was too expensive
4. Unfamiliar with heater-style fireplaces
5. Contractor / salesman recommended decorative log-set

96. Other (SPECIFY) ____________________

SKIP TO Q14

Q12: Not used

Q13: Why did you choose a heater-style fireplace? (DON'T READ. INCLUDE ALL THAT APPLY)

1. Heater-style fireplace had lower gas costs
2. Heater-style fireplace was more attractive
3. Heater-style fireplace had desired features
4. Heater-style fireplace was more reliable
5. Familiar with high efficiency fireplaces
6. Contractor recommended heater-style fireplace
7. Met Energy Star standards
8. Existence of the rebate

96. Other (SPECIFY)______________________

Q14: Does your fireplace use a pilot light? The pilot light is a small flame that is used to ignite the fireplace when it is turned on.

1. Yes
2. No Skip to Q15a
?. DK / Refused Skip to Q15a

Q14b: Do you ever turn the pilot light off?

1. Yes
2. No Skip to Q15a

Q14c: About how many months per year is the pilot light turned off?

RECORD RESPONSE ____

Q15a: Are you satisfied with your choice of new fireplace?

1. Yes Go to Q15c
2. No
?. DK Go to Q15c

Q15b: Why were you not satisfied with your choice of fireplace? **Probe**

96. Other (specify) ____________________________________
97. No reason in particular
?. Don’t know

Q15c: Are you satisfied with the fireplace dealer / contractor who installed your fireplace?

1.Yes Go To Q16
2.No
?.DK Go to Q16

Q15d: Why were you not satisfied with the fireplace dealer / contractor?

96. Other (specify) ____________________________________
97. No reason in particular
?. Don’t know

Q16: Do you believe that you had enough information to make an informed decision on your choice of new fireplace?

1.Yes Go To Q18
2.No
?.DK Go to Q18

Q17: What information were you missing when you made your decision on the choice of new fireplace?

96. Other (specify) ________________________________
97. Nothing in particular
?. Don't know

Now we would like to understand more about the efficiency of your new fireplace. There are a number of efficiency rating methods for fireplaces. We are specifically interested in the EnerGuide rating which has been defined by Natural Resources Canada, and is similar to the EnerGuide rating found on appliances.

Q18: Are you aware of the EnerGuide rating for natural gas fireplaces?

1. Yes
2. No SKIP TO Q22
?. DK: SKIP TO Q22

Q19a: Did your fireplace vendor mention the EnerGuide fireplace efficiency rating to you?

1. Yes
2. No
?. DK

Q19b: Did you find an EnerGuide fireplace efficiency rating on the materials for the natural gas fireplace you purchased?

1. Yes
2. No
?. DK

*Q20/21 Unused

Q22: **P SKIP TO Q24**
Are you aware of the Terasen Gas Fireplace Upgrade Program which offered an incentive for the purchase of an efficient heater-style fireplace?

1. Yes
2. No Go to Q29
?. DK Go to Q.29

Q23. Unused

Q24. Where did you hear about the Terasen Gas Fireplace Upgrade Program? (DON'T READ: CHOOSE FIRST RESPONSE)

1. Terasen Gas bill
2. Vancouver Sun
3. HomesWest magazine
4. Advertisement in magazine
5. Advertisement / POS in store
6. Information provided by fireplace vender
7. Terasen Gas website
8. Radio ad
9. Shell Busey
10. Letter to Strata Council
11. Word of mouth
96. Other (specify) ______________________
?. DK

Q25: On a scale of one to five, where one is not at all satisfied, and five is very satisfied, how satisfied were you with the following aspects of the rebate program? **Rotate**

Information provided about the rebate	1	2	3	4	5	DK
Number or type of fireplaces eligible for the rebate	1	2	3	4	5	DK
Duration of rebate period	1	2	3	4	5	DK
Time allowed to complete installation of the fireplace	1	2	3	4	5	DK
Program being offered during the summer months	1	2	3	4	5	DK
Application procedures to obtain the rebate	1	2	3	4	5	DK
Amount of the rebate	1	2	3	4	5	DK
Information about efficient fireplaces	1	2	3	4	5	DK

Q25a: On a scale of one to five, where one is not at all important, and five is very important, how important is it to you that Terasen Gas provides incentive programs that encourage customers to use natural gas more efficiently?

Not at all important …1 2 3 4 5… Very important ?DK

NP/NP-FP: Skip to Q29.

Q26: On a scale of one to five, where one is not at all important and five is very important, how important was the rebate in your choice of an efficient fireplace?

Not at all important …1 2 3 4 5… Very important ?DK

Q27: Did you replace the fireplace earlier than you otherwise would have because of the availability of the rebate?

1. Yes
2. No
?. DK

Q27b/28: Unused

Q29: Next we would like to understand the factors affecting your choice of a new fireplace. On a scale of one to five, where one is not at all important and five is very important, how important are the following factors in your choice of a new fireplace. (ROTATE)

Fireplace price	1 2 3 4 5 DK
Fireplace appearance	1 2 3 4 5 DK
Fireplace features	1 2 3 4 5 DK
Availability of a rebate on price	1 2 3 4 5 DK
Amount of natural gas consumed	1 2 3 4 5 DK
Brand name	1 2 3 4 5 DK
Fireplace energy efficiency	1 2 3 4 5 DK
Impact on the environment	1 2 3 4 5 DK

Q29a: **FOR "Q1a - wood fireplaces" only:**
On a scale of one to five, where one is not at all interested and five is very interested, how interested would you be in a similar incentive program, but one that is available to people with wood fireplaces?

Not at all interested …1 2 3 4 5…Very interested ?.DK

Q30/31: Not used

Q32: If an energy efficient fireplace incentive program were to be offered in the future, which are the best months in which to offer the program? (ANSWER SHOULD BE MULTIPLE MONTHS)

1.Jan 2.Feb 3.Mar 4.Apr 5.May 6.Jun 7.Jul 8.Aug 9.Sep 10.Oct
11.Nov 12.Dec ?. DK

NP: Skip to Q36

Q33: We would like to understand how satisfied you are with various aspects of your fireplace. On a scale of one to five, where one is not at all satisfied and five is very satisfied, how satisfied are you with the following?

The price of your fireplace	1 2 3 4 5 DK
Appearance of the fireplace	1 2 3 4 5 DK
Ease of installation of your fireplace	1 2 3 4 5 DK
Overall comfort from the fireplace.	1 2 3 4 5 DK

*Q34/35: Unused

Q36: Do you use natural gas for any of the following? **Read**

Main space heating	1. Yes	2. No
Water heating		
Clothes drying		
Pool heating		
Hot tub		
Cooking		
Barbeque (**If nec., not propane)**		

Patio heater

Q37a: Have you made any changes to your house in the past year that would affect your natural gas consumption, such as weatherization, making an addition to the house or adding additional natural gas appliances?

1. Yes
2. No
?. DK/Refused

Q37b: Have you installed a new natural gas furnace in the past year?

1. Yes
2. No GO TO Q39
?. DK/Refused GO TO Q39

Q38: Unused

The final questions are for classification purposes only and are completely confidential, as are all your answers.

Q39: What type of home do you live in?

1. Single detached
2. Semi-detached (Duplex)
3. Apartment/condominium
4. Row/townhouse
5. Mobile home or other
?. DK

Q40: How many years old is your home?

Years _____ ?. DK

Q41: Unused

Q42: What is the approximate heated area of your home in square feet or square meters?

Square feet _____ Or Square meters _____ ?. DK

Q43: What is the main heating fuel used for your home? (SKIP IF Q36 = MAIN SPACE HEATING)

1. Natural gas
2. Electricity
3. Propane
4. Wood
5. Oil
6. Other

Q44: Unused

Q45: Into which of the following age categories do you fit? (READ CATEGORIES 1-6)

1. Under 25 years
2. 25-34 years
3. 35-44 years
4. 45-54 years
5. 55-64 years
6. 65 years and older
!. refused

Q46: What is your marital status?

1. Single
2. Married/common law
3. Divorced/separated
4. Widowed
!. Refused

Q47: How many people, including yourself, are currently living in your household (please include any boarders or renters who do not have a separate natural gas account)?

_____ number

Q48: Please indicate the number of occupants by age categories. (READ)

0-24 years	_____
25-34 years	_____
35-44 years	_____
45-54 years	_____
55-64 years	_____
65 years and older	_____

Q49: What is the highest level of education you have completed?

1. Some high school
2. Completed high school
3. Some university/college
4. Completed university/college
5. Some trade/technical school
6. Completed trade/technical school
7. Post graduate
!. Prefer not to answer

Q50: What was your total annual household income before taxes in 2003? (READ)

1. Less than $20,000
2. $20,000 to $39,999
3. $40,000 to $59,999
4. $60,000 to $79,999
5. $80,000 to $99,999
6. $100,000 to $124,999
7. Over $125,000

!. Refused

Q51: What are the first three digits of your postal code?

Response __ __ ___
?. DK

Q52: In order to better understand how customers use natural gas, we would like to link your survey responses to your natural gas billing information. This information will be used only for statistical purposes and will not be provided to anyone at Terasen Gas. Do we have your permission to link your survey responses to your natural gas billing data?

1. Yes
2. No

?. DK

PROMPT IF NECESSARY: The objective of this project is to assist Terasen Gas in determining the actual reduction in natural gas usage associated with efficient fireplaces. This is done by comparing your natural gas consumption before and after the installation of the efficient fireplace.

Terasen Gas and Synovate would like to thank you for your help and assistance.

11. Appendix D – Trade Ally Survey

Don't know = ?
Refused = !

Terasen Gas
Fireplace Upgrade Program Evaluation
Trade Ally Survey: Final
November 15, 2004

Hello, my name is __________ from Synovate, a marketing research firm in Vancouver. Today I am calling on behalf of Terasen Gas. I would like to speak to the person responsible for residential fireplace sales and installation with your firm.

Available: **CONTINUE**
Not available: **ASK WHEN IS A BETTER TIME TO CALL BACK. RECORD TIME.**

The purpose of my call is to collect information that will help Terasen Gas improve the efficiency of natural gas usage in BC. We will use this information to better understand the impact of the recent fireplace incentive program in B.C. in which your company participated and to help justify offering these types of programs. Would you be willing to participate in a survey that will take about 10 minutes of your time?

Yes: **CONTINUE**
No: **ASK IF THERE IS A BETTER TIME TO CALL BACK. RECORD TIME.**

IF NECESSARY: If respondent would like to verify the legitimacy of this study, they can contact Terasen Gas at 604-576-7000 and advise that they would like to verify a market research study.

I understand that your firm provides sales and installation services for natural gas fireplaces in BC. Is that correct?

Yes: **CONTINUE**
No: **SEEK CLARIFICATION AND CONTINUE IF FIRM PROVIDES EITHER SALES OR INSTALLATION SERVICES FOR NATURAL GAS FIREPLACES. IF NOT, THANK AND TERMINATE**

In this survey we will be talking about two types of fireplaces:

- Decorative log sets which have no fixed glass, and which have a very low efficiency in terms of providing useful heat to the house. These are also referred to as "gas firelogs" or "sandpans".
- Heater-style fireplaces which have a fixed glass, and which have efficiency ratings between 20% and 70%. Of these, the Terasen Gas program provided incentives for heater-style fireplaces which have an efficiency of greater than 55%.

Q1a: About what percentage of your fireplace sales and installations involve new residential dwellings and what percentage involves replacement fireplaces?

New dwellings _____% ?. DK
Replacements _____%
Total = 100%

Q1b: About what percentage of your fireplace sales are:

Natural gas – decorative log sets	_____%
Natural gas – heater-style fireplaces	_____%
Propane	_____%
Electric	_____%
Wood burning inserts	_____%
Other (RECORD) ___________	_____%
	Total = 100%

IF REPLACEMENTS ONLY IN Q1a: SKIP TO Q3.

Q2: We are interested in understanding the share of efficient fireplaces in the market in BC. For the purpose of this survey efficient fireplaces are defined as those with an EnerGuide fireplace efficiency rating of 55% or better. About what percentage of your fireplace sales and installations in new dwellings were efficient in 2003? **(PROBE: IF THE RESPONDENT SAYS "DON'T KNOW" INDICATE THAT AN ESTIMATE IS ALL WE ARE LOOKING FOR).**

2003 _____% ?. DK

*Q2a: Has the share of efficient fireplaces, as a proportion of your overall sales to new dwellings, increased, decreased or stayed about the same over the past few years?
IF INCREASED OR DECREASED, PROBE: Can you estimate a percentage change? **(PROBE: IF THE RESPONDENT SAYS "DON'T KNOW" INDICATE THAT AN ESTIMATE IS ALL WE ARE LOOKING FOR).**

1. Increased, specify: _____%
2. Decreased, specify: _____%
3. Stayed about the same

?. DK/Refused

Q3: About what percentage of your fireplace sales to existing dwellings were fireplaces with an EnerGuide fireplace efficiency rating of 55% or better in 2003**? (PROBE: IF THE RESPONDENT SAYS "DON'T KNOW" INDICATE THAT AN ESTIMATE IS ALL WE ARE LOOKING FOR)**

2003 _____% ?. DK

*Q3a: Has the share of efficient fireplaces, as a proportion of your overall sales to existing dwellings, increased, decreased or stayed about the same over in the past few years? **Ask for each year.**
IF INCREASED OR DECREASED, PROBE: Can you estimate a percentage change? **(PROBE: IF THE RESPONDENT SAYS "DON'T KNOW" INDICATE THAT AN ESTIMATE IS ALL WE ARE LOOKING FOR).**

1. Increased, specify: _____%
2. Decreased, specify: _____%
3. Stayed about the same

?. DK/Refused

Q4: What percentage of your sales to existing dwellings are to replace existing decorative log sets or inserts as opposed to installing into a fireplace that did not previously use natural gas?

Replace existing natural gas fireplace	_____%	?. DK/Ref
Install new natural gas fireplace	_____%	
	Total = 100%	

Q5: Thinking about the four calendar quarters, about what percent of your replacement fireplace sales are made during each of these quarters?

Read

January – March ____%
April – June ____%
July – September ____%
October – December ____%

Now we would like to understand if the Terasen Gas incentive program encourages customers to purchase a more efficient natural gas fireplace than they would otherwise do so and / or if it encouraged more customers to replace fireplaces.

*Q6a: Which of the following statements best describe the effect of the program? **Read**

1. The program resulted in people purchasing an efficient fireplace who would otherwise have kept their decorative log set.
2. The program resulted in people who were intending to purchase a new fireplace anyway choosing a more efficient model
3. Both of these statements
4. Neither of these statements

Q6b: About what percentage of the fireplaces sold during the Terasen Gas program period had an EnerGuide efficiency rating of 55% or better?

Percentage _____% ?. DK / Refused

Q6c: Just to confirm, during the program period, the share of efficient fireplaces was (insert Q6b %) compared to (insert Q3 %) in 2003?

1. Yes
2. No - probe to change either current % ___ or
2003 % ___

DP Note: Calculate % Increased/decreased

*Q7: About what percentage of the fireplaces you replaced during the program period (mid-June to mid-September) were still operational at the time of replacement?

Percentage _____% ?. DK / Refused

Q8a: Did your firm receive more enquires (either by telephone or walk-in traffic) about natural gas fireplaces during the program period than during the same period in the previous year?

1. Yes
2. No **Go to Q8e**
?. DK / Refused **Go to Q8e**

Q8b: By about what percentage did inquiries increase over the same period last year?

RECORD _____% ?. DK / Refused

Q8c/d: Unused

Q8e: Have you noticed an increase in interest and / or sales after the end of the Terasen Gas program?

1. Yes
2. No
?. DK / Refused

Q8f: Thinking about the enquiries you received during the program period, what were the main barriers that prevented people from purchasing an efficient fireplace?
(Probe. Do not read list. NOTE ALL THAT APPLY)

1. Cost of the fireplace too high
2. Need more time to make a decision
3. Program offer period not long enough
4. Program installation period not long enough
5. Efficient fireplace would not fit existing installation
6. Condominium restrictions
7. Program should run from September to December
8. Not enough choice of fireplace / many efficient fireplaces were not included in the program / not approved yet
9. Lack of gas service in some areas
10. The work required to remove existing fireplace
11. Uncertain fuel costs
12. People thought rebate equalled the entire cost
13. Some people do not have an existing fireplace
95. Other
97. None in particular

Q9: What would be a typical <u>equipment price</u> for a natural gas decorative fireplace?

Price $______
?. DK/NR

Q10: What would be a typical <u>installed price</u> for a natural gas decorative fireplace?

Price $______ **(Check that Q10 > Q9)**
?. DK

Q11: What would be a typical equipment price for a natural gas heater-style fireplace?

Price $______
?. DK/NR

Q12: What would be a typical installed price for a natural gas heater-style fireplace?

Price $______ **(Check that Q12>Q11)**
?. DK

Now I would like to obtain your opinion on the 2004 Terasen Gas incentive program which supported the replacement of decorative log-sets with heater-style fireplaces.

Q15: On a scale of one to five, where one is not at all satisfied, and five is very satisfied, how satisfied were you with the following aspects of the rebate program? **(ROTATE)**

Information provided about the rebate	1 2 3 4 5 DK
EnerGuide information on fireplace efficiency	1 2 3 4 5 DK
Efficiency threshold for qualifying fireplaces	1 2 3 4 5 DK
Number or type of fireplaces eligible for the rebate	1 2 3 4 5 DK
Program being offered during the summer months	1 2 3 4 5 DK
Application procedures to obtain the rebate	1 2 3 4 5 DK
Amount of the rebate	1 2 3 4 5 DK

Q16: **If "EnerGuide information on fireplace efficiency" is 3 or lower:**
What additional information do you require regarding EnerGuide information on fireplace efficiency? **Probe**

1. The real rating / there is a discrepancy between Energuide and existing ratings
2. All manufacturers should use it / all fireplaces should be rated
95. Other
97. Nothing in particular
?. Don't know

Q17: The current program was offered during the summer months. If a program was to be offered again, what month should it start, and for how many months should it run?

Start Month ______
Duration ______
?. DK / Refused

Q18: The current program required the fireplace to be installed by Sept 15. If this was changed in future years, how much time after the end of the program would you like to have to complete the installation?

1. 1 – 2 weeks
2. 3 – 4 weeks
3. 5 – 6 weeks
4. 7 – 8 weeks
5. More than 8 weeks
?. DK / Refused

Q19: On a scale of one to five, where one is not at all important and five is very important, how important was the rebate in your customers' choice of fireplace efficiency?

Not at all important…1 2 3 4 5…Very important ?. DK

Q24a: Of the fireplaces that you sold during the program period, what features were customers most interested in? **(Do not read. Probe. SPECIFY ALL THAT APPLY)**

1. Appearance
2. Thermostat
3. Timer
4. Electronic ignition
5. It is more efficient
6. It is more comfortable
7. Price of the fireplace
8. The rebate
9. The heat output / BTUs
10. Warranty
11. Remote control
12. Quality / reputable manufacturer
13. The fan
14. Non standing pilot light
15. Direct vent style insert
95. Other

*Q25: Does your sales staff typically discuss fireplace efficiency with your customers:

1. Yes
2. No **Go to Q.29**
?. DK **Go to Q.29**

Q26: How frequently do the sales staff discuss the EnerGuide fireplace efficiency ratings with your customers? **Read**

1. Always
2. Mostly
3. Sometimes
4. Rarely
5. Never
?. DK / Refused

Q27/8: Unused

Q29: Do you believe that higher efficiency fireplaces are the best choice for your customers?

1. Yes
2. No
3. Sometimes/depends on the customer
?. DK **Go To Q31**

Q30: Why do you say this? **Probe**

1. Energy / cost savings / greater efficiency
2. They are more attractive
3. Saves a non-renewable resource
4. It is a part of my company's / my philosophy
5. They are expensive / we have better ones that do not meet the standard
6. They don't always fit existing installations
95. Other
97. No reason in particular

Q31: Do you believe that your customers have enough information to make an informed decision on their choice of fireplace efficiency?

1. Yes **Go to Q33**
2. No
3. Sometimes/depends on customer
?. DK **Go to Q33**

Q32: What information are they missing when making a decision on fireplace efficiency? **Probe**

1. More information about efficiency / how to compare fireplaces
2. Not all manufacturers use it / there is more than one standard
3. They don't know about the Energuide
95. Other
97. None in particular

Q33: Do you feel you have sufficient information to enable you to promote efficient fireplaces to your customers?

1. Yes **Go to Q35**
2. No
3. Sometimes/depends on customer
?. DK **Go to Q35**

Q34: What additional information do you need? **Probe**

1. How the tests are done by the manufacturers and Terasen
95. Other
97. None in particular

Finally we have a few questions to help us classify the data.

Q35: How many employees are there in your firm?

Number ______ ?. DK/NR

Q36: About how many fireplaces do you install in a typical year?

Number ______ ?. DK/NR

Q37: Which of the following categorization best describes your business?

1. Fireplace dealer
2. Furnace and Fireplace Dealer
3. Independent Heating Contractor
4. Gas fitter
95. Other

Q38. Do you have any suggestions on how consumers could be encouraged to install efficient heater style fireplaces rather than low efficiency fireplaces and decorative logsets? **Probe**

1. More information about the benefits / comparisons
2. Include information with the gas bill
3. Have information on the TG Website
4. Target builders
5. A surcharge on inefficient products
6. Rebates / Low interest financing
7. Include gas inserts for wood burning fireplaces in the program
95. Other
97. No

Terasen Gas and Synovate Research would like to thank you for your help and for your assistance.

TERASEN GAS INC.

REPORT ON THE ESTABLISHMENT OF INCENTIVE MECHANISM FOR REDUCING UNCONTROLLABLE / PARTIALLY CONTROLLABLE EXPENSES FOR THE YEAR ENDING DECEMBER 31, 2005

1. PROPERY TAX

The 2004 – 2007 Multi-Year PBR Settlement addresses the issue of establishing incentive mechanisms for Terasen Gas for reducing uncontrollable or partially controllable costs.

The Negotiated Settlement, Appendix A to BCUC Order No. G-51-03, indicates that the Company is to have a positive incentive around provincial and municipal government taxes, fees and expenses and that a specific mechanism was agreed to regarding property taxes.

For purposes of determining the incentive, property taxes are divided between the 1% In-Lieu taxes and all other categories of property taxes. The other property taxes include General, School, First Nations, and other taxes, and will herein be referred to as Other Property Taxes.

With respect to the 1% In-Lieu taxes, the Company is entitled to keep 10% of the savings related to achieving a reduced rate for the tax or a changed structure to the tax which lowers the amount payable.

For the Other Property Taxes, a modified version of the formula-based approach applicable to O&M expenses and net gas plant in service will be applied. The 2004 actual amount forms the base to which 2005 customer growth, inflation, and inflation offset factors will be applied to determine the target for 2005. The Company will be entitled to 10% of the amount by which its actual taxes are lower than the target.

The 2005 threshold has been calculated as:

$25,662,000 x (1+ 1.56%) x (1 + 2.0% - 1.0%) = $26,320,000

The 2005 Other Property Taxes total is projected to be $27,161,000, which is higher than the 2005 threshold of $26,320,000 (Table A). Since the projected 2005 property taxes are higher than the target, the Company will not be entitled to any incentive based upon the 2005 results. However, it is important to note that had Terasen Gas not realized the property tax savings due to our mitigation efforts, the 2005 actual property taxes would have been higher by $139,600.

Table A

	2003 Actual	Change	2004	Change	2005
Average Number of Customers	770,624	8,837	779,461	12,186	791,647
Percentage Growth in Average Customers		1.15%		1.56%	
Annual Inflation Rate - CPI		1.70%		2.00%	
Adjustment Factor		0.85%		1.00%	
Other Property Tax ($000)					
Formula based	$ 25,160		$ 25,662		$ 26,320
Actual / Projected			25,743		27,161
Difference			($81)		($841)

The table below summarizes the total property tax savings realized to-date following the Terasen Gas property tax mitigation plan:

Item No.	Particulars	Actual 2004	Expected in 2005	Total
1	Transportation Pipeline	$ 67,900	$ -	$ 67,900
2	Tower Appeal	2,200	59,600	61,800
3	Office Appeal	-	80,000	80,000
4	City of Vernon Tax Rate Error	84,200	-	84,200
5	Other Appeals	6,600	-	6,600
		$ 160,900	$ 139,600	$ 300,500

If Terasen Gas is successful with current mitigation efforts, future property tax savings could reach $897,000 (see discussion on Mitigation Activities in Progress on Page 4 of this Tab).

Background Details behind Property Tax Cost Mitigation Plans

The 2005 property tax mitigation plans were based on preemptive strategies by Terasen Gas; with the goal of minimizing property tax increases and cost pressures to customers. The savings summarized below are based on actual performance or are based on current ongoing mitigation activities. Unrealized future savings relate to issues that are either before the Property Assessment Appeal.

Mitigation Activities during 2004/2005:

1. **Transportation Pipeline Rate Correction** – Terasen Gas discovered an error in the 2004 legislated pipeline rates. An agreement was reached with BC Assessment to correct only the largest error in 2004 (6" pipe), and to adjust the 2005 rates to ensure that the overall assessment over the two years would be as originally agreed upon. The tax savings based on the actual tax notices amounted to $67,900.

2. **Tower Appeal** – An appeal was launched in 2004 with respect to the valuation of communication towers owned by Terasen Gas. BC Assessment agreed to review their valuation methodology on towers, and the appeal was subsequently withdrawn based on an understanding with BC Assessment that corrections would be processed once their review was complete. A methodology for valuing communication towers was reached in late 2004 and corrections by way of supplementary notices were issued for the 2004 tax year, resulting in tax savings of $59,600 in 2005. The annual savings are expected to carry forward into the foreseeable future based on the agreed upon valuation methodology with BC Assessment.

3. **Office Appeal** – An appeal was undertaken in 2004 and 2005 on all Terasen Gas offices. An Appeal Management Conference was held in August 2005 to determine the validity of the appeal. The Property Assessment Appeal Board ruled that while certain portions of our offices were incorrectly classified, the current wording of the regulations, along with recent court cases would not allow all areas we sought to be excluded from the higher taxed utility class. The Company has filed for changes to the Assessment roll and have been advised that approximately $80,000 refund is forthcoming related to 2004 and 2005.

4. **Tax Rate Error** – A refund of $84,200 was received from the City of Vernon. The refund was issued after Terasen Gas identified a tax calculation error based on the City of Vernon 2004 Tax Bylaw.

5. **Miscellaneous Appeals** – The Company achieved a further reduction of $6,600 through various other appeals on valuation and classification.

6. **Other Activities** – Terasen Gas continues to be involved with a variety of groups specializing in Local Government taxation, these include the Canadian Property Tax Association, the Vancouver Board of Trade, and the Canadian Energy Pipeline Association. In addition, Terasen Gas has been invited to sit on at least two committees within the Provincial Government that are currently reviewing various Local Government Taxation tools.

Mitigation Activities in progress:

7. **Distribution Pipeline Update Factor correction** – Terasen Gas discovered an error in the 2005 Update Factors applied by several Assessment Areas. An agreement was reached with BC Assessment to correct the error in 2006. The company estimates tax savings based on the tax notices to amount to approximately $397,000 starting in 2006.

8. **Office Appeal** – In addition to the activities described under point #3, the Company is attempting to seek changes in the wording of the regulations. If successful, Terasen Gas expects to achieve additional savings of $500,000 annually on an ongoing basis.

The Commission stated, at page 21 of Appendix A to Commission Order G-51-03, the following relating to compliance with the 2004-2007 Negotiated Settlement:

> *"At each Annual Review, Terasen Gas will provide the report required by and filed with the Commission summarizing the results of the annual compliance review of the Code of Conduct and Transfer Pricing Policy of the Commission conducted by Terasen Gas' Internal Audit Services. For each year during the Term of the Settlement, the Commission will provide Stakeholders with the proposed Commission directions to Terasen Gas' Internal Audit Services. Any Stakeholder may request the Commission to add directions to review and report on other areas of concern."*

In its correspondence of June 10, 2005 to the Stakeholders involved in the 2004-2007 Negotiated Settlement Process and the 2004 Annual Review, Terasen Gas requested that any suggestions relating to the improvement of the internal audit review process be submitted to the Commission by June 30, 2005 in order to afford Terasen Gas with sufficient preparation time in advance of the 2005 Annual Review.

As Terasen Gas did not receive any responses to its request, the Internal Audit Services has prepared a report entitled "Annual Review of Compliance with the Terasen Gas Inc. Code of Conduct and Transfer Pricing Policy" based on the same guidelines and framework as in 2004 and is attached as Appendix A to this Section B-6.

Furthermore, the Commission continued to state at page 22 of Appendix A:

> *"In addition, before the first Annual Review, Terasen Gas' independent external auditor will review the work performed by Terasen Gas' Internal Audit Services……Subsequent to the first Annual Review, Stakeholders and Terasen Gas may make submissions to the Commission regarding whether or not such a review and report by the independent external auditor of Terasen Gas should be continued for other Annual Reviews."*

On June 22, 2004, Terasen Gas submitted to the Commission a request to discontinue the services of the independent auditor as they relate to the Code of Conduct (CoC) and Transfer Pricing Policy (TPP) compliance. In Commission Order L-33-04, dated July 5, 2004, the Commission concluded that "…the external auditor should carry out another review of TGI's compliance with the CoC and the TPP prior to TGI's next Annual Review."

For the 2005 Annual Review, Terasen Gas did not submit a request to forego the review by an independent auditor and contracted the services of the firm KPMG to provide a review of and report on Terasen Gas' compliance with the CoC and the TPP. KPMG's report is attached as Appendix B.

Based on their respective review procedures, both internal and external auditors concluded that nothing came to their attention that would cause them to conclude that Terasen Gas is not in compliance with either of the CoC or TPP.

TAB B-5 CODE OF CONDUCT AND TRANSFER PRICING POLICY COMPLIANCE

ATTACHMENT A – INTERNAL AUDIT REPORT

Doug Cruickshank
Director, Internal Audit Services

16705 Fraser Highway
Surrey, BC V3S 2X7
Tel: 604-592-7927
Fax: 604-592-7620

September 30, 2005

Mr. Randy Jespersen
President, Terasen Gas Inc.
16705 Fraser Highway
Surrey, B.C. V3S 2X7

Dear Sir:

Subject: Annual Review of Compliance with the Terasen Gas Inc. Code of Conduct and Transfer Pricing Policy.

Internal Audit Services (IAS) has completed a review of compliance with the Terasen Gas Inc. (Terasen Gas) Code of Conduct and Transfer Pricing Policy for the Provision of Utility Resources and Services (the Policies). This review is conducted to satisfy Terasen Gas requirements as documented in the Policies.

> "Terasen Gas will monitor employee compliance with the Code of Conduct by conducting an annual compliance review, the results of which will be summarized in a report to be filed with the Commission (B.C. Utilities Commission) within 60 days of the completion of this review." [1]

> "The Transfer Pricing Policy will be reviewed on an annual basis as part of the Code of Conduct compliance review." [2]

Background

The Policies were issued in August 1997 to govern the relationships between Terasen Gas and Non-Regulated Business (NRB) for the provision of Utility resources. NRBs are defined as: "an affiliate of the Utility not regulated by the Commission or a division of the Utility offering unregulated products and/or services[3]". Terasen Gas has processes and practices that are designed to ensure compliance with these Policies.

Commission approval was obtained in July 2003 for the Terasen Gas Settlement Agreement for a 2004 - 2007 Performance-Based Rate Plan. One of the conditions for compliance with this negotiated settlement is that:

> "At each Annual Review, Terasen Gas will provide the report required by and filed with the Commission summarizing the results of the annual compliance review of the Code of Conduct and Transfer Pricing Policy of the Commission conducted by Terasen Gas' Internal Audit Services.
>
> In addition … Terasen Gas' independent external auditor will review the work performed by Terasen Gas' Internal Audit Services and …, consistent with Section 8600 of the CICA Handbook 'Review of Compliance with Agreements and

[1] Item 7 Compliance and Complaints, Code of Conduct
[2] Item 7 Review of Transfer Pricing Policy, Transfer Pricing Policy
[3] page 2 Definitions, both Code of Conduct and Transfer Pricing Policy

Regulations’, will provide a report of Terasen Gas’ compliance with the Code of Conduct and Transfer Pricing Policy.[4]”

Review Objective and Approach

Objective:
Consistent with prior years, the objective of this review is to determine whether the existing processes and controls that support compliance with the Policies are adequately designed and operating effectively during the period under review.

Approach:
Our review of business processes and controls that support compliance with the Policies is made in accordance with Canadian generally accepted standards for review engagements as set out in the Canadian Institute of Chartered Accountants Handbook. Our enquiry, analytical procedures and discussion that we deemed necessary included the following:

- Read the Code of Conduct and Transfer Pricing Policy.
- Make enquires to understand the provision of Utility resources to NRBs.
- Make enquiries to understand the processes and controls maintained by Terasen Gas to comply with the Policies.
- Review evidence of such processes and controls and compliance with the Policies.

Conclusion

Based on my review, nothing has come to my attention that causes me to believe that Terasen Gas Inc. is not in compliance with the Code of Conduct and Transfer Pricing Policy for the period January 1, 2005 to August 31, 2005.

We thank management and staff for their assistance and co-operation during our review.

Doug Cruickshank, CA*CISA
Director, Internal Audit Services

cc: John Reid, CEO
Steve Richards, General Counsel, Chief Risk Officer and Corporate Secretary
Scott Thomson, Vice President, Finance & Regulatory Affairs, Terasen Gas Inc.
Guy Elliott, Partner, KPMG LLP

[4] Page 21 & 22, Appendix A, BCUC Order G-51-03

TAB B-5 CODE OF CONDUCT AND TRANSFER PRICING POLICY COMPLIANCE

ATTACHMENT B – EXTERNAL AUDIT REPORT

KPMG LLP
Chartered Accountants
PO Box 10426 777 Dunsmuir Street
Vancouver BC V7Y 1K3
Canada

Telephone (604) 691-3000
Fax (604) 691-3031
Internet www.kpmg.ca

REVIEW ENGAGEMENT REPORT

Mr. Scott Thomson
Vice President of Finance and Regulatory Affairs
Terasen Gas Inc.

We have reviewed Terasen Gas Inc.'s compliance for the eight month period from January 1, 2005 to August 31, 2005 with its Transfer Pricing Policy For Provision of Utility Resources and Services (the "Transfer Pricing Policy") and the Code of Conduct For Provision of Utility Resources and Services (the "Code of Conduct"), both dated August 1997. Our review was made in accordance with Canadian generally accepted standards for review engagements and accordingly consisted primarily of enquiry, analytical procedures and discussion related to information supplied to us by the Company, including a review of Terasen Gas' Internal Audit Services report on compliance with the Transfer Pricing Policy and Code of Conduct dated September 30, 2005 and their work performed in connection with their report.

A review does not constitute an audit and consequently we do not express an audit opinion on this matter.

Based on our review, nothing has come to our attention that causes us to believe that the Company is not in compliance with the Transfer Pricing Policy and Code of Conduct referred to above.

KPMG LLP

Chartered Accountants

Vancouver, Canada
October 7, 2005

1. ACCOUNTING FOR RATE REGULATED ENTERPRISES UPDATE

The Canadian Institute of Chartered Accountants have undertaken a project to review and change how rate regulated enterprises recognize and measure regulated assets and liabilities. The results of this project could introduce significant volatility into the earnings of such businesses, which may include the elimination of regulatory deferral accounts. The project could also require rate regulated enterprises to include future income taxes payable on their balance sheets. There is very real risk that this could negatively affect debt covenant compliance and impact utilities' ability to attract financing and equity capital. The industry has actively intervened in this process over the past two years, and an exposure draft on this matter is anticipated in the spring of 2006.

2. VEHICLE LEASING

Background

As a result of the purchase of the Lower Mainland Gas Division ("Gas Division") assets from BC Hydro Power Authority ("BC Hydro") by Inland Natural Gas Co. Ltd. (Predecessor Company to Terasen Gas Inc.) in 1988, Terasen Gas inherited a number of administrative and customer services contracts that existed between the Gas Division and BC Hydro. Because the Gas Division was an operating department of BC Hydro, it relied on BC Hydro to provide it with a wide range of corporate support services, including vehicle lease and maintenance services. Since then, Terasen Gas has repatriated or cancelled almost all of the administrative and customer services contracts it had with BC Hydro, except the contract that covers vehicle lease and maintenance services, which continued to be preformed by BC Hydro as a more cost effective alternative had not been identified. The vehicle lease covered some 450 vehicles with a net book value of some $8.6 million.

The accounting for the vehicle lease was the subject of discussion at the 1992 BCUC Regulatory Hearing. The Commission, via its Decision dated August 5, 1992 directed the company to account for the vehicle lease as an operating lease for regulatory reporting purposes.

Current Developments

Earlier this year, BC Hydro advised Terasen Gas that it no longer wishes to remain in the vehicle lease and maintenance services business and intended to terminate the current vehicle lease arrangement with Terasen Gas. The vehicle lease contract between Terasen Gas and BC Hydro expires December 31, 2005, with a preferred transition date of October 31, 2005. Given the termination, Terasen Gas has only two options available, find another lessor or buy and manage the vehicles.

Terasen Gas conducted a lease v. buy economic analysis and concluded that the lease option was the most preferential for Terasen Gas customers as it yielded a lower revenue requirement impact. After much discussion and evaluation with potential fleet service providers, Terasen Gas decided to partner with PHH Arval ("PHH") to assume the vehicle services that BC Hydro had previously provided. Effective November 1, 2005, PHH will be replacing BC Hydro as the fleet services provider for the Terasen Gas vehicle fleet. The arrangement yields the following benefits:

- PHH is the second largest commercial fleet management company in North America and currently manages about 600,000 vehicles in Canada and US. PHH established operations in Canada in 1955 and has close to 80,000 vehicles under management. The expertise that PHH has to offer is significant.
- Terasen Gas (Vancouver Island) Inc. is currently using PHH as a fleet services provider and the experience gained to date has been positive. PHH has over 200 clients in Western Canada, some of which include the BC Government and Duke Energy. These companies have a similar service territory as Terasen Gas Inc. and to service these clients, PHH has built up an extensive supplier network throughout British Columbia.
- The expected operating lease costs for 2006 under PHH is $111,000 lower than that charged by BC Hydro in 2005.

The projected net book value of the vehicles as carried on the books of BC Hydro at October 31, 2005 is estimated to be $8.619 million. PHH conducted a fair market value evaluation of these vehicles considered for the buyback and based on market values, established the fair market value to be $7.186 million, or $1.433 million lower than BC Hydro's stated net book value. The reason for the difference between the BC Hydro net book value and the fair market value is that the depreciation rates employed by BC Hydro are based on depreciation period that is longer than the useful life of the assets. As PHH can only finance actual fair market value, the differential needs to be recovered from Terasen Gas customers, as Terasen Gas customers benefited until now by paying lower lease costs.

Terasen Gas therefore proposes to defer the net book value difference of $1.433 million and recover it through amortization expense over a 3 year period commencing January 1, 2006. This is based upon a PHH estimate that the remaining useful life of the vehicles is 3.5 years. The increase in amortization expense is mitigated by the effects of a lower depreciation base that PHH is calculating future depreciation on ($7.186 million v. $8.619 million). As well, the proposed arrangement preserves the PBR settlement terms whereby vehicle lease costs are to be treated as a flow-through item. This recovery approach is fair as the continuation of the arrangement with BC Hydro would have required Terasen Gas customers to pay for this $1.433 million. Accordingly, the effects of this proposal have been embedded in the financial schedules as filed under Section A, Tab 3 of this Annual Review Filing.

TERASEN GAS INC.

2004 – 2007 MULTI-YEAR PERFORMANCE BASED RATE PLAN
MISCELLANEOUS INFORMATION PERTAINING TO THE SETTLEMENT

The following material deals with two matters:

- Responses to issues and questions raised at the April 27, 2005 Customer Advisory Council meeting.
- Responses to issues and questions raised at the October 13, 2005 Customer Advisory Council Meeting.

A. CUSTOMER ADVISORY COUNCIL MEETING FOLLOW-UP

Established by the 2004 - 2007 Settlement Agreement, the Customer Advisory Council is a forum for customer groups and Terasen Gas to meet twice yearly for the purpose of communicating and resolving customers' concerns that may have arisen during the year. The April meeting was held at the Terasen Centre, 1111 West Georgia, Vancouver, BC.

The issues discussed at the April 27, 2005 meeting were as follows:

1. Natural Gas Market Overview presented by Ed Small, CanAm Energy

2. Mid-Stream Activities
    - Duke Energy
    - LNG

3. Operating Activities
    - SQI Report Card
    - Rate Offerings
    - Customer Care
    - Growth Strategy

4. Regulatory Calendar

5. Other Items

Questions Arose from Ed Small's Presentation

1. Question: Do the Customer Satisfaction indicators include Terasen Gas (Vancouver Island)?

   Response: Yes. The studies include Vancouver Island customers and results are weighted by customer numbers for each region.

2. Question: Is there any understanding of the metrics for unbundling for residential customers?

   Response: Yes

3. Question: Will unbundling be an option for residential customers?

   Response: Yes; if approved by the BC Utilities Commission.

4. Question: Are there any projections for an increase in gas cost submissions for the fall?

   Response: The prices are expected to remain relatively flat for the next six months and no increase is expected

B. CUSTOMER ADVISORY COUNCIL OCTOBER 13, 2005

The October meeting was held at the Hyatt Regency Vancouver, 655 Burrard Street, Vancouver. The issues at the meeting centered around:

1. SQI Report Card & Customer Care Activities

2. Natural Gas Market Overview
    - Commodity & Transportation Rates
    - Price Risk Management
    - Supply Security

3. Customer Focused Energy Cost Management Programs
    - Energy Efficiency
    - Stable Rate
    - Sustainability

4. Unbundling:
    - Commercial Update
    - Residential Update

5. 2006 Forecast:
    - Economy Fundamentals
    - Customer Additions
    - Use Rates
    - Industrial Volumes & Margin
    - Forecast Risks

6. Regulatory Calendar

Minutes of the meeting were recorded and questions that arose during the meeting were responded to in full at that time. One action that came out of the meeting was:

1. Suggestion: Post a copy of the Customer Advisory Council presentation on the website so that customers can view what issues were discussed.

   Action: Terasen Gas will post the Power Point presentation on the Terasen Gas website.

Discussion centered around:

- Potential Vancouver Island rate increases for 2006.
- Potential rate increases for mid-stream and transportation costs. The mid-stream rates are adjusted annually in January of each year and remain in place for the calendar year.
- Commercial customer volume not being fully utilized and is the extra capacity available for Interruptible customers?
- The commodity for Stable Rate customers is hedged to lock in price. If full volumes are not utilized then the excess goes back to core customers. The rate for 2006 was fixed at the end of September 2005.
- The impact of Geo-thermal on Sustainability was discussed. When gas is not used as base load every effort is made to supply gas for fireplaces, barbeques, hot water tanks etc.

In keeping with the intent of the 2004 – 2007 PBR Settlement to keep customers informed and meeting twice yearly for the purposes of communicating and resolving customers’ concerns that may have arisen during the year, Terasen Gas will continue to schedule such meetings for Spring and Fall of 2006.