

A photograph of a worker in an orange safety suit and yellow hard hat working on industrial machinery in a facility. The worker is looking at a piece of equipment with a 'SIGNAL' label. The machinery is blue and silver, with various pipes and valves. The background shows a large industrial building with a corrugated metal roof.

2012 NATURAL GAS VOLUME FORECAST

MARKET FORECAST
JUNE 2012
APPROVED AUGUST 2012

 Manitoba
Hydro

IMPORTANT:

THIS MATERIAL IS THE EXCLUSIVE PROPERTY OF MANITOBA HYDRO AND ALL RIGHTS ARE RESERVED. ANY RELEASE, REPRODUCTION OR OTHER USE THEREOF WITHOUT THE EXPRESS WRITTEN CONSENT OF MANITOBA HYDRO IS STRICTLY PROHIBITED.

EXECUTIVE SUMMARY

Overview

In 2011/12 Manitoba Hydro had 266,699 natural gas customers who used 1,866,039 10^3m^3 . After a heating value adjustment of $-12,865 10^3\text{m}^3$ and a weather adjustment of 199,539 10^3m^3 , the Heating Value Weather (HVW) Adjusted volume was 2,052,713 10^3m^3 .

During 2011/12 there were an average of 244,546 System Supply customers who used 1,053,659 10^3m^3 . Of those, 453 customers were on the Fixed Rate service and used 4,205 10^3m^3 . The remaining customers were on the Quarterly Rate Service.

During 2011/12 there were an average of 22,137 WTS customers who used 183,107 10^3m^3 and there were 17 Transportation Service customers who used 629,273 10^3m^3 .

2012/13 - First Year of the Forecast

The 2012/13 forecast is for an average of 268,880 customers with a total volume of 2,028,289 10^3m^3 . This is a customer increase of 2,181 customers (0.8%) from 2011/12 and a volume decrease of 24,424 10^3m^3 (1.2%) from the Heating Value and Weather Adjusted actual from 2011/12.

For the 2012/13 fiscal year, Quarterly Rate customers are forecast to increase 8,135 customers to 252,228, Fixed Rate customers to increase 35 customers to 488, WTS customers to decrease 5,990 customers to 16,147, and T-Service to stay the same with 17.

Also for 2012/13, Quarterly Rate volume is forecast to increase 12,864 10^3m^3 (1.1%) to 1,225,880 10^3m^3 . Fixed Rate volume is forecast to increase 693 10^3m^3 (+15.3%) to 5,226 10^3m^3 . WTS volume is forecast to decrease 22,695 10^3m^3 (-11.0%) to 183,919 10^3m^3 . T-Service is forecast to decrease 15,286 10^3m^3 (-2.4%) to 613,265 10^3m^3 . These are all compared to the 2011/12 Heating Value and Weather Adjusted actuals.

Comparison of the 2011 Forecast to the 2012 Forecast

The 2012 forecast of 268,880 customers for 2012/13 represents a decrease of 143 customers from the 2011 forecast of 269,023 customers. This reflects a lower residential customer forecast in the first year. However this residential customer forecast increases in the years

following 2012/13. By 2021/22, the forecast is for 294,867 customers, an increase of 2,674 customers compared to the 2011 forecast of 292,193.

The forecast for SGS Residential Quarterly customers is up 3,230 and the forecast for SGS Residential WTS customers is down 2,704.

Fixed Rate Primary Gas Service (FRPGS)

During 2011/12 the number of customers enrolled averaged 398 for SGS Residential, 12 for SGS Commercial, and 43 for Large General Service customers. The total actual volume consumed by these FRPGS Customers for 2011/12 was 851 10^3m^3 for SGS Residential, 64 10^3m^3 for SGS Commercial and 3,291 10^3m^3 for LGS.

The number of FRPGS SGS Residential customers is forecast to be 413 in 2012/13, 486 in 2013/14 growing to 1,364 in 2021/22. The number of FRPGS SGS Commercial customers is forecast to be 15 in 2012/13, 35 in 2013/14 growing to 153 in 2021/22. The number of FRPGS LGS customers forecast is forecast to be 60 in 2012/13, 96 in 2013/14 growing to 297 in 2021/22.

Volume Variability

Variability due to economic/year-to-year variation is estimated to be 1.9% in the first year of the forecast 4 times out of 5, and 2.7% in the second year of the forecast 4 times out of 5. This represents the best level of accuracy possible within the gas volume forecast.

A record cold winter will increase load 11% and a record warm winter will decrease it 10%.

The weather in 2011/12 was a record warm year. There were only 3,678 Degree Days Heating (DDH – base 14 Celsius) compared to the 25 year normal of 4,518 DDH. This resulted in a drop of 199,539 10^3m^3 or 9.7% from what would have been used in a normal year.

Table 1 - Volume Forecast by Supply Source

MANITOBA HYDRO GAS CUSTOMERS AND VOLUME (10³m³) BY SUPPLY SOURCE										
2001/02 - 2021/22										
Fiscal Year	System Supply				WTS		T-Service		Total	
	Quarterly Rate		Fixed Rate		Ave Custs	10³m³	Ave Custs	10³m³	Ave Custs	10³m³
	Ave Custs	10³m³	Ave Custs	10³m³						
2002/03	216,569	1,444,159	0	0	32,817	249,881	12	639,569	249,399	2,333,609
2003/04	215,496	1,317,239	0	0	35,363	228,301	13	577,318	250,872	2,122,858
2004/05	212,014	1,319,807	0	0	41,450	278,034	14	559,000	253,478	2,156,841
2005/06	205,604	1,113,975	0	0	49,797	268,470	15	598,296	255,416	1,980,740
2006/07	207,370	1,197,384	0	0	50,510	266,978	15	592,141	257,895	2,056,503
2007/08	214,615	1,258,651	0	0	44,973	279,627	15	618,170	259,602	2,156,447
2008/09	218,132	1,286,854	0	0	43,788	274,976	15	602,727	261,935	2,164,558
2009/10	224,106	1,159,394	154	1,571	39,115	223,530	16	618,624	263,391	2,003,119
2010/11	233,246	1,200,431	327	2,917	31,390	208,960	16	584,058	264,978	1,996,366
2011/12	244,093	1,049,454	453	4,205	22,137	183,107	17	629,273	266,699	1,866,039
HeatVal Adj.		(7,198)		(29)		(1,262)		(4,375)		(12,865)
Weather Adj.		170,760		357		24,769		3,653		199,539
11/12 HVWAdj		1,213,016		4,533		206,614		628,550		2,052,713
2012/13	252,228	1,225,880	488	5,226	16,147	183,919	17	613,265	268,880	2,028,289
2013/14	258,281	1,227,061	616	7,720	12,664	174,997	17	617,507	271,578	2,027,285
2014/15	262,505	1,216,158	842	11,328	11,092	171,286	17	625,777	274,456	2,024,549
2015/16	265,038	1,203,128	1,129	14,758	11,148	169,845	17	625,777	277,332	2,013,508
2016/17	267,623	1,191,424	1,351	17,096	11,229	168,669	17	625,777	280,220	2,002,966
2017/18	270,287	1,184,434	1,488	18,506	11,330	167,761	17	625,777	283,121	1,996,478
2018/19	272,982	1,179,627	1,608	20,120	11,432	167,037	17	625,777	286,039	1,992,561
2019/20	275,714	1,176,769	1,704	21,359	11,536	166,547	17	625,777	288,972	1,990,453
2020/21	278,485	1,175,109	1,772	22,005	11,642	166,126	17	625,777	291,915	1,989,017
2021/22	281,288	1,174,168	1,814	22,339	11,749	165,806	17	625,777	294,867	1,988,090

TABLE OF CONTENTS

EXECUTIVE SUMMARY	I
TABLE OF CONTENTS	V
LIST OF TABLES AND FIGURES	VI
INTRODUCTION	1
FORECAST OVERVIEW	6
2012/13 - FIRST YEAR OF THE FORECAST	6
2013/14 - SECOND YEAR OF THE FORECAST	8
CHANGE BETWEEN THE 2011 AND 2012 FORECASTS	10
FORECAST DETAILS	12
SGS RESIDENTIAL	12
SGS RESIDENTIAL CUSTOMERS	13
SGS RESIDENTIAL AVERAGE USE.....	13
SGS RESIDENTIAL VOLUME.....	14
SGS COMMERCIAL AND LGS	15
SGS COMMERCIAL AND LGS CUSTOMERS	15
SGS COMMERCIAL AND LGS AVERAGE USE.....	16
SGS COMMERCIAL AND LGS VOLUME.....	17
TOP CONSUMERS.....	18
TOP CONSUMERS CUSTOMERS	18
TOP CONSUMERS VOLUME	18
SPECIAL RATES	19
POWER STATIONS	19
SPECIAL CONTRACT	19
TOTAL SALES.....	20
TOTAL SALES CUSTOMERS	20
TOTAL SALES VOLUME	20
FIXED RATE PRIMARY GAS SERVICE	21
WESTERN TRANSPORTATION SERVICE	22
FORECAST TABLES	23
VARIABILITY AND ACCURACY	35
WEATHER EFFECT AND WEATHER ADJUSTMENT	35
EFFECT OF EXTREME WEATHER	36
VOLUME VARIABILITY	37
FORECAST ACCURACY	39
COMPARISON OF THE 2011 FORECAST TO THE 2011/12 HVW ADJUSTED ACTUALS	40
ASSUMPTIONS	42
ECONOMIC ASSUMPTIONS	42
GAS EXPANSION ASSUMPTIONS	43
HEATING VALUE ASSUMPTIONS	43
NORMAL WEATHER ASSUMPTIONS	43
DEMAND SIDE MANAGEMENT (DSM) IN THE FORECAST	43
METHODOLOGY	44
GLOSSARY OF TERMS	51

LIST OF TABLES AND FIGURES

TABLE 1 - VOLUME FORECAST BY SUPPLY SOURCE	III
TABLE 2 - 2011/12 AVERAGE CUSTOMERS	3
TABLE 3 - 2011/12 VOLUME	3
TABLE 4 - 2011/12 AVERAGE USE	3
TABLE 5 - HEATING VALUE ADJUSTMENTS	4
TABLE 6 - WEATHER ADJUSTMENTS.....	5
TABLE 7 - 2011/12 HVW ADJ VOLUME	5
TABLE 8 - 2011/12 HVW ADJ AVERAGE USE	5
TABLE 9 - 2012/13 AVERAGE CUSTOMERS BY CLASS	7
TABLE 10 - 2012/13 VOLUME BY CLASS	7
TABLE 11 - 2012/13 AVERAGE USE PER CUSTOMER	7
TABLE 12 - 2013/14 AVERAGE CUSTOMERS BY CLASS	9
TABLE 13 - 2013/14 VOLUME BY CLASS	9
TABLE 14 - 2013/14 AVERAGE USE PER CUSTOMER	9
TABLE 15 - CHANGE BETWEEN THE 2011 AND 2012 FORECAST	11
FIGURE 1 – SGS RESIDENTIAL CUSTOMERS	13
FIGURE 2 – SGS RESIDENTIAL AVERAGE USE.....	13
FIGURE 3 – SGS RESIDENTIAL VOLUME.....	14
FIGURE 4 – SGS COMMERCIAL & LGS CUSTOMERS	15
FIGURE 5 - SGS COMMERCIAL & LGS CUSTOMERS SEPARATED	15
FIGURE 6 - SGS COMMERCIAL & LGS AVERAGE USE.....	16
FIGURE 7 - SGS COMMERCIAL AVERAGE USE	16
FIGURE 8 - LGS AVERAGE USE	16
FIGURE 9 - SGS COMMERCIAL & LGS VOLUME.....	17
FIGURE 10 - SGS COMMERCIAL VOLUME	17
FIGURE 11 - LGS VOLUME	17
FIGURE 12 - TOP CONSUMERS CUSTOMERS	18
FIGURE 13 - TOP CONSUMERS VOLUME.....	18
FIGURE 14 - POWER STATIONS	19
FIGURE 15 - SPECIAL CONTRACT	19
FIGURE 16 - TOTAL SALES CUSTOMERS	20
FIGURE 17 - TOTAL SALES VOLUME	20
TABLE 16 - 2012/13 MONTHLY CUSTOMERS.....	24
TABLE 17 - 2012/13 MONTHLY VOLUMES	25
TABLE 18 - 2012/13 MONTHLY DEMAND	26
TABLE 19 - 2012/13 MONTHLY AVERAGE USE.....	27
TABLE 20 - 2013/14 MONTHLY CUSTOMERS.....	28
TABLE 21 - 2013/14 MONTHLY VOLUMES	29
TABLE 22 - 2013/14 MONTHLY DEMAND	30
TABLE 23 - 2013/14 MONTHLY AVERAGE USE.....	31
TABLE 24 - ANNUAL AVERAGE CUSTOMERS	32

TABLE 25 - ANNUAL VOLUME	33
TABLE 26 - ANNUAL AVERAGE USE	34
TABLE 27 - EFFECT OF WEATHER	36
TABLE 28 – SGS RESIDENTIAL EFFECT OF WEATHER	36
TABLE 29 - VOLUME VARIABILITY	37
FIGURE 18 - VOLUME VARIABILITY.....	38
TABLE 30 - FIRST YEAR FORECAST ACCURACY	39
TABLE 31 - SECOND YEAR FORECAST ACCURACY	39
TABLE 32 - 2011 FORECAST COMPARED TO ACTUALS.....	41
TABLE 33 – MONTHLY ALLOCATION OF CUSTOMER CHANGES	50
TABLE 34 – MONTHLY ALLOCATION OF VOLUME	50

INTRODUCTION

This document is prepared annually as Manitoba Hydro's forecast of its future natural gas volume requirements for its service area. The service area includes all natural gas consumers in Manitoba except for 250 customers in the towns of Swan River and Benito who are served by Swan Valley Gas Corporation (SVGC), a subsidiary of SaskEnergy. SVGC is regulated by the Manitoba Public Utilities Board.

Centra Gas Manitoba Incorporated is a wholly owned subsidiary of Manitoba Hydro that oversees the natural gas distribution operations of Manitoba Hydro. Centra's rates and terms of service are regulated by the Manitoba Public Utilities Board. This document will refer to "Manitoba Hydro" rather than "Centra".

This document only addresses volumetric sales at the customers' gas meters. It does not consider Unaccounted For Gas (UFG), which is made up of losses due to leakage and accounting discrepancies due to billing cycles, meter inaccuracies and adjustments.

Customer sales are measured by volume. The unit of measurement is cubic meters (m^3) and this document forecasts customer sales in thousands of cubic meters (10^3m^3). An average Small General Service Residential natural gas customer uses 2,452 m^3 of natural gas per year.

Natural gas is purchased from suppliers as an amount of energy measured in gigajoules (GJ). Customers are billed in terms of volume measured in cubic meters (m^3). The heating content of the gas can vary, so in order to allow the volumes to be comparable on an energy basis, the historic billed volumes are adjusted to a heating value of 37.8 GJ/ 10^3m^3

Natural gas use is primarily used for space heating so it is very dependent on the weather and is weather adjusted to Normal weather prior to analysis. Normal weather is determined by averaging the most recent 25 years of weather data.

In 2011/12 Manitoba Hydro had 266,699 natural gas customers who used 1,866,039 10^3m^3 . After a heating value adjustment of $-12,865 10^3m^3$ and a weather adjustment of 199,539 10^3m^3 , the Heating Value Weather (HWV) Adjusted volume was 2,052,713 10^3m^3 .

The fiscal year in this document encompasses the April through March period that corresponds to Manitoba Hydro's fiscal year. This differs from the natural gas year, used for gas purchasing, which runs from November to October. A "month" in this document refers to the actual calendar month. Customer billing periods have been adjusted in both the history and forecast to correspond to the calendar months .

Rate Classes

Most customers are classified as General Service. During 2011/12 there were an average of 266,557 General Service customers who used 1,028,943 10^3m^3 . General Service customers are divided into Small (SGS) and Large (LGS). Small General Service customers are further divided into Residential (SRES) and Commercial (SCOM).

The remaining customers include 139 Top Consumers, two Power Stations and one Special Contract customer. Top Consumers are divided into High Volume Firm (HVF), Mainline Firm (MLF) and Interruptible (INT). In total, the remaining customers used 837,096 10^3m^3 in 2011/12.

Supply Services

System Supply is the service where Manitoba Hydro's purchases the primary gas for the customer. During 2011/12 there were an average of 244,545 System Supply customers who used 1,053,659 10^3m^3 . Manitoba Hydro has two different rate options for their supply: a Quarterly service, and a Fixed Rate service.

Western Transportation Service (WTS) is the service where a broker purchases the primary gas for a customer. Manitoba Hydro bills customers on behalf of the broker and remits the primary gas charges to the broker. During 2011/12 there were an average of 22,137 WTS customers who used 183,107 10^3m^3 .

Transportation Service is the service where customers purchase their own primary gas and Manitoba Hydro does not bill the customer for the primary gas. During 2011/12 there were 17 Transportation Service customers who used 629,273 10^3m^3 .

Table 2 - 2011/12 Average Customers

2011/12 AVERAGE CUSTOMERS BY CLASS					
Actuals					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	221,449	398	19,997	0	241,845
SGS Commercial	15,765	12	1,040	0	16,818
LGS	6,789	43	1,063	0	7,894
High Volume Firm	59	0	28	5	91
Mainline Firm	1	0	1	6	8
Interruptible Sales	30	0	7	3	40
Power Stations	0	0	0	2	2
Special Contract	0	0	0	1	1
Total	244,093	453	22,137	17	266,699

Table 3 - 2011/12 Volume

2011/12 VOLUME BY CLASS (10 ³ m ³)					
Actuals					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	470,402	851	36,555	.	507,807
SGS Commercial	74,830	64	5,704	.	80,599
LGS	362,218	3,291	75,029	0	440,537
High Volume Firm	72,216	.	37,594	36,597	146,407
Mainline Firm	2,296	.	10,072	114,253	126,621
Interruptible Sales	67,493	.	18,153	16,689	102,335
Power Stations	.	.	.	17,048	17,048
Special Contract	.	.	.	444,686	444,686
Total	1,049,454	4,205	183,107	629,273	1,866,039

Table 4 - 2011/12 Average Use

2011/12 AVERAGE USE PER CUSTOMER (m ³ /yr)					
Actuals					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Overall
SGS Residential	2,124	2,137	1,828	-	2,100
SGS Commercial	4,747	5,343	5,485	-	4,793
LGS	53,354	76,524	70,582	-	55,799
High Volume Firm	1,223,992	-	1,392,372	7,319,461	1,608,867
Mainline Firm	2,295,746	-	10,072,304	19,042,220	15,827,671
Interruptible Sales	2,249,770	-	2,593,264	5,562,889	2,558,365
Power Stations	-	-	-	8,523,792	8,523,792
Special Contract	-	-	-	444,685,729	444,685,729
Overall	4,299	9,283	8,272	37,016,035	6,997

Heating Value Adjustment

In 2011/12 the average Heating Value of the gas consumed was 37.5 GJ/10³m³. The gas contained 0.7% less energy than a normal of 37.8 GJ/10³m³ would provide. For forecasting and comparison purposes, the actual volumes has been adjusted down by 12,865 10³m³ to represent what would have been used with the normal Heating Value.

Table 5 - Heating Value Adjustments

2011/12 VOLUME BY CLASS (10 ³ m ³)					
Heating Value Adjustments					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	-3,222	-6	-252	.	-3,479
SGS Commercial	-510	0	-39	.	-550
LGS	-2,486	-23	-517	0	-3,025
High Volume Firm	-498	.	-260	-254	-1,012
Mainline Firm	-16	.	-70	-795	-880
Interruptible Sales	-466	.	-125	-115	-706
Power Stations	.	.	.	-129	-129
Special Contract	.	.	.	-3,083	-3,083
Total	-7,198	-29	-1,262	-4,375	-12,865

Weather Adjustment

The weather in 2011/12 was a record warm year. There were only 3,678 Degree Days Heating (DDH – base 14 Celsius) compared to the 25 year normal of 4,518 DDH. This resulted in a drop of 199,539 10³m³ or 9.7% from what would have been used in a normal year.

The weather has a greater effect on the General Service rate classes than on the Top Consumers. SGS Residential, SGS Commercial and Large General Service all used about 15% less than normal in 2011/12.

Heating Value and Weather Adjustment

After adjusting to normal Heating Value and Normal Weather, the 2011/12 HVW adjusted total volume is 2,052,713 10³m³. The actuals for 2011/12 were 1,866,039 10³m³ or 9.1% less than normal.

Table 6 - Weather Adjustments

2011/12 VOLUME BY CLASS (10³m³)					
Weather Adjustments					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	78,069	101	10,462	-	88,631
SGS Commercial	14,565	12	1,034	-	15,612
LGS	62,419	244	9,415	0	72,078
High Volume Firm	8,170	-	2,696	1,769	12,635
Mainline Firm	96	-	750	1,683	2,530
Interruptible Sales	7,442	-	412	200	8,054
Power Stations	-	-	-	0	0
Special Contract	-	-	-	0	0
Total	170,760	357	24,769	3,653	199,539

Table 7 - 2011/12 HVW Adj Volume

2011/12 VOLUME BY CLASS (10³m³)					
Heating Value and Weather Adjusted Actuals					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	545,249	945	46,764	0	592,959
SGS Commercial	88,885	76	6,700	0	95,661
LGS	422,150	3,512	83,927	0	509,590
High Volume Firm	79,887	0	40,030	38,113	158,030
Mainline Firm	2,376	0	10,753	115,142	128,271
Interruptible Sales	74,469	0	18,439	16,774	109,682
less Curtailed Int	0	0	0	0	0
Power Stations	0	0	0	16,919	16,919
Special Contract	0	0	0	441,602	441,602
Total	1,213,016	4,533	206,614	628,550	2,052,713

Table 8 - 2011/12 HVW Adj Average Use

2011/12 AVERAGE USE PER CUSTOMER (m³/yr)					
Weather and Heating Value Adjusted Actuals					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Overall
SGS Residential	2,462	2,375	2,339	-	2,452
SGS Commercial	5,638	6,376	6,440	-	5,688
LGS	62,182	82,468	78,960	-	64,551
High Volume Firm	1,363,655	-	1,455,641	7,622,563	1,735,010
Mainline Firm	2,375,958	-	10,752,621	19,190,329	16,033,819
Interruptible Sales	2,496,181	-	2,486,109	5,920,988	2,736,377
Power Stations	-	-	-	8,459,480	8,459,480
Special Contract	-	-	-	441,602,443	441,602,443
Overall	4,969	10,018	9,334	37,340,364	7,697

FORECAST OVERVIEW

2012/13 - First Year of the Forecast

The 2012/13 forecast is for an average of 268,880 customers with a total volume of 2,028,289 10^3m^3 . This is a customer increase of 2,181 customers (0.8%) from 2011/12 and a volume decrease of 24,424 10^3m^3 (1.2%) from the Heating Value and Weather Adjusted actual from 2011/12.

For the 2012/13 fiscal year, Quarterly Rate customers are forecast to increase 8,135 customers to 252,228, Fixed Rate customers to increase 35 customers to 488, WTS customers to decrease 5,990 customers to 16,147, and T-Service to stay the same with 17.

Also for 2012/13, Quarterly Rate volume is forecast to increase 12,864 10^3m^3 (1.1%) to 1,225,950 10^3m^3 . Fixed Rate volume is forecast to increase 693 10^3m^3 (+15.3%) to 5,226 10^3m^3 . WTS volume is forecast to decrease 22,695 10^3m^3 (-11.0%) to 183,931 10^3m^3 . T-Service is forecast to decrease 15,286 10^3m^3 (-2.4%) to 613,265 10^3m^3 . These are all compared to the 2011/12 Heating Value and Weather Adjusted actuals.

The average use of SGS Residential customers is forecast to decrease 39 m^3/year (-1.6%) to 2,412 m^3/year . The average use of SGS Residential Fixed Rate customers are forecast to be the same as SGS Residential Quarterly Rate customers at 2,427 m^3/year , but SGS Residential WTS customers are lower usage customers on average and are forecast to use 11% less at 2,169 m^3/year .

The average use of SGS Commercial customers is forecast to increase 20 m^3/year (0.3%) to 5,708 m^3/year . The average use of SGS Commercial Quarterly and Fixed Rate customers are both forecast to be 5,668 m^3/year and SGS Commercial WTS customers are forecast to be 13% higher at 6,401 m^3/year .

The average use of LGS customers is forecast to increase 70 m^3/year (0.1%) to 64,620 m^3/year . The average use of LGS Quarterly and Fixed Rate customers are both forecast to be 62,494 m^3/year and LGS WTS customers are forecast to be 26% higher at 79,038 m^3/year .

Table 9 - 2012/13 Average Customers by Class

2012/13 AVERAGE CUSTOMERS BY CLASS					
2012 Forecast					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	229,349	413	14,186	0	243,947
SGS Commercial	16,013	15	919	0	16,947
LGS	6,776	60	1,008	0	7,843
High Volume Firm	60	0	27	5	92
Mainline Firm	1	0	1	6	8
Interruptible Sales	30	0	7	3	40
Power Stations	0	0	0	2	2
Special Contract	0	0	0	1	1
Total	252,228	488	16,147	17	268,880

Table 10 - 2012/13 Volume by Class

2012/13 VOLUME BY CLASS (10 ³ m ³)					
2012 Forecast					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	556,687	1,033	30,775	0	588,495
SGS Commercial	90,750	106	5,879	0	96,735
LGS	423,068	4,087	79,657	0	506,812
High Volume Firm	79,490	0	39,098	39,819	158,406
Mainline Firm	2,498	0	10,998	120,550	134,046
Interruptible Sales	74,713	0	17,854	16,411	108,979
less Curtailed Int	-1,326	0	-343	0	-1,669
Power Stations	0	0	0	15,196	15,196
Special Contract	0	0	0	421,289	421,289
Total	1,225,880	5,226	183,919	613,265	2,028,289

Table 11 - 2012/13 Average Use Per Customer

2012/13 AVERAGE USE PER CUSTOMER (m ³ /yr)					
2012 Forecast					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Overall
SGS Residential	2,427	2,427	2,169	-	2,412
SGS Commercial	5,668	5,668	6,401	-	5,708
LGS	62,494	62,494	79,038	-	64,620
High Volume Firm	1,335,961	-	1,448,061	7,963,761	1,731,214
Mainline Firm	2,498,094	-	10,998,215	20,091,623	16,755,756
Interruptible Sales	2,446,245	-	2,501,636	5,470,397	2,682,750
Power Stations	-	-	-	7,598,129	7,598,129
Special Contract	-	-	-	421,288,809	421,288,809
Overall	4,860	10,707	11,390	36,074,400	7,543

2013/14 - Second Year of the Forecast

The 2013/14 forecast is for an average of 271,578 customers with a total volume of 2,027,285 10^3m^3 . This is a customer increase of 2,698 customers (1.0%) from the 2012/13 forecast and a volume decrease of 1,005 10^3m^3 (-0.1%) from the 2012/13 forecast.

Quarterly Rate customers are forecast to increase 6,053 customers to 258,281 in 2013/14, Fixed Rate customers to increase 128 customers to 616 in 2013/14, WTS customers to decrease 3,483 customers to 12,664 in 2013/14, and T-Service to remain at 17 customers in 2013/14. These are all compared forecast for the 2012/13 year.

Quarterly Rate volume is forecast to increase 1,182 10^3m^3 (0.1%) to 1,227,061 10^3m^3 in 2013/14. Fixed Rate volume is forecast to increase 2,494 10^3m^3 (+47.7%) to 7,720 10^3m^3 in 2013/14. WTS volume is forecast to decrease 8,922 10^3m^3 (-4.9%) to 174,997 10^3m^3 in 2013/14. T-Service is forecast to increase 4,242 10^3m^3 (+0.7%) to 617,507 10^3m^3 in 2013/14. These are all compared to the 2012/13 forecast year.

The 2013/14 SGS Residential customer average use forecast is down 49 m^3/year (-2.0%) to 2,363 m^3/year . Residential average use is going down due to conversions from standard and mid efficiency furnaces to high efficiency furnaces, improvement in insulation levels, and conversion from gas to electric water heaters.

The 2013/14 average use is forecast to be 5,708 m^3/year for SGS Commercial customers and 64,620 m^3/year for LGS customers. The average use of these rate classes is not forecast to change because the customers shift classes when their usage changes resulting in little change to the class averages.

Table 12 - 2013/14 Average Customers by Class

2013/14 AVERAGE CUSTOMERS BY CLASS					
2012 Forecast					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	235,325	486	10,752	0	246,563
SGS Commercial	16,219	35	883	0	17,136
LGS	6,646	96	994	0	7,736
High Volume Firm	60	0	27	5	92
Mainline Firm	1	0	1	6	8
Interruptible Sales	30	0	7	3	40
Power Stations	0	0	0	2	2
Special Contract	0	0	0	1	1
Total	258,281	616	12,664	17	271,578

Table 13 - 2013/14 Volume by Class

2013/14 VOLUME BY CLASS (10 ³ m ³)					
2012 Forecast					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	558,622	1,169	22,851	0	582,642
SGS Commercial	91,946	214	5,650	0	97,810
LGS	414,964	6,336	78,587	0	499,887
High Volume Firm	84,530	0	39,098	39,819	163,446
Mainline Firm	2,498	0	10,998	121,466	134,963
Interruptible Sales	74,713	0	17,854	19,736	112,304
less Curtailed Int	-212	0	-41	0	-252
Power Stations	0	0	0	15,196	15,196
Special Contract	0	0	0	421,289	421,289
Total	1,227,061	7,720	174,997	617,507	2,027,285

Table 14 - 2013/14 Average Use Per Customer

2013/14 AVERAGE USE PER CUSTOMER (m ³ /yr)					
2012 Forecast					
	Quarterly Rate	Fixed Rate	WTS	T-Service	Overall
SGS Residential	2,374	2,374	2,125	-	2,363
SGS Commercial	5,670	5,670	6,402	-	5,708
LGS	62,492	62,492	79,054	-	64,620
High Volume Firm	1,408,833	-	1,448,061	7,963,761	1,776,592
Mainline Firm	2,498,094	-	10,998,215	20,244,405	16,870,342
Interruptible Sales	2,483,383	-	2,544,770	6,578,763	2,801,279
Power Stations	-	-	-	7,598,129	7,598,129
Special Contract	-	-	-	421,288,809	421,288,809
Overall	4,751	12,534	13,819	36,323,917	7,465

Change Between the 2011 and 2012 Forecasts

The 2012 forecast of 268,880 customers for 2012/13 represents a decrease of 143 customers from the 2011 forecast of 269,023 customers. This reflects a lower residential customer forecast in the first year. However this residential customer forecast increases in the years following 2012/13. By 2021/22, the forecast is for 294,867 customers, an increase of 2,674 customers compared to the 2011 forecast of 292,193.

Last year, many Residential WTS customers chose not to renew their fixed rate term contracts as they ended and reverted back to Manitoba Hydro's Quarterly service. The forecast for SGS Residential Quarterly customers is up 3,230 and the forecast for SGS Residential WTS customers is down 2,704.

The volume forecast is up 31,972 10^3m^3 from the 2011 forecast. This is mostly due to a change in the expected proportion of SGS Commercial to LGS customers. There are 231 more LGS customers expected but 206 fewer SGS Commercial customers expected. The extra LGS customers have a much higher average use per customer than the LGS customers. This translates to an increase of 22,955 10^3m^3 in the LGS group.

Table 15 - Change Between the 2011 and 2012 Forecast

	CHANGE BETWEEN THE 2011 AND 2012 FORECASTS					
	2012/13 Average Customers			2012/13 Volume (10 ³ m ³)		
	2011 Fcst	2012 Fcst	Change	2011 Fcst	2012 Fcst	Change
SRES	244,114	243,948	-166	578,868	588,495	9,627
SCOM	17,152	16,946	-206	97,484	96,735	-749
LGS	7,613	7,844	231	483,857	506,812	22,955
HVF	93	91	-2	159,548	158,406	-1,142
MLF	8	8	0	137,416	134,046	-3,370
INT	40	40	0	112,970	107,310	-5,660
PS	2	2	0	12,230	15,196	2,966
SPEC	1	1	0	413,943	421,289	7,345
TOTAL	269,023	268,880	-143	1,996,318	2,028,289	31,972
SRES-S	226,119	229,349	3,230	542,254	556,687	14,433
SCOM-S	16,111	16,013	-98	90,874	90,750	-125
LGS-S	6,393	6,776	383	389,755	423,068	33,313
HVF-S	60	59	-1	78,601	79,490	889
MLF-S	1	1	0	1,855	2,498	643
INT-S	29	30	1	74,011	74,713	702
CURT-S	0	0	0	-361	-1,326	-965
TOTAL-S	248,713	252,228	3,515	1,176,988	1,225,880	48,891
SRES-F	1,105	413	-692	2,887	1,033	-1,854
SCOM-F	73	15	-58	472	106	-366
LGS-F	215	60	-155	14,523	4,087	-10,436
TOTAL-F	1,393	488	-905	17,882	5,226	-12,656
SRES-W	16,890	14,186	-2,704	33,727	30,775	-2,952
SCOM-W	968	918	-50	6,138	5,879	-259
LGS-W	1,005	1,008	3	79,579	79,657	78
HVF-W	28	27	-1	40,303	39,098	-1,206
MLF-W	1	1	0	11,063	10,998	-65
INT-W	8	7	-1	19,390	17,854	-1,536
CURT-W	0	0	0	-102	-343	-241
TOTAL-W	18,900	16,147	-2,753	190,099	183,919	-6,180
HVF-T	5	5	0	40,645	39,819	-826
MLF-T	6	6	0	124,498	120,550	-3,948
INT-T	3	3	0	20,032	16,411	-3,621
PS-T	2	2	0	12,230	15,196	2,966
SPEC-T	1	1	0	413,943	421,289	7,345
TOTAL-T	17	17	0	611,348	613,265	1,916

FORECAST DETAILS

SGS Residential

SGS Residential (SRES) includes the residential customer class portion of the Small General Service (SGS) rate class except for about 70 very large residences that use more than 15,000 m³ per year and are in the LGS class. If their volume is higher, then it is in their favor from a rates perspective to switch to Large General Service (LGS) which has a higher basic charge but lower volumetric charge.

SGS Residential excludes multi-family gas heated residences where the individual residential units are not directly billed by Manitoba Hydro for their natural gas use. This excludes many residential apartment and condo suites that are heated from a common service. The gas for heating these suites is part of the commercial sector: SGS Commercial or Large General Service. This forecast also does not include approximately 250 gas customers in the Swan River area that are served by SaskEnergy.

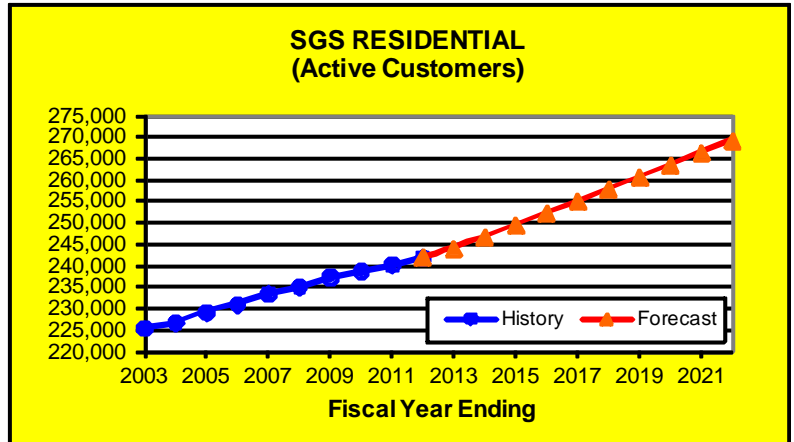
The primary gas supply for SGS Residential customers may be provided by Manitoba Hydro's regular Quarterly Service, broker-supplied fixed price contracts up to five years long (known as Western Transportation Service or WTS), or Manitoba Hydro's Fixed Rate Primary Gas Service.

Approximately 80% of Residential gas use is for space heating. About 15% is for water heating, and the remaining 5% is for other natural gas end uses such as ranges, dryers, fireplaces, barbeques, saunas, hot tubs, and pool heaters.

SGS Residential Customers

During 2011/12 there was an average of 241,845 SGS Residential customers. Over the last 9 years, this class has grown an average of 1,826 customers or 0.8% per year. They are forecast to grow at an average of 2,736 customers or 1.1% per year between 2011/12 and 2021/22. The increase is due to an increase in the customer forecast in Manitoba Hydro's Economic Outlook.

Figure 1 – SGS Residential Customers

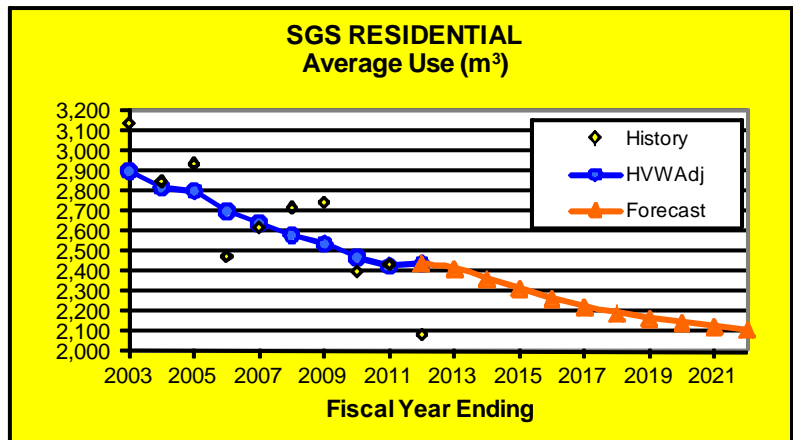


SGS Residential Average Use

SGS Residential average use is currently 2,452 m³ per customer. It has declined 53 m³ or 2.0% per year since 2002/03. It is forecast to decline at 35 m³ or 1.5% per year up to 2021/22.

The main reason for the reduction in average use is due to the replacement of inefficient gas furnaces with new high efficiency furnaces. Other contributing factors include the reduction in the saturation of gas water heaters and improved levels of insulation.

Figure 2 – SGS Residential Average Use

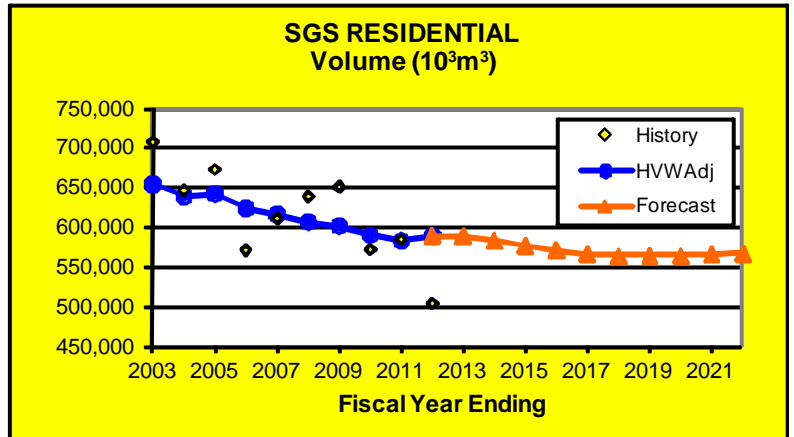


SGS Residential Volume

The decline in the forecast for average use more than offsets the growth in the number of gas customers. This combines to produce a downward trend in the forecast for total volume consumed.

Since 2002/03, SGS Residential volume has decreased an average of 7,506 10^3m^3 or 1.2% per year. It is forecast to reduce further by 2,606 10^3m^3 or 0.4% per year until 2021/22.

Figure 3 – SGS Residential Volume



SGS Commercial and LGS

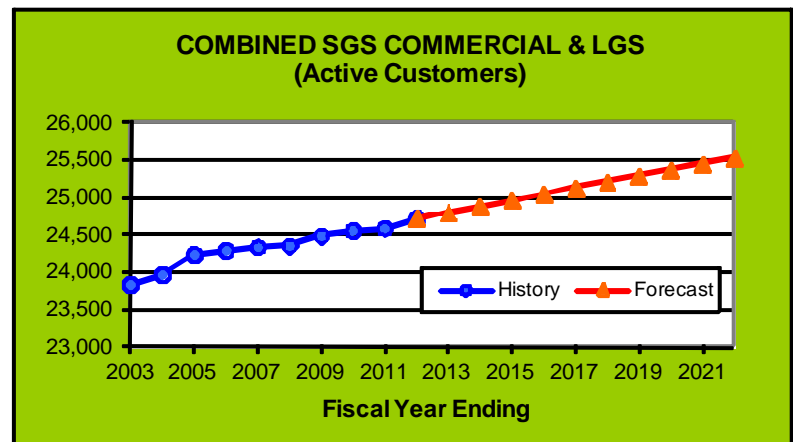
SGS Commercial (SCOM) includes the commercial customer class portion of the Small General Service (SGS) rate class. SGS customers typically have an annual volume of less than 15,000 m³ per year.

Large General Service (LGS) consists of medium-sized customers with usage between 15,000 m³ and 680,000 m³ per year. Most of these are commercial customers, but about 70 large residential homes are included in this class as well.

SGS Commercial and LGS Customers

The total number of customers in the combined SGS Commercial and LGS classes is continuing to grow slowly. Over the past 9 years, customers increased by about 98 customers or 0.4% per year. Over the next 10 years, they are forecast to grow by about 81 customers or 0.3% per year.

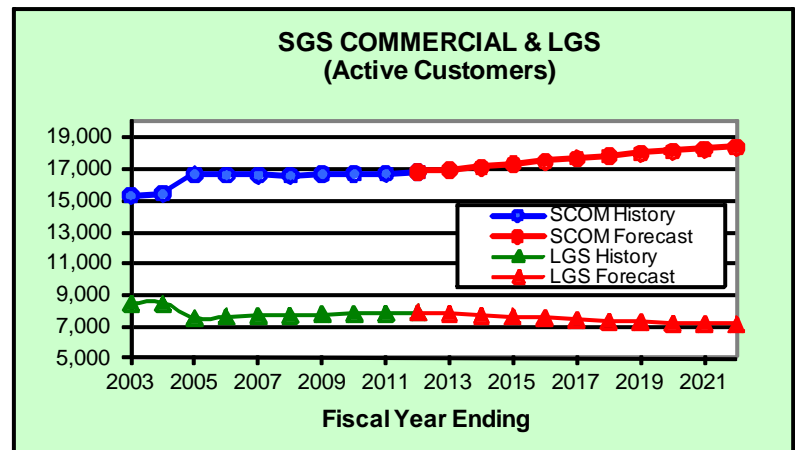
Figure 4 – SGS Commercial & LGS Customers



The forecast assumes that there will be transfers between classes in the future, primarily from LGS to SGS Commercial, as the efficiency of individual LGS customers improve and annual usage declines to where it becomes more favorable from a rates perspective to be classified as an SGS commercial customer.

The SGS Commercial class has increased by 163 customers or 1.0% per year over the last nine years. It is forecast to increase by 158 customers or 0.9% per year over the next ten years. LGS has decreased by 65 customers or 0.8% per year over the last nine years. It is forecast to decrease by 76 customers or 1.0% per year over the next ten years.

Figure 5 - SGS Commercial & LGS Customers Separated



SGS Commercial and LGS Average Use

The combined average use of SGS Commercial and LGS has declined an average of 142 m³ or 0.6% per year due to improvements in heating equipment efficiency and customer efforts to reduce heat losses. This is forecast to continue declining at 233 m³ or 1.0% per year for the next 10 years. This includes reductions in gas usage due to the Corporation's Power Smart programs.

Figure 6 - SGS Commercial & LGS Average Use

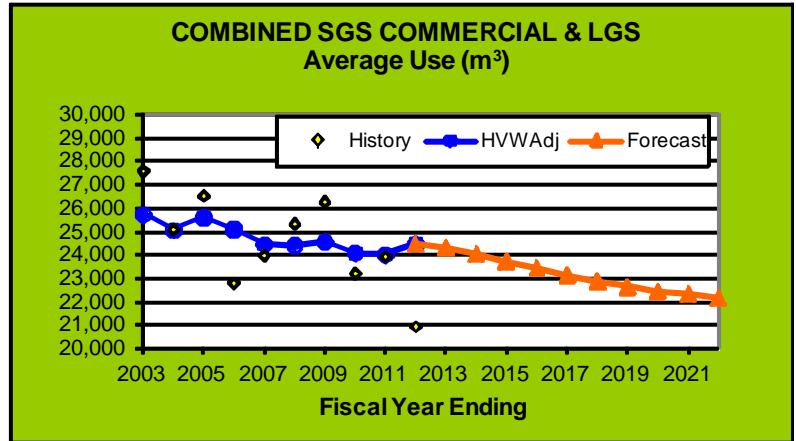


Figure 7 - SGS Commercial Average Use

The SGS Commercial average use is currently 5,688 m³ per customer and is forecast to remain at 5,708 m³. The group is limited to a maximum of 15,000 m³ per customer, so as customer efficiency improves and usage goes down, the reduced usage is compensated by smaller LGS customers becoming larger SGS Commercial.

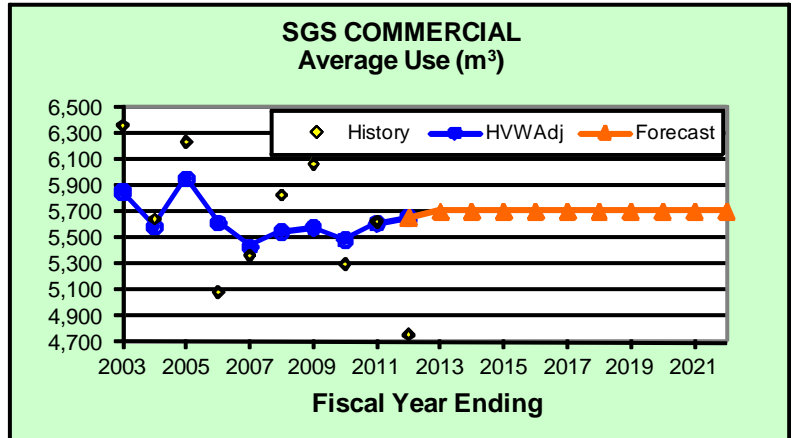
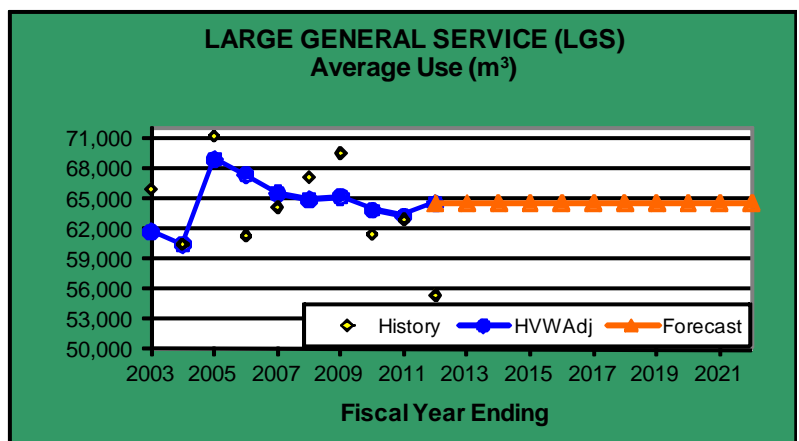


Figure 8 - LGS Average Use

The LGS average use is currently 64,551 m³ per customer and is forecast to remain at 64,620 m³ per customer. The group is limited to the range 15,000 m³ to 680,000 m³ per customer, so as overall customer usage goes down, the reduced usage is compensated by smaller Top Consumers who become larger LGS.



SGS Commercial and LGS Volume

The combined total volume of SGS Commercial and LGS classes has decreased by 974 10^3m^3 or 0.2% per year over the last 9 years. It is expected to continue to decrease by 3,953 10^3m^3 or 0.7% per year for the next 10 years.

Figure 9 - SGS Commercial & LGS Volume

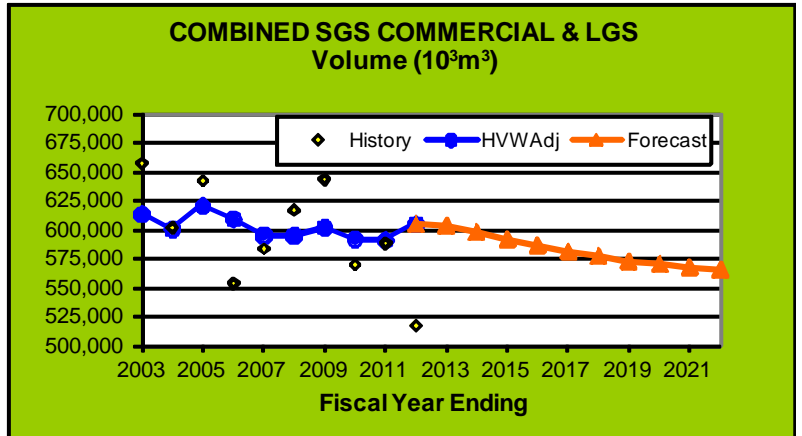


Figure 10 - SGS Commercial Volume

SGS Commercial volume has grown by 547 10^3m^3 or 0.6% over the last 9 years. The SGS Commercial class is forecast to increase by 933 10^3m^3 or 0.9% per year until 2021/22.

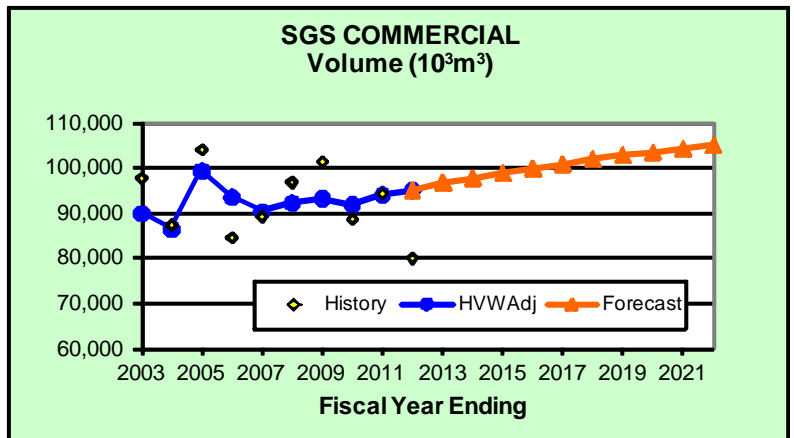
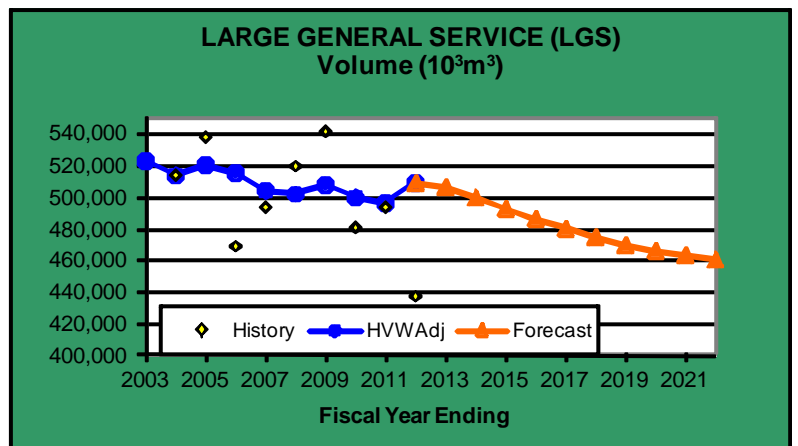


Figure 11 - LGS Volume

Large General Service volume has decreased by 1,521 10^3m^3 or 0.3% per year. It is forecast to continue to decrease by 4,886 10^3m^3 or 1.0% per year until 2021/22.

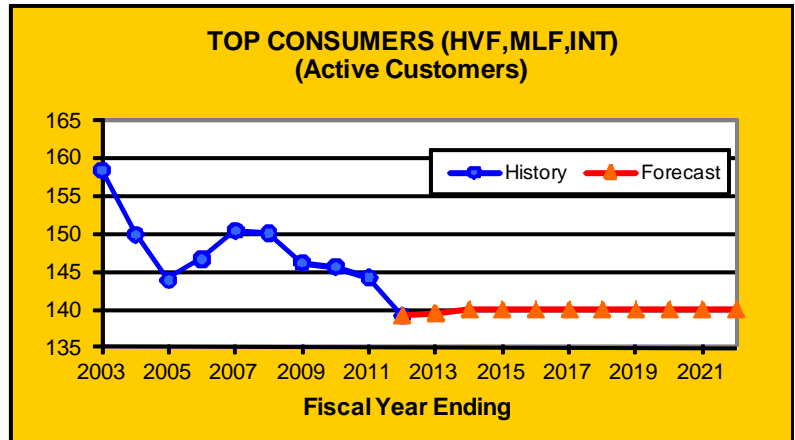


Top Consumers

Top Consumers Customers

This category includes all active Top Consumers in the High Volume Firm (HVF), Mainline Firm (MLF) and Interruptible (INT) classes, whether their gas is supplied by Manitoba Hydro (System Supply) or a broker (WTS) or purchased directly by the customer (Transport). The number of Top Consumers has decreased from 159 in 2002/03 to 138 at the end of 2011/12.

Figure 12 - Top Consumers Customers

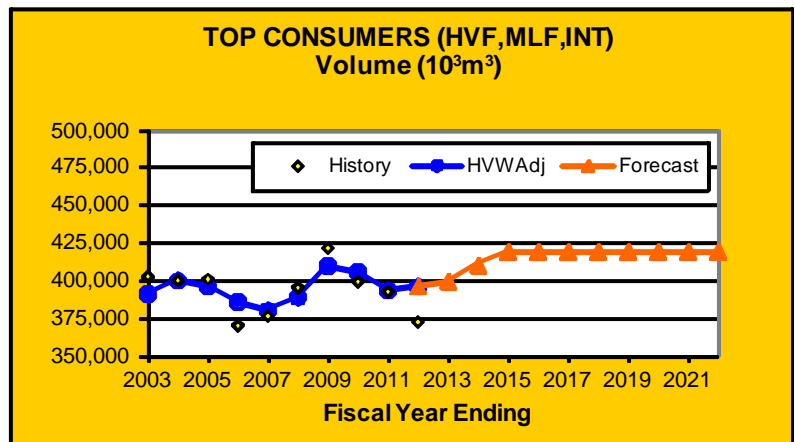


Two new Top Consumers customers are anticipated after 2012/13 and are included in the forecast. This forecast assumes that there will be 140 customers in the Top Consumers class for the duration of the forecast.

Top Consumers Volume

Top Consumers volume remained about the same for the past ten years. Their total volume is forecast to continue to remain about the same. Individual customers are forecast for three years, and then the third forecast year is extended for the remainder of the forecast as there are no adequate long term indicators of either an increase or decrease in gas use for these customers.

Figure 13 - Top Consumers Volume



Special Rates

There are three customers who consume large amounts of natural gas and have special rates because they use gas very differently from all other gas customers. Their forecasts are based on three-year historical averages instead of attempting to forecast their volume. Their consumption can vary greatly from year to year, and an incorrect forecast can have an adverse effect on their billing. The use of a three-year average eliminates any possibility of bias for rate setting purposes.

Figure 14 - Power Stations

Power Stations

There are two customers in the Power Stations Class. They operate infrequently, but have the potential to consume very large volumes of gas when in operation.

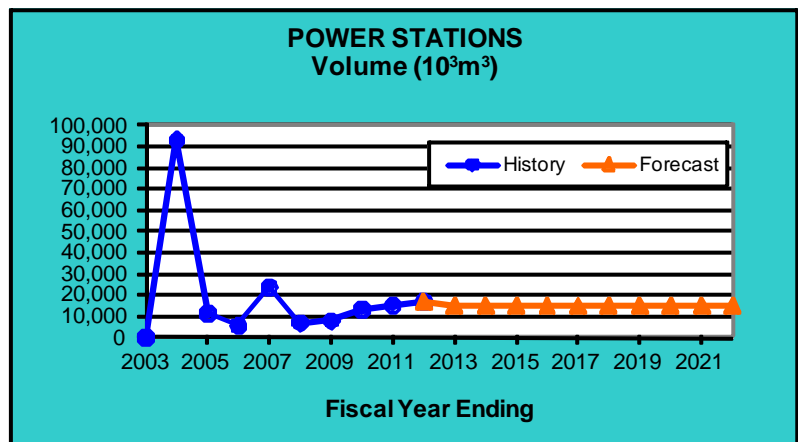
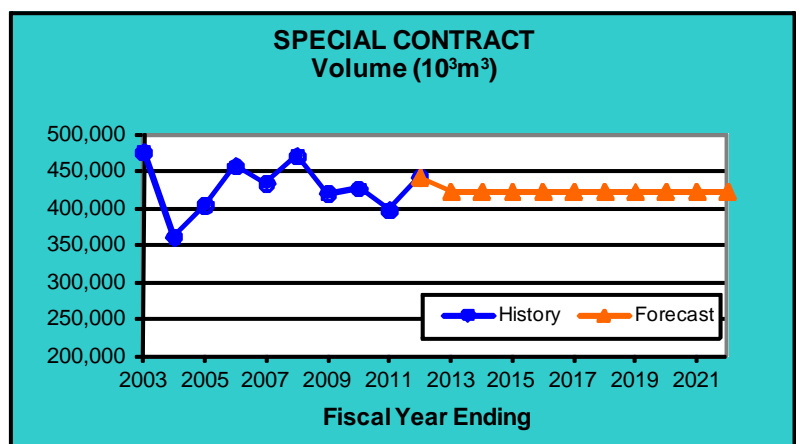


Figure 15 - Special Contract

Special Contract

There is one customer who uses a very large volume of natural gas as a component in its production process. This volume varies year to year depending on its production schedule and product demand.



Total Sales

Total Sales Customers

Total Sales includes all active gas customers. Growth has been quite stable over the past 9 years with an average increase of 1,922 customers or 0.7% per year. The number of customers is forecast to increase at 2,817 customers or 1.0% per year due to the expected increase of the population in Manitoba.

Figure 16 - Total Sales Customers

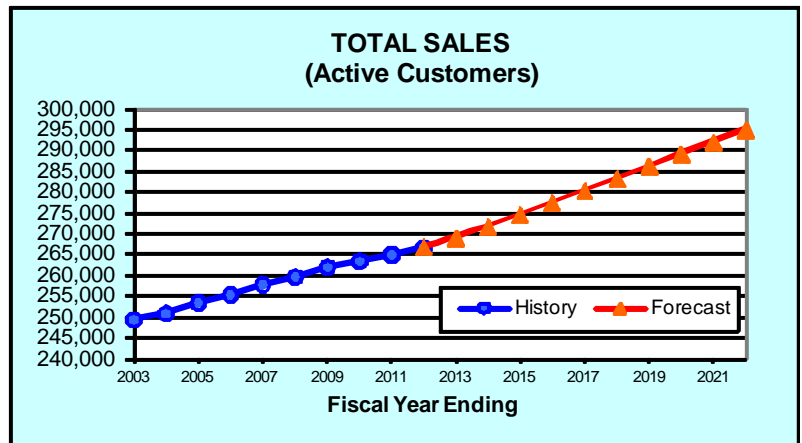
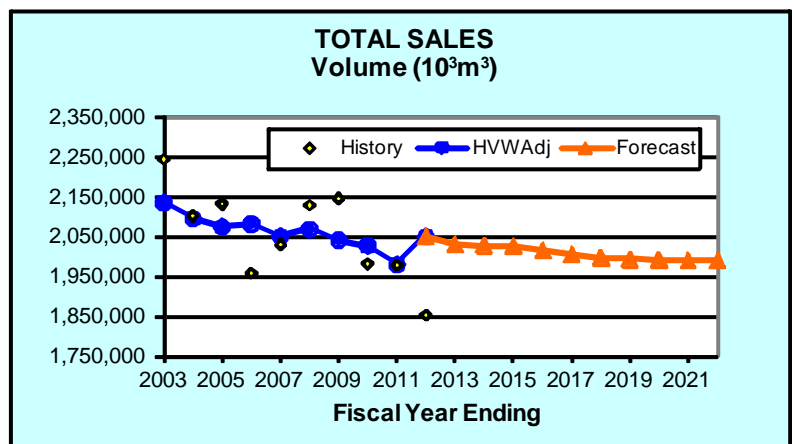


Figure 17 - Total Sales Volume

Total Sales Volume

The Total Sales volume forecast is the sum of the volume forecasts for all SGS, LGS, High Volume Firm (HVF), Mainline Firm (MLF), Interruptible (INT), Power Station and Special Contract classes. Total Sales volume has decreased 9,482 10^3m^3 or 0.5% per year in the last 9 years and is forecast to decrease by 6,059 10^3m^3 or 0.3% per year. The volume is decreasing even though the number of customers is rising, and this is due to reductions in average use per customer. Customers in all sectors are reducing their non-process related natural gas usage, due to conversions to high efficiency furnaces, improvements to insulation levels, and conversion in the Residential sector of natural gas to electric water heaters.



Fixed Rate Primary Gas Service

Manitoba Hydro's Fixed Rate Primary Gas Service (FRPGS) began in 2009. There have been several offerings each year with 1, 3 and 5 year terms available.

FRPGS product information is provided to customers to allow them to make informed decisions by understanding the differences between choosing the quarterly service, broker fixed price offerings, and Manitoba Hydro's fixed price offering for their primary gas service.

During 2011/12 the number of customers enrolled averaged 398 for SGS Residential, 12 for SGS, and 43 for Large General Service customers. The total actual volume consumed by these FRPGS Customers for 2011/12 was 851 10^3m^3 for SGS Residential, 64 10^3m^3 for SGS Commercial and 3,291 10^3m^3 for LGS.

The number of FRPGS SGS Residential customers is forecast to be 413 in 2012/13, 486 in 2013/14 growing to 1364 in 2021/22. The number of FRPGS SGS Commercial customers is forecast to be 15 in 2012/13, 35 in 2013/14 growing to 153 in 2021/22. The number of FRPGS LGS customers forecast is forecast to be 60 in 2012/13, 96 in 2013/14 growing to 297 in 2021/22.

The FRPGS SGS Residential volume forecast is 1,033 10^3m^3 in 2012/13, 1,169 10^3m^3 in 2013/14 growing to 2,876 10^3m^3 in 2021/22. The FRPGS SGS Commercial volume forecast is 106 10^3m^3 in 2012/13, 214 10^3m^3 in 2013/14 growing to 866 10^3m^3 in 2021/22. The FRPGS LGS volume forecast is 4,087 10^3m^3 in 2012/13, 6,336 10^3m^3 in 2013/14 growing to 18,597 10^3m^3 in 2021/22.

The average use for all FRPGS classes (SGS Residential, SGS Commercial and LGS) was forecast using the average use for System Supply Customers (quarterly rate and FRPGS) as FRPGS does not currently have sufficient customer participation to establish a program specific average use.

Western Transportation Service

Western Transportation Service (WTS) is the service where a broker purchases the primary gas for a customer. Manitoba Hydro bills customers on behalf of the broker and remits the primary gas charges to the broker.

WTS started offering fixed price contracts in 2000. WTS customers reached a maximum of 20% of Manitoba gas customers in 2007, but have fallen to 17,965 customers or 6.7% as of March 2012.

SGS Residential customers using a broker are forecast to be 14,186 in 2012/13, 10,752 in 2013/14 and 9,962 by 2021/22.

The SGS Commercial customers using a broker are forecast to be 918 in 2012/13, 882 in 2013/14 and 835 by 2021/22.

The LGS customers using a broker are forecast to be 1,008 in 2012/13, 994 in 2013/14 and 916 by 2021/22.

For the forecast period, compared to the class average, the WTS monthly average use is forecast at 95.4% for SGS Residential, 113.2% for SGS Commercial and 122.3% for LGS.

There are also 35 WTS customers in the Top Consumers classes that consumed 65,819 10^3m^3 in 2011/12. This group of large WTS customers is expected to maintain the current number of customers and volume, with some customers leaving WTS for System Supply while an equivalent number join WTS from System Supply.

FORECAST TABLES

The forecast tables include monthly information on customers, volume and billed demand for 2012/13 and 2013/14. This document also includes fiscal year information on customers, volume and average use for the 2012/13 to 2021/22 period, as required for preparation of the Integrated Financial Forecast (IFF).

Each table starts with class totals. The classes are:

SRES - Small General Service Residential
SCOM - Small General Service Commercial
LGS - Large General Service
HVF - High Volume Firm
INT – Interruptible
CURT – Curtailed Interruptible
PS - Power Stations
SPEC - Special Contract
TOTAL - Total Sales

This is followed by 4 sections that itemize all the classes by service type. The 4 service types are:

xxxx-S - System Supply Quarterly Service
xxxx-F - System Supply Fixed Rate Primary Gas Service
xxxx-W - Western Transportation Service
xxxx-T - Transport Service

Curtailed Interruptible

Interruptible customers may be interrupted from time to time. The curtailed volume is provided as an alternate service and is a non firm volume which is removed from forecast. The forecast interruption volumes are provided by the Gas Supply Division. They are shown as negative numbers in the CURT-S and CURT-W classes for System Supply and WTS respectively.

Table 16 - 2012/13 Monthly Customers

2012/13 MONTHLY CUSTOMERS												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES	242,979	243,035	243,113	243,197	243,374	243,700	243,990	244,278	244,578	244,808	245,047	245,269
SCOM	16,850	16,867	16,885	16,903	16,921	16,938	16,956	16,974	16,991	17,009	17,027	17,045
LGS	7,903	7,892	7,881	7,870	7,859	7,848	7,837	7,827	7,816	7,805	7,794	7,783
HVF	91	91	91	91	91	91	92	92	92	92	92	92
MLF	8	8	8	8	8	8	8	8	8	8	8	8
INT	40	40	40	40	40	40	40	40	40	40	40	40
PS	2	2	2	2	2	2	2	2	2	2	2	2
SPEC	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL	267,874	267,936	268,021	268,112	268,296	268,628	268,926	269,222	269,528	269,765	270,011	270,240
SRES-S	226,904	227,014	227,224	227,447	227,871	228,718	229,470	230,180	230,955	231,551	232,136	232,712
SCOM-S	15,906	15,926	15,947	15,968	15,984	16,004	16,025	16,041	16,061	16,082	16,098	16,119
LGS-S	6,844	6,830	6,820	6,811	6,791	6,781	6,772	6,753	6,745	6,736	6,717	6,707
HVF-S	59	59	59	59	59	59	60	60	60	60	60	60
MLF-S	1	1	1	1	1	1	1	1	1	1	1	1
INT-S	30	30	30	30	30	30	30	30	30	30	30	30
TOTAL-S	249,744	249,860	250,081	250,316	250,736	251,593	252,358	253,065	253,852	254,460	255,042	255,629
SRES-F	364	397	388	381	413	407	402	434	431	429	459	455
SCOM-F	9	9	9	9	14	14	14	19	19	19	24	24
LGS-F	43	48	48	48	58	58	58	68	67	66	76	76
TOTAL-F	416	454	445	438	485	479	474	521	517	514	559	555
SRES-W	15,711	15,624	15,501	15,369	15,090	14,575	14,118	13,664	13,192	12,828	12,452	12,102
SCOM-W	935	932	929	926	923	920	917	914	911	908	905	902
LGS-W	1,016	1,014	1,013	1,011	1,010	1,009	1,007	1,006	1,004	1,003	1,001	1,000
HVF-W	27	27	27	27	27	27	27	27	27	27	27	27
MLF-W	1	1	1	1	1	1	1	1	1	1	1	1
INT-W	7	7	7	7	7	7	7	7	7	7	7	7
TOTAL-W	17,697	17,605	17,478	17,341	17,058	16,539	16,077	15,619	15,142	14,774	14,393	14,039
HVF-T	5	5	5	5	5	5	5	5	5	5	5	5
MLF-T	6	6	6	6	6	6	6	6	6	6	6	6
INT-T	3	3	3	3	3	3	3	3	3	3	3	3
PS-T	2	2	2	2	2	2	2	2	2	2	2	2
SPEC-T	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL-T	17	17	17	17	17	17	17	17	17	17	17	17

Table 17 - 2012/13 Monthly Volumes

2012/13 MONTHLY VOLUME (10 ³ m ³)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES	40,230	22,098	10,787	10,758	11,599	14,924	36,993	66,282	99,003	109,189	90,340	76,293
SCOM	6,385	2,698	1,345	1,444	1,576	1,495	5,593	10,838	17,304	19,114	16,024	12,920
LGS	36,485	19,360	12,072	8,312	8,905	14,323	33,546	59,743	83,619	91,373	73,954	65,120
HVF	11,777	9,817	7,869	6,718	7,353	8,518	11,598	15,871	19,571	21,858	19,559	17,896
MLF	10,842	11,284	9,935	9,278	9,537	8,920	11,690	12,140	12,785	13,058	12,363	12,212
INT	6,524	6,557	5,521	5,478	5,581	6,196	7,761	10,820	13,620	14,562	12,993	11,698
PS	3,678	2,545	85	879	468	400	333	827	681	3,405	1,018	878
SPEC	38,977	38,368	19,497	27,585	36,898	31,669	39,196	38,224	40,306	40,564	37,285	32,719
TOTAL	154,897	112,728	67,112	70,451	81,917	86,444	146,710	214,745	286,888	313,125	263,537	229,736
SRES-S	37,688	20,707	10,114	10,092	10,894	14,048	34,890	62,628	93,734	103,540	85,792	72,560
SCOM-S	5,980	2,528	1,260	1,354	1,477	1,401	5,246	10,165	16,234	17,938	15,038	12,128
LGS-S	30,556	16,204	10,103	6,957	7,441	11,968	28,033	49,848	69,787	76,263	61,638	54,271
HVF-S	5,754	4,534	3,251	2,822	2,974	3,453	5,762	8,327	10,747	11,962	10,631	9,274
MLF-S	174	159	147	124	147	158	193	252	281	322	272	269
INT-S	4,615	4,205	2,929	2,925	3,108	3,710	5,867	7,705	10,127	11,209	9,744	8,570
CURT-S	-228	0	0	0	0	0	-889	0	0	-209	0	0
TOTAL-S	84,538	48,336	27,805	24,274	26,041	34,737	79,102	138,925	200,910	221,026	183,115	157,072
SRES-F	60	36	17	17	20	25	61	118	175	192	170	142
SCOM-F	3	1	1	1	1	1	5	12	19	21	22	18
LGS-F	192	114	71	49	64	102	240	502	693	747	697	615
TOTAL-F	256	152	89	67	85	129	306	632	887	960	889	775
SRES-W	2,481	1,355	656	648	686	851	2,042	3,536	5,093	5,457	4,378	3,590
SCOM-W	401	169	84	90	97	92	342	661	1,050	1,155	964	774
LGS-W	5,738	3,043	1,898	1,306	1,400	2,252	5,273	9,393	13,139	14,363	11,618	10,235
HVF-W	2,966	2,494	1,974	1,337	1,832	2,039	2,669	3,876	4,744	5,525	5,058	4,585
MLF-W	821	674	584	552	570	612	787	1,068	1,326	1,392	1,351	1,263
INT-W	1,101	1,183	1,318	1,290	1,296	1,314	1,613	1,632	1,775	1,896	1,718	1,720
CURT-W	-55	0	0	0	0	0	-252	0	0	-36	0	0
TOTAL-W	13,453	8,917	6,513	5,223	5,881	7,161	12,473	20,166	27,127	29,752	25,088	22,167
HVF-T	3,057	2,790	2,644	2,559	2,547	3,025	3,168	3,668	4,080	4,371	3,871	4,038
MLF-T	9,847	10,451	9,204	8,602	8,820	8,151	10,711	10,820	11,178	11,345	10,740	10,680
INT-T	1,091	1,169	1,274	1,263	1,177	1,173	1,422	1,483	1,718	1,701	1,532	1,408
PS-T	3,678	2,545	85	879	468	400	333	827	681	3,405	1,018	878
SPEC-T	38,977	38,368	19,497	27,585	36,898	31,669	39,196	38,224	40,306	40,564	37,285	32,719
TOTAL-T	56,651	55,323	32,705	40,887	49,911	44,417	54,829	55,023	57,963	61,386	54,445	49,723

Table 18 - 2012/13 Monthly Demand

2012/13 MONTHLY DEMAND (10 ³ m ³)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES	0	0	0	0	0	0	0	0	0	0	0	0
SCOM	0	0	0	0	0	0	0	0	0	0	0	0
LGS	0	0	0	0	0	0	0	0	0	0	0	0
HVF	971	971	971	971	971	971	971	983	1,013	1,032	1,036	1,037
MLF	544	544	544	544	544	544	544	546	552	553	558	558
INT	616	616	616	616	616	616	616	616	620	643	643	643
PS	729	729	729	729	729	729	729	729	729	1,221	1,221	1,221
SPEC	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2,860	2,860	2,860	2,860	2,860	2,860	2,860	2,874	2,914	3,449	3,458	3,459
SRES-S	0	0	0	0	0	0	0	0	0	0	0	0
SCOM-S	0	0	0	0	0	0	0	0	0	0	0	0
LGS-S	0	0	0	0	0	0	0	0	0	0	0	0
HVF-S	522	522	522	522	522	522	522	533	538	559	561	560
MLF-S	13	13	13	13	13	13	13	13	13	14	14	14
INT-S	456	456	456	456	456	456	456	456	458	480	480	480
TOTAL-S	991	991	991	991	991	991	991	1,002	1,009	1,053	1,055	1,054
SRES-F	0	0	0	0	0	0	0	0	0	0	0	0
SCOM-F	0	0	0	0	0	0	0	0	0	0	0	0
LGS-F	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL-F	0	0	0	0	0	0	0	0	0	0	0	0
SRES-W	0	0	0	0	0	0	0	0	0	0	0	0
SCOM-W	0	0	0	0	0	0	0	0	0	0	0	0
LGS-W	0	0	0	0	0	0	0	0	0	0	0	0
HVF-W	270	270	270	270	270	270	270	270	273	271	273	275
MLF-W	61	61	61	61	61	61	61	61	61	63	67	67
INT-W	86	86	86	86	86	86	86	86	86	88	88	88
TOTAL-W	417	417	417	417	417	417	417	417	420	422	428	430
HVF-T	179	179	179	179	179	179	179	180	202	202	202	202
MLF-T	470	470	470	470	470	470	470	472	478	476	477	477
INT-T	74	74	74	74	74	74	74	74	76	75	75	75
PS-T	729	729	729	729	729	729	729	729	729	1,221	1,221	1,221
SPEC-T	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL-T	1,452	1,452	1,452	1,452	1,452	1,452	1,452	1,455	1,485	1,974	1,975	1,975

Table 19 - 2012/13 Monthly Average Use

2012/13 MONTHLY AVERAGE USE PER CUSTOMER (m ³ /yr)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES	166	91	44	44	48	61	152	271	405	446	369	311
SCOM	379	160	80	85	93	88	330	639	1,018	1,124	941	758
LGS	4,617	2,453	1,532	1,056	1,133	1,825	4,280	7,633	10,698	11,707	9,489	8,367
HVF	129	108	86	74	81	94	126	173	213	238	213	195
MLF	1,355	1,411	1,242	1,160	1,192	1,115	1,461	1,518	1,598	1,632	1,545	1,526
INT	163	164	138	137	140	155	194	270	340	364	325	292
PS	1,839	1,273	42	439	234	200	166	413	340	1,703	509	439
SPEC	38,977	38,368	19,497	27,585	36,898	31,669	39,196	38,224	40,306	40,564	37,285	32,719
TOTAL	578	421	250	263	305	322	546	798	1,064	1,161	976	850
SRES-S	166	91	45	44	48	61	152	272	406	447	370	312
SCOM-S	376	159	79	85	92	88	327	634	1,011	1,115	934	752
LGS-S	4,465	2,372	1,481	1,021	1,096	1,765	4,140	7,382	10,346	11,322	9,176	8,092
HVF-S	98	77	55	48	50	59	96	139	179	199	177	155
MLF-S	174	159	147	124	147	158	193	252	281	322	272	269
INT-S	146	140	98	98	104	124	166	257	338	367	325	286
TOTAL-S	338	193	111	97	104	138	313	549	791	869	718	614
SRES-F	166	91	45	44	48	61	152	272	406	447	370	312
SCOM-F	376	159	79	85	92	88	327	634	1,011	1,115	934	752
LGS-F	4,465	2,372	1,481	1,021	1,096	1,765	4,140	7,382	10,346	11,322	9,176	8,092
TOTAL-F	615	334	200	152	174	268	645	1,213	1,716	1,868	1,591	1,396
SRES-W	158	87	42	42	45	58	145	259	386	425	352	297
SCOM-W	429	181	90	97	105	100	373	723	1,153	1,272	1,065	858
LGS-W	5,647	3,001	1,874	1,292	1,386	2,232	5,236	9,337	13,087	14,320	11,607	10,235
HVF-W	110	92	73	50	68	76	99	144	176	205	187	170
MLF-W	821	674	584	552	570	612	787	1,068	1,326	1,392	1,351	1,263
INT-W	149	169	188	184	185	188	194	233	254	266	245	246
TOTAL-W	760	506	373	301	345	433	776	1,291	1,792	2,014	1,743	1,579
HVF-T	611	558	529	512	509	605	634	734	816	874	774	808
MLF-T	1,641	1,742	1,534	1,434	1,470	1,359	1,785	1,803	1,863	1,891	1,790	1,780
INT-T	364	390	425	421	392	391	474	494	573	567	511	469
PS-T	1,839	1,273	42	439	234	200	166	413	340	1,703	509	439
SPEC-T	38,977	38,368	19,497	27,585	36,898	31,669	39,196	38,224	40,306	40,564	37,285	32,719
TOTAL-T	3,332	3,254	1,924	2,405	2,936	2,613	3,225	3,237	3,410	3,611	3,203	2,925
<p>Note: HVF, MLF, INT, PS, SPEC and TOTAL-T are shown in 10³ m³</p>												

Table 20 - 2013/14 Monthly Customers

2013/14 MONTHLY CUSTOMERS												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES	245,460	245,523	245,612	245,708	245,909	246,282	246,612	246,940	247,282	247,545	247,817	248,070
SCOM	17,059	17,073	17,087	17,101	17,115	17,129	17,143	17,157	17,171	17,185	17,199	17,213
LGS	7,776	7,768	7,761	7,754	7,747	7,739	7,732	7,725	7,718	7,710	7,703	7,696
HVF	92	92	92	92	92	92	92	92	92	92	92	92
MLF	8	8	8	8	8	8	8	8	8	8	8	8
INT	40	40	40	40	40	40	40	40	40	40	40	40
PS	2	2	2	2	2	2	2	2	2	2	2	2
SPEC	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL	270,438	270,507	270,603	270,706	270,914	271,293	271,630	271,965	272,314	272,583	272,862	273,122
SRES-S	233,105	233,211	233,397	233,599	233,986	234,754	235,436	236,083	236,785	237,323	237,853	238,372
SCOM-S	16,136	16,148	16,165	16,182	16,194	16,211	16,228	16,240	16,257	16,274	16,288	16,305
LGS-S	6,701	6,684	6,678	6,672	6,658	6,650	6,644	6,629	6,623	6,616	6,601	6,595
HVF-S	60	60	60	60	60	60	60	60	60	60	60	60
MLF-S	1	1	1	1	1	1	1	1	1	1	1	1
INT-S	30	30	30	30	30	30	30	30	30	30	30	30
TOTAL-S	256,033	256,134	256,331	256,544	256,929	257,706	258,399	259,043	259,756	260,304	260,833	261,363
SRES-F	452	475	470	464	489	482	475	498	494	493	519	517
SCOM-F	24	29	29	29	34	34	34	39	39	39	42	42
LGS-F	76	86	86	86	94	94	94	103	103	103	112	112
TOTAL-F	552	590	585	579	617	610	603	640	636	635	673	671
SRES-W	11,903	11,837	11,745	11,645	11,434	11,046	10,701	10,359	10,003	9,729	9,445	9,181
SCOM-W	899	896	893	890	887	884	881	878	875	872	869	866
LGS-W	999	998	997	996	995	995	994	993	992	991	990	989
HVF-W	27	27	27	27	27	27	27	27	27	27	27	27
MLF-W	1	1	1	1	1	1	1	1	1	1	1	1
INT-W	7	7	7	7	7	7	7	7	7	7	7	7
TOTAL-W	13,836	13,766	13,670	13,566	13,351	12,960	12,611	12,265	11,905	11,627	11,339	11,071
HVF-T	5	5	5	5	5	5	5	5	5	5	5	5
MLF-T	6	6	6	6	6	6	6	6	6	6	6	6
INT-T	3	3	3	3	3	3	3	3	3	3	3	3
PS-T	2	2	2	2	2	2	2	2	2	2	2	2
SPEC-T	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL-T	17	17	17	17	17	17	17	17	17	17	17	17

Table 21 - 2013/14 Monthly Volumes

2013/14 MONTHLY VOLUME (10 ³ m ³)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES	39,829	21,878	10,680	10,651	11,484	14,776	36,625	65,623	98,018	108,103	89,441	75,534
SCOM	6,455	2,728	1,360	1,460	1,593	1,511	5,655	10,959	17,496	19,326	16,202	13,064
LGS	35,987	19,096	11,907	8,198	8,783	14,127	33,088	58,927	82,476	90,125	72,944	64,230
HVF	12,226	10,203	8,213	7,036	7,666	8,875	11,871	16,280	20,137	22,479	20,096	18,364
MLF	10,915	11,358	9,995	9,344	9,583	8,983	11,768	12,219	12,854	13,143	12,436	12,366
INT	6,807	6,503	5,521	5,478	5,581	6,624	9,350	11,277	14,139	15,117	13,462	12,193
PS	3,678	2,545	85	879	468	400	333	827	681	3,405	1,018	878
SPEC	38,977	38,368	19,497	27,585	36,898	31,669	39,196	38,224	40,306	40,564	37,285	32,719
TOTAL	154,874	112,679	67,258	70,631	82,056	86,964	147,885	214,335	286,107	312,263	262,884	229,348
SRES-S	37,914	20,830	10,172	10,149	10,952	14,115	35,038	62,865	94,040	103,835	86,002	72,710
SCOM-S	6,061	2,561	1,277	1,372	1,497	1,420	5,315	10,299	16,447	18,173	15,236	12,288
LGS-S	29,991	15,890	9,909	6,822	7,300	11,739	27,495	48,901	68,445	74,790	60,450	53,230
HVF-S	6,202	4,920	3,596	3,141	3,287	3,810	6,034	8,735	11,313	12,583	11,168	9,741
MLF-S	174	159	147	124	147	158	193	252	281	322	272	269
INT-S	4,615	4,205	2,929	2,925	3,108	3,710	5,867	7,705	10,127	11,209	9,744	8,570
CURT-S	0	-42	0	0	0	0	0	0	0	-169	0	0
TOTAL--S	84,957	48,523	28,030	24,533	26,291	34,951	79,943	138,757	200,653	220,743	182,873	156,808
SRES-F	74	42	20	20	23	29	71	133	196	216	188	158
SCOM-F	9	5	2	2	3	3	11	25	39	44	39	32
LGS-F	340	204	128	88	103	166	389	760	1,064	1,164	1,026	904
TOTAL-F	423	251	150	111	129	198	471	917	1,300	1,424	1,253	1,093
SRES-W	1,842	1,006	487	481	509	632	1,516	2,626	3,782	4,052	3,251	2,666
SCOM-W	385	162	80	86	93	88	329	635	1,009	1,110	927	744
LGS-W	5,655	3,001	1,871	1,288	1,380	2,222	5,203	9,265	12,967	14,170	11,467	10,097
HVF-W	2,966	2,494	1,974	1,337	1,832	2,039	2,669	3,876	4,744	5,525	5,058	4,585
MLF-W	821	674	584	552	570	612	787	1,068	1,326	1,392	1,351	1,263
INT-W	1,101	1,183	1,318	1,290	1,296	1,314	1,613	1,632	1,775	1,896	1,718	1,720
CURT-W	0	-11	0	0	0	0	0	0	0	-29	0	0
TOTAL-W	12,771	8,508	6,314	5,034	5,680	6,907	12,116	19,102	25,603	28,116	23,772	21,075
HVF-T	3,057	2,790	2,644	2,559	2,547	3,025	3,168	3,668	4,080	4,371	3,871	4,038
MLF-T	9,921	10,525	9,264	8,668	8,866	8,214	10,788	10,899	11,246	11,429	10,813	10,834
INT-T	1,091	1,169	1,274	1,263	1,177	1,600	1,870	1,941	2,237	2,210	2,000	1,903
PS-T	3,678	2,545	85	879	468	400	333	827	681	3,405	1,018	878
SPEC-T	38,977	38,368	19,497	27,585	36,898	31,669	39,196	38,224	40,306	40,564	37,285	32,719
TOTAL-T	56,724	55,397	32,764	40,953	49,957	44,908	55,355	55,559	58,551	61,980	54,987	50,372

Table 22 - 2013/14 Monthly Demand

2013/14 MONTHLY DEMAND (10 ³ m ³)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES	0	0	0	0	0	0	0	0	0	0	0	0
SCOM	0	0	0	0	0	0	0	0	0	0	0	0
LGS	0	0	0	0	0	0	0	0	0	0	0	0
HVF	1,037	1,037	1,037	1,037	1,037	1,037	1,037	1,048	1,058	1,064	1,065	1,065
MLF	558	558	558	558	558	558	558	559	562	562	562	562
INT	643	643	643	643	643	643	643	654	662	662	662	662
PS	1,221	1,221	1,221	1,221	1,221	1,221	1,221	1,221	1,221	1,221	1,221	1,221
SPEC	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3,459	3,459	3,459	3,459	3,459	3,459	3,459	3,482	3,503	3,509	3,510	3,510
SRES-S	0	0	0	0	0	0	0	0	0	0	0	0
SCOM-S	0	0	0	0	0	0	0	0	0	0	0	0
LGS-S	0	0	0	0	0	0	0	0	0	0	0	0
HVF-S	560	560	560	560	560	560	560	571	581	587	588	588
MLF-S	14	14	14	14	14	14	14	14	14	14	14	14
INT-S	480	480	480	480	480	480	480	480	480	480	480	480
TOTAL-S	1,054	1,054	1,054	1,054	1,054	1,054	1,054	1,065	1,075	1,081	1,082	1,082
SRES-F	0	0	0	0	0	0	0	0	0	0	0	0
SCOM-F	0	0	0	0	0	0	0	0	0	0	0	0
LGS-F	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL-F	0	0	0	0	0	0	0	0	0	0	0	0
SRES-W	0	0	0	0	0	0	0	0	0	0	0	0
SCOM-W	0	0	0	0	0	0	0	0	0	0	0	0
LGS-W	0	0	0	0	0	0	0	0	0	0	0	0
HVF-W	275	275	275	275	275	275	275	275	275	275	275	275
MLF-W	67	67	67	67	67	67	67	67	67	67	67	67
INT-W	88	88	88	88	88	88	88	88	88	88	88	88
TOTAL-W	430	430	430	430	430	430	430	430	430	430	430	430
HVF-T	202	202	202	202	202	202	202	202	202	202	202	202
MLF-T	477	477	477	477	477	477	477	478	481	481	481	481
INT-T	75	75	75	75	75	75	75	86	94	94	94	94
PS-T	1,221	1,221	1,221	1,221	1,221	1,221	1,221	1,221	1,221	1,221	1,221	1,221
SPEC-T	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL-T	1,975	1,975	1,975	1,975	1,975	1,975	1,975	1,987	1,998	1,998	1,998	1,998

Table 23 - 2013/14 Monthly Average Use

2013/14 MONTHLY AVERAGE USE PER CUSTOMER (m ³ /yr)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES	162	89	43	43	47	60	149	266	396	437	361	304
SCOM	378	160	80	85	93	88	330	639	1,019	1,125	942	759
LGS	4,628	2,458	1,534	1,057	1,134	1,825	4,279	7,628	10,686	11,689	9,469	8,346
HVF	133	111	89	76	83	96	129	177	219	244	218	200
MLF	1,364	1,420	1,249	1,168	1,198	1,123	1,471	1,527	1,607	1,643	1,554	1,546
INT	170	163	138	137	140	166	234	282	353	378	337	305
PS	1,839	1,273	42	439	234	200	166	413	340	1,703	509	439
SPEC	38,977	38,368	19,497	27,585	36,898	31,669	39,196	38,224	40,306	40,564	37,285	32,719
TOTAL	573	417	249	261	303	321	544	788	1,051	1,146	963	840
SRES-S	163	89	44	43	47	60	149	266	397	438	362	305
SCOM-S	376	159	79	85	92	88	328	634	1,012	1,117	935	754
LGS-S	4,476	2,377	1,484	1,022	1,096	1,765	4,138	7,377	10,334	11,304	9,158	8,071
HVF-S	103	82	60	52	55	63	101	146	189	210	186	162
MLF-S	174	159	147	124	147	158	193	252	281	322	272	269
INT-S	154	139	98	98	104	124	196	257	338	368	325	286
TOTAL-S	332	189	109	96	102	136	309	536	772	848	701	600
SRES-F	163	89	44	43	47	60	149	266	397	438	362	305
SCOM-F	376	159	79	85	92	88	328	634	1,012	1,117	935	754
LGS-F	4,476	2,377	1,484	1,023	1,096	1,765	4,138	7,377	10,334	11,304	9,158	8,071
TOTAL-F	766	426	257	191	209	324	781	1,433	2,044	2,242	1,861	1,629
SRES-W	155	85	41	41	45	57	142	253	378	417	344	290
SCOM-W	428	181	90	97	105	100	373	723	1,154	1,273	1,066	859
LGS-W	5,661	3,007	1,877	1,293	1,387	2,233	5,235	9,331	13,072	14,299	11,583	10,209
HVF-W	110	92	73	50	68	76	99	144	176	205	187	170
MLF-W	821	674	584	552	570	612	787	1,068	1,326	1,392	1,351	1,263
INT-W	157	167	188	184	185	188	230	233	254	267	245	246
TOTAL-W	923	618	462	371	425	533	961	1,557	2,151	2,418	2,097	1,904
HVF-T	611	558	529	512	509	605	634	734	816	874	774	808
MLF-T	1,653	1,754	1,544	1,445	1,478	1,369	1,798	1,817	1,874	1,905	1,802	1,806
INT-T	364	390	425	421	392	533	623	647	746	737	667	634
PS-T	1,839	1,273	42	439	234	200	166	413	340	1,703	509	439
SPEC-T	38,977	38,368	19,497	27,585	36,898	31,669	39,196	38,224	40,306	40,564	37,285	32,719
TOTAL-T	3,337	3,259	1,927	2,409	2,939	2,642	3,256	3,268	3,444	3,646	3,235	2,963
<p>Note: HVF, MLF, INT, PS, SPEC and TOTAL-T are shown in 10³ m³</p>												

Table 24 - Annual Average Customers

Long Term	AVERAGE CUSTOMERS									
	Fiscal Year	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
SRES	243,947.3	246,563	249,360	252,154	254,960	257,780	260,617	263,468	266,331	269,200
SCOM	16,947	17,136	17,320	17,500	17,676	17,847	18,006	18,140	18,268	18,394
LGS	7,843	7,736	7,633	7,535	7,440	7,352	7,274	7,221	7,174	7,130
HVF	92	92	92	92	92	92	92	92	92	92
MLF	8	8	8	8	8	8	8	8	8	8
INT	40	40	40	40	40	40	40	40	40	40
PS	2	2	2	2	2	2	2	2	2	2
SPEC	1	1	1	1	1	1	1	1	1	1
TOTAL	268,880	271,578	274,456	277,332	280,220	283,121	286,039	288,972	291,916	294,867
SRES-S	229,349	235,325	239,487	241,960	244,500	247,113	249,759	252,437	255,143	257,874
SCOM-S	16,013	16,219	16,417	16,608	16,772	16,919	17,056	17,176	17,292	17,406
LGS-S	6,776	6,646	6,510	6,379	6,261	6,164	6,077	6,010	5,960	5,917
HVF-S	60	60	60	60	60	60	60	60	60	60
MLF-S	1	1	1	1	1	1	1	1	1	1
INT-S	30	30	30	30	30	30	30	30	30	30
TOTAL-S	252,228	258,281	262,505	265,038	267,623	270,287	272,982	275,714	278,485	281,288
SRES-F	413	486	644	862	1,025	1,127	1,214	1,282	1,332	1,364
SCOM-F	15	35	56	78	102	118	132	140	148	153
LGS-F	60	96	142	188	224	243	263	283	292	297
TOTAL-F	488	616	842	1,129	1,351	1,488	1,608	1,704	1,772	1,813
SRES-W	14,186	10,752	9,229	9,332	9,436	9,540	9,645	9,750	9,856	9,962
SCOM-W	919	883	848	814	802	810	817	824	829	835
LGS-W	1,008	994	981	968	956	945	935	928	922	917
HVF-W	27	27	27	27	27	27	27	27	27	27
MLF-W	1	1	1	1	1	1	1	1	1	1
INT-W	7	7	7	7	7	7	7	7	7	7
TOTAL-W	16,147	12,664	11,092	11,148	11,229	11,330	11,432	11,536	11,642	11,749
HVF-T	5	5	5	5	5	5	5	5	5	5
MLF-T	6	6	6	6	6	6	6	6	6	6
INT-T	3	3	3	3	3	3	3	3	3	3
PS-T	2	2	2	2	2	2	2	2	2	2
SPEC-T	1	1	1	1	1	1	1	1	1	1
TOTAL-T	17	17	17	17	17	17	17	17	17	17

Table 25 - Annual Volume

Long Term	ANNUAL VOLUME (10 ³ m ³)									
	Fiscal Year	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
SRES	588,495	582,642	576,989	571,239	565,815	564,087	564,293	564,835	565,710	566,901
SCOM	96,735	97,810	98,860	99,887	100,891	101,867	102,773	103,537	104,273	104,988
LGS	506,812	499,887	493,231	486,914	480,792	475,057	470,027	466,613	463,565	460,732
HVF	158,406	163,446	163,446	163,446	163,446	163,446	163,446	163,446	163,446	163,446
MLF	134,046	134,963	135,763	135,763	135,763	135,763	135,763	135,763	135,763	135,763
INT	107,310	112,051	119,773	119,773	119,773	119,773	119,773	119,773	119,773	119,773
PS	15,196	15,196	15,196	15,196	15,196	15,196	15,196	15,196	15,196	15,196
SPEC	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289
TOTAL	2,028,289	2,027,285	2,024,549	2,013,508	2,002,966	1,996,478	1,992,561	1,990,453	1,989,017	1,988,090
SRES-S	556,687	558,622	555,050	549,044	543,528	541,679	541,721	542,135	542,903	544,015
SCOM-S	90,750	91,946	93,092	94,210	95,114	95,950	96,731	97,414	98,072	98,729
LGS-S	423,068	414,964	406,275	398,132	391,041	385,064	379,434	375,480	372,392	369,683
HVF-S	79,490	84,530	84,530	84,530	84,530	84,530	84,530	84,530	84,530	84,530
MLF-S	2,498	2,498	2,498	2,498	2,498	2,498	2,498	2,498	2,498	2,498
INT-S	74,713	74,713	74,713	74,713	74,713	74,713	74,713	74,713	74,713	74,713
CURT-S	-1,326	-212	0	0	0	0	0	0	0	0
TOTAL-S	1,225,880	1,227,061	1,216,158	1,203,128	1,191,424	1,184,434	1,179,627	1,176,769	1,175,109	1,174,168
SRES-F	1,033	1,169	1,572	2,031	2,315	2,496	2,655	2,764	2,840	2,876
SCOM-F	106	214	343	468	593	685	759	800	845	866
LGS-F	4,087	6,336	9,413	12,259	14,188	15,325	16,706	17,795	18,321	18,597
TOTAL-F	5,226	7,720	11,328	14,758	17,096	18,506	20,120	21,359	22,005	22,339
SRES-W	30,775	22,851	20,367	20,163	19,972	19,911	19,917	19,936	19,967	20,011
SCOM-W	5,879	5,650	5,426	5,209	5,184	5,233	5,282	5,323	5,356	5,394
LGS-W	79,657	78,587	77,542	76,524	75,563	74,668	73,887	73,338	72,852	72,452
HVF-W	39,098	39,098	39,098	39,098	39,098	39,098	39,098	39,098	39,098	39,098
MLF-W	10,998	10,998	10,998	10,998	10,998	10,998	10,998	10,998	10,998	10,998
INT-W	17,854	17,854	17,854	17,854	17,854	17,854	17,854	17,854	17,854	17,854
CURT-W	-343	-41	0	0	0	0	0	0	0	0
TOTAL-W	183,919	174,997	171,286	169,845	168,669	167,761	167,037	166,547	166,126	165,806
HVF-T	39,819	39,819	39,819	39,819	39,819	39,819	39,819	39,819	39,819	39,819
MLF-T	120,550	121,466	122,267	122,267	122,267	122,267	122,267	122,267	122,267	122,267
INT-T	16,411	19,736	27,206	27,206	27,206	27,206	27,206	27,206	27,206	27,206
PS-T	15,196	15,196	15,196	15,196	15,196	15,196	15,196	15,196	15,196	15,196
SPEC-T	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289
TOTAL-T	613,265	617,507	625,777	625,777	625,777	625,777	625,777	625,777	625,777	625,777

Table 26 - Annual Average Use

Long Term	ANNUAL AVERAGE USE PER CUSTOMER (m ³ /yr)									
	Fiscal Year	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
SRES	2,412	2,363	2,314	2,265	2,219	2,188	2,165	2,144	2,124	2,106
SCOM	5,708	5,708	5,708	5,708	5,708	5,708	5,708	5,708	5,708	5,708
LGS	64,620	64,620	64,620	64,620	64,620	64,620	64,620	64,620	64,620	64,620
HVF	1,731	1,777	1,777	1,777	1,777	1,777	1,777	1,777	1,777	1,777
MLF	16,756	16,870	16,970	16,970	16,970	16,970	16,970	16,970	16,970	16,970
INT	2,683	2,801	2,994	2,994	2,994	2,994	2,994	2,994	2,994	2,994
PS	7,598	7,598	7,598	7,598	7,598	7,598	7,598	7,598	7,598	7,598
SPEC	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289
TOTAL	7,543	7,465	7,377	7,260	7,148	7,052	6,966	6,888	6,814	6,742
SRES-S	2,427	2,374	2,318	2,269	2,223	2,192	2,169	2,148	2,128	2,110
SCOM-S	5,668	5,670	5,672	5,674	5,672	5,672	5,672	5,672	5,672	5,672
LGS-S	62,494	62,492	62,493	62,494	62,494	62,494	62,492	62,494	62,494	62,491
HVF-S	1,336	1,409	1,409	1,409	1,409	1,409	1,409	1,409	1,409	1,409
MLF-S	2,498	2,498	2,498	2,498	2,498	2,498	2,498	2,498	2,498	2,498
INT-S	2,446	2,483	2,490	2,490	2,490	2,490	2,490	2,490	2,490	2,490
TOTAL-S	4,860	4,751	4,633	4,539	4,452	4,382	4,321	4,268	4,220	4,174
SRES-F	2,427	2,374	2,318	2,269	2,223	2,192	2,169	2,148	2,128	2,110
SCOM-F	5,668	5,670	5,672	5,674	5,672	5,672	5,672	5,672	5,672	5,672
LGS-F	62,494	62,492	62,493	62,494	62,494	62,494	62,492	62,494	62,494	62,491
TOTAL-F	4,258	4,147	4,048	3,969	3,893	3,832	3,781	3,737	3,696	3,656
SRES-W	2,169	2,125	2,207	2,161	2,117	2,087	2,065	2,045	2,026	2,009
SCOM-W	6,401	6,402	6,401	6,402	6,461	6,462	6,463	6,462	6,461	6,462
LGS-W	79,038	79,054	79,044	79,046	79,040	79,041	79,052	79,043	79,044	79,053
HVF-W	1,448	1,448	1,448	1,448	1,448	1,448	1,448	1,448	1,448	1,448
MLF-W	10,998	10,998	10,998	10,998	10,998	10,998	10,998	10,998	10,998	10,998
INT-W	2,502	2,545	2,551	2,551	2,551	2,551	2,551	2,551	2,551	2,551
TOTAL-W	11,390	13,819	15,442	15,235	15,021	14,807	14,612	14,437	14,270	14,113
HVF-T	7,964	7,964	7,964	7,964	7,964	7,964	7,964	7,964	7,964	7,964
MLF-T	20,092	20,244	20,378	20,378	20,378	20,378	20,378	20,378	20,378	20,378
INT-T	5,470	6,579	9,069	9,069	9,069	9,069	9,069	9,069	9,069	9,069
PS-T	7,598	7,598	7,598	7,598	7,598	7,598	7,598	7,598	7,598	7,598
SPEC-T	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289	421,289
TOTAL-T	36,074	36,324	36,810	36,810	36,810	36,810	36,810	36,810	36,810	36,810
Note: HVF, MLF, INT, PS, SPEC and TOTAL-T are shown in 10³m³										

VARIABILITY AND ACCURACY

Weather Effect and Weather Adjustment

The weather effect is determined in any class by regressing the last two years of actual monthly energies against the actual DDH for the month. This results in a m^3 per DDH effect for that particular sector. These effects are additive as they are estimated from a linear model

For 2011/12, the weather effect has been determined to be $237.3 \times 10^3 \text{m}^3$ per DDH. This is broken into:

Residential SGS: $105.4 \times 10^3 \text{m}^3$ per DDH (0.439m^3 per customer per DDH)

Commercial SGS: $18.6 \times 10^3 \text{m}^3$ per DDH (1.109m^3 per customer per DDH)

LGS: $85.7 \times 10^3 \text{m}^3$ per DDH (10.924m^3 per customer per DDH)

Top Consumers: $27.6 \times 10^3 \text{m}^3$ per DDH ($191,428 \text{m}^3$ per customer per DDH)

The decrease for this forecast year of 18.3 DDH in the normal weather assumption results in a decrease of $4,342 \times 10^3 \text{m}^3$ or about 0.2% to the Natural Gas Volume Forecast.

Effect of Extreme Weather

A record cold winter will increase load 11% and a record warm winter will decrease it 10%. The range is greater on a monthly basis; with up to a 43% increase or 33% decrease possible.

Table 27 - Effect of Weather

		Effect of Weather due to Winter Extremes on Total Volume								
		Normal		Record Warm			Record Cold			
$10^3\text{m}^3/\text{DDH}$		DDH	10^3m^3	DDH	10^3m^3	Effect	DDH	10^3m^3	Effect	
	238.2									
Year:	2012/13	4518	2028289	3678	1828011	-10%	5439	2247648	11%	
Month:	April	292	154897	150	121216	-22%	469	197059	27%	
Month:	May	119	112728	32	91862	-19%	215	135452	20%	
Month:	June	18	67112	0	62895	-6%	73	80189	19%	
Month:	July	2	70451	0	70094	-1%	12	72857	3%	
Month:	August	5	81917	0	80726	-1%	32	88348	8%	
Month:	September	69	86444	20	74772	-14%	183	113646	31%	
Month:	October	278	146710	76	98546	-33%	450	187609	28%	
Month:	November	548	214745	391	177205	-17%	777	269341	25%	
Month:	December	837	286888	599	230006	-20%	1117	353560	23%	
Month:	January	945	313125	521	212080	-32%	1008	328012	5%	
Month:	February	786	263537	663	234167	-11%	1261	376705	43%	
Month:	March	620	229736	601	225282	-2%	968	312677	36%	

For SGS Residential, natural gas heating makes up a larger percentage of usage than other sectors, so the SGS Residential class has a larger proportional weather effect (16% cold and -15% warm) than the overall system (11% and -10%).

Table 28 – SGS Residential Effect of Weather

		Effect of Weather due to Winter Extremes on SGS Residential								
		Normal		Record Warm			Record Cold			
$10^3\text{m}^3/\text{DDH}$		DDH	10^3m^3	DDH	10^3m^3	Effect	DDH	10^3m^3	Effect	
	105.0									
Year:	2012/13	4518	588495	3678	500211	-15%	5439	685190	16%	
Month:	April	292	40230	150	25383	-37%	469	58815	46%	
Month:	May	119	22098	32	12900	-42%	215	32115	45%	
Month:	June	18	10787	0	8929	-17%	73	16552	53%	
Month:	July	2	10758	0	10600	-1%	12	11818	10%	
Month:	August	5	11599	0	11074	-5%	32	14434	24%	
Month:	September	69	14924	20	9779	-34%	183	26915	80%	
Month:	October	278	36993	76	15762	-57%	450	55021	49%	
Month:	November	548	66282	391	49734	-25%	777	90348	36%	
Month:	December	837	99003	599	73929	-25%	1117	128392	30%	
Month:	January	945	109189	521	64648	-41%	1008	115752	6%	
Month:	February	786	90340	663	77393	-14%	1261	140225	55%	
Month:	March	620	76293	601	74329	-3%	968	112854	48%	

Volume Variability

The forecast is prepared with the goal of being an unbiased and accurate predictor of future volumes. It was produced with the expectation that there is a 50% chance that the actual will be higher than forecast, and a 50% chance that the actual will be lower than forecast.

This section presents a probability-based estimate of how much future actual volumes might vary from forecast. This can be used to produce forecasts with a specific probability of occurrence, or can be used to determine the probability of specific volumes occurring. This analysis was done excluding the Special Contract and Power Stations, since their use varies by their level of production and they are forecast using their own three-year historical averages.

The standard deviation and correlation coefficient of historical weather adjusted volume was determined. These were then applied to the forecast to give an estimate of the width of the volume confidence bands. 10% and 90% confidence bands (-/+ 1.28 standard deviations) were selected to represent a low and high scenario.

This calculation gives the variability due to economic effects and the year-to-year variation in natural gas use. It does not include variability due to weather which was removed through the use of weather adjusted volumes. The following table summarizes the variability of volume due to economic effects and the year-to-year variation:

Table 29 - Volume Variability

Volume Variability (10^3 m^3)						
Fiscal Year	Forecast 10^3 m^3	Economic Std Dev	10% Prob Point	90% Prob Point	Bandwidth +/- to Forecast	Bandwidth +/- as % of Forecast
2012/13	1,591,804	23,826	1,561,270	1,622,339	30,534	1.9%
2013/14	1,590,800	33,695	1,547,618	1,633,982	43,182	2.7%
2014/15	1,588,064	41,268	1,535,177	1,640,951	52,887	3.3%
2015/16	1,577,023	47,652	1,515,954	1,638,092	61,069	3.9%
2016/17	1,566,481	53,277	1,498,204	1,634,758	68,277	4.4%
2017/18	1,559,993	58,362	1,485,200	1,634,787	74,794	4.8%
2018/19	1,556,075	63,038	1,475,289	1,636,862	80,786	5.2%
2019/20	1,553,967	67,390	1,467,603	1,640,332	86,364	5.6%
2020/21	1,552,531	71,478	1,460,928	1,644,135	91,603	5.9%
2021/22	1,551,605	75,345	1,455,047	1,648,163	96,558	6.2%

Variability due to economic/year-to-year variation is estimated to be 1.9% in the first year of the forecast, and 2.7% in the second year of the forecast. This represents the best level of accuracy possible within the gas volume forecast.

If variability due to weather is needed, the standard deviation of annual degree days heating over the past 25 years is about 400 DDH, multiplied by the weather effect of 237.3 10³m³ per DDH giving a weather standard deviation of 95,000 10³m³ or 6% of the total volume (less Special and Power Stations). This 6% of volume can be used as the standard deviation in a calculation of variability due to weather.

To find the total variability of the forecast, including weather, the variance (square of the standard deviation) due to economic/year-to-year variation can be added (because they are independent) to the variance due to weather. The square root of this variance gives the standard deviation that can be used to estimate the expected variability of the forecast.

For Year 1 (2012/13) of the forecast, the 10% to 90% total bandwidth is:

$$((1.9\%)^2 + (6.0\%)^2)^{0.5} * 1.28 \rightarrow -/+ 8.1\%$$

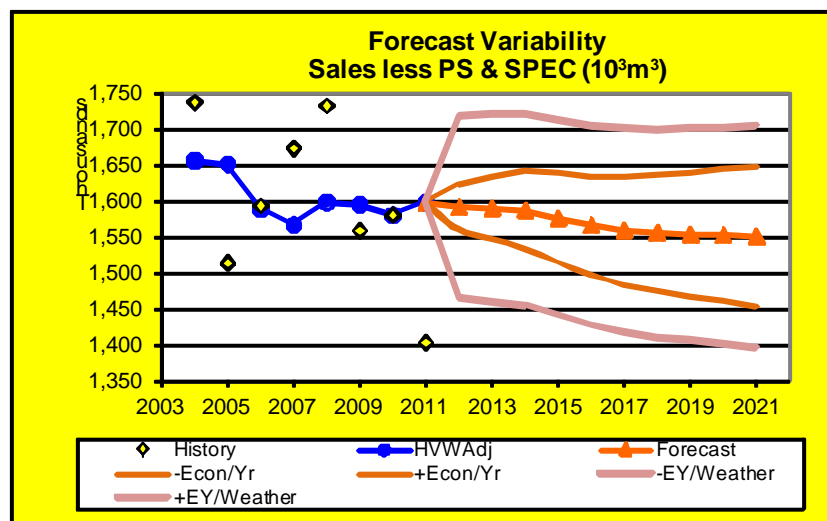
For Year 2 (2013/14) of the forecast, the 10% to 90% total bandwidth is:

$$((2.7\%)^2 + (6.0\%)^2)^{0.5} * 1.28 \text{ (10\% \& 90\% points)} \rightarrow -/+ 8.4\%$$

In both year 1 and year 2, the weather dominates the other variables and the forecast is expected to be about 8% of the non-weather adjusted actual volume 80% of the time.

The figure below illustrates the expected bandwidths:

Figure 18 - Volume Variability



Forecast Accuracy

The tables below show the first and second year forecast accuracy of the last eight Natural Gas Volume Forecasts for total volume less Special Contract and Power Stations:

Table 30 - First Year Forecast Accuracy

First Year Forecast Accuracy						
Forecast Created	Year being Forecast	Forecast 10 ³ m ³	Actual 10 ³ m ³	HVWAdj Actual 10 ³ m ³	% Diff	Over/Under
2011	2011/12	1,577,627	1,404,305	1,598,526	-1.3%	Under
2010	2010/11	1,601,893	1,580,692	1,580,485	1.4%	Over
2009	2009/10	1,612,727	1,559,116	1,595,021	1.1%	Over
2008	2008/09	1,604,224	1,732,617	1,598,567	0.4%	Over
2007	2007/08	1,581,138	1,673,486	1,566,942	0.9%	Over
2006	2006/07	1,593,297	1,593,556	1,589,669	0.2%	Over
2005	2005/06	1,692,362	1,514,166	1,651,858	2.5%	Over
2004	2004/05	1,659,734	1,737,333	1,655,929	0.2%	Over
Abs Average:					1.0%	

Table 31 - Second Year Forecast Accuracy

Second Year Forecast Accuracy						
Forecast Created	Year being Forecast	Forecast 10 ³ m ³	Actual 10 ³ m ³	HVWAdj Actual 10 ³ m ³	% Diff	Over/Under
2010	2011/12	1,602,442	1,404,305	1,600,999	0.1%	Over
2009	2010/11	1,617,771	1,580,692	1,573,497	2.8%	Over
2008	2009/10	1,604,283	1,559,116	1,573,580	2.0%	Over
2007	2008/09	1,610,526	1,732,617	1,585,492	1.6%	Over
2006	2007/08	1,619,285	1,673,486	1,589,353	1.9%	Over
2005	2006/07	1,725,646	1,593,556	1,624,782	6.2%	Over
2004	2005/06	1,671,535	1,514,166	1,615,297	3.5%	Over
Abs Average:					2.6%	

After accounting for heating value and weather adjusted actual volume (HVW Adj) based on the normalized weather used in the year the forecast was created, the one year forecast has had an average difference of 1.0% and the two year forecast has had an average difference of 2.6%. Older forecasts have tended to over forecast the gas consumption. This can be attributed to a greater number of conversions to high efficiency gas furnaces, more conversions to electric water heating, and improvement to insulation levels than was originally forecast. These forecasts have mostly been within the one and two-year 80% bandwidths of 1.9% and 2.7%.

Comparison of the 2011 Forecast to the 2011/12 HVW Adjusted Actuals

There were 53 more customers forecast in 2011/12 than actual. There were 79 more in the SGS Residential group and 28 fewer in the combined SGS Commercial and LGS groups. Each year some LGS customers are expected to qualify as SGS Commercial when their consumption reduces. Fewer customers than expected switched from LGS to SGS Commercial during 2011/12 so the forecast of LGS customers was 137 too low and SGS Commercial customers was 109 too high.

The forecast was 2,253 high in the number of WTS customers and 2,378 low in the number of Quarterly Rate customers. More customers than forecast switched from WTS to Quarterly Rate.

The forecast volume for 2011/12 was 53,247 10^3m^3 less than the Heating Value and Weather Adjusted actual. The majority of the difference was in the Special Contract group where the forecast was for 27,639 10^3m^3 more natural gas than their previous 3-year average use due to increased production.

Excluding Power Stations and Special Contract, whose forecasts are based on their 3-year historic average, the forecast was 20,899 10^3m^3 or 1.3% less than the total HVW Adjusted actual. The largest differences were in the LGS group that was forecast to use 18,008 10^3m^3 less than it did and the SGS Residential forecast that used 11,303 10^3m^3 less than actual.

Table 32 - 2011 Forecast Compared to Actuals

	2011 FORECAST COMPARED TO ACTUALS					
	2011/12 Average Customers			2011/12 Volume (10 ³ m ³)		
	Forecast	Actual	Fest - Act	Forecast	HVAAdj Act	Fest - Act
SRES	241,923	241,844	79	583,581	594,884	-11,303
SCOM	16,926	16,817	109	96,196	96,000	197
LGS	7,758	7,895	-137	493,152	511,155	-18,003
HVF	93	91	2	158,209	158,304	-95
MLF	8	8	0	135,695	128,325	7,369
INT	40	40	0	110,793	109,857	936
PS	2	2	0	12,230	16,919	-4,688
SPEC	1	1	0	413,943	441,602	-27,659
TOTAL	266,751	266,698	53	2,003,800	2,057,047	-53,247
SRES-S	219,075	221,449	-2,374	536,782	546,945	-10,163
SCOM-S	15,896	15,765	131	89,649	89,201	448
LGS-S	6,654	6,789	-135	406,020	423,506	-17,486
HVF-S	60	59	1	78,489	80,064	-1,576
MLF-S	1	1	0	1,855	2,378	-523
INT-S	29	30	-1	74,021	74,630	-609
CURT-S	0	0	0	-439	0	-439
TOTAL-S	241,715	244,093	-2,378	1,186,376	1,216,725	-30,349
SRES-F	527	398	129	1,460	948	513
SCOM-F	24	12	12	169	76	92
LGS-F	80	43	37	6,006	3,517	2,489
TOTAL-F	631	453	178	7,635	4,541	3,094
SRES-W	22,321	19,997	2,324	45,339	46,992	-1,653
SCOM-W	1,006	1,040	-34	6,379	6,722	-343
LGS-W	1,024	1,063	-39	81,126	84,132	-3,006
HVF-W	28	27	1	40,303	40,089	215
MLF-W	1	1	0	11,063	10,769	294
INT-W	8	7	1	19,390	18,448	941
CURT-W	0	0	0	-124	0	-124
TOTAL-W	24,388	22,135	2,253	203,477	207,152	-3,675
HVF-T	5	5	0	39,417	38,151	1,266
MLF-T	6	6	0	122,777	115,179	7,598
INT-T	3	3	0	17,945	16,779	1,167
PS-T	2	2	0	12,230	16,919	-4,688
SPEC-T	1	1	0	413,943	441,602	-27,659
TOTAL-T	17	17	0	606,313	628,630	-22,317

ASSUMPTIONS

Economic Assumptions

Economic forecast assumptions are taken from the 2012 Economic Outlook and the 2012 Energy Price Outlook. These documents contain Manitoba Hydro's forecasts of economic variables including prices of electricity, natural gas and oil, Gross Domestic Product (GDP), Manitoba population and residential electric customers.

The following are the economic variables used for this Natural Gas Volume Forecast:

Residential Electric Customers - The number of residential electric customers in Manitoba is forecast to increase by 1.2% (5,581 units) in 2012/13 and averages 1.2% per year over the forecast period. This compares to a historical average increase of 0.9% per year over the last ten years. This is used to forecast the number of SGS Residential natural gas customers.

Electricity Prices - The electricity price forecast is based on Consumer Price Index (CPI) and rate increase projections contained in the Integrated Financial Forecast. The nominal electricity price is forecast to increase by 2.0% in 2012/13 and then increase 3.5% per year until 2023/24 and then increase by 2.0% per year throughout the rest of the forecast period. This is used in the Residential customer forecast.

Natural Gas Prices – Manitoba Hydro views the natural gas price forecast as commercially sensitive information. Consistent with the Clean Environment Commission and Electric General Rate Application, this information will not be publicly disclosed. Gas prices are used to forecast the number of SGS Residential customers.

This forecast assumes that natural gas prices will not rise faster than electricity prices. Therefore, natural gas will retain its price advantage into the future and customers are not forecast to switch from natural gas heat to electricity.

Gas Expansion Assumptions

Gas lines are currently being extended to 20 agricultural colonies in Manitoba and three industrial customers. Natural gas will be replacing coal and propane currently in use. These extensions are expected to come online between 2012 and 2015 and the customers will be classified as Large General Service (LGS). Based on the coal and propane consumption data supplied by the customers, the natural gas equivalent will be approximately $8,000 \times 10^3 \text{m}^3$ by 2015/16. This usage is included in the LGS forecast.

Heating Value Assumptions

The Heating Value is the amount of energy per unit of gas and it varies month to month. All forecast volumes are standardized to their energy equivalent Heating Value of $37.8 \text{ GJ}/10^3 \text{m}^3$.

Normal Weather Assumptions

The forecast is prepared assuming normal weather. Normal weather is determined from the 25 year average of Degree Days Heating (DDH) in Winnipeg over the period from April 1986 to March 2011. DDH uses a base of 14 degrees Celsius.

The 25 year weather normal used for this forecast is 4,536.7 DDH. This is a decrease of 10.4 DDH (0.2%) from last year's normal of 4,547.1 DDH.

Demand Side Management (DSM) in the Forecast

This forecast reflects future DSM savings associated with Manitoba Hydro's Power Smart initiative. Savings due to DSM programs to date are embedded in the historical data that is the basis for this forecast. The current level of past achieved DSM savings is assumed to remain in place throughout the future. Future DSM savings arising from future Power Smart offerings and market engagement above those already achieved are included as outlined in Manitoba Hydro's 2012 Power Smart Plan.

METHODOLOGY

SGS Residential Methodology

The Residential energy forecast was determined using a detailed end use model. The forecast of the number of SGS Residential Customers was derived from the growth in residential customers as forecast in Manitoba Hydro's 2012 Economic Outlook. The 2009 Residential Energy Use Survey provided current end use saturation rates, detailed information on newly constructed dwellings, and appliance age distributions and their expected lifetimes. The end use assumptions included current usage information and efficiency improvement information. The number of appliances and their estimated usage were multiplied together to calculate an energy forecast for each end use. All uses were then combined to calculate the total use for the SGS Residential End Use Forecast.

The detailed steps are as follows:

a) Total Number of Residential Customers - The Economic Analysis Department forecast the total number of residential customers for the 2012/13 to 2031/32 period. This customer forecast was the primary input for the Residential End Use Model.

b) Customers by Dwelling Type and Area - The 2009 Residential Energy Use Survey was used to estimate the number of customers by various dwelling types (Single Detached, Multi-family Attached, and Individually-Metered Apartments). Single detached dwellings were sub classified as Winnipeg, Gas Available Areas Outside of Winnipeg, and Gas Unavailable Areas.

c) Customers by Heating Type - Each combination of Dwelling Type and Area are divided into three groups: Gas Heat Billed, Electric Heat Billed Customers and Other Heat. Gas Heat Billed Customers pay for space heat on their gas bill. Electric Heat Billed Customers pay for space heat on their electricity bill. Other Heat customers may use propane or other fuels for space heat, or may use gas or electric heat but are not billed directly for that use.

For Single Detached Homes in Gas Available Areas Excluding Winnipeg, the number of newly constructed homes choosing gas heat was econometrically forecast using the following equation:

Percentage of Newly Constructed Homes Choosing Gas Heat in Gas Available Areas Excluding Winnipeg

$$= 1 - \text{Percentage of Newly Constructed Single Detached Homes in Gas Available Areas Excluding Winnipeg with Electric Heat Billed} \\ - \text{Percentage of Newly Constructed Single Detached Homes in Gas Available Areas Excluding Winnipeg Choosing Other Heating Fuels}$$

Where:

Percentage of Newly Constructed Single Detached Homes in Gas Available Areas Excluding Winnipeg with Electric Heat Billed =

$$\text{Percentage of Newly Constructed Single Detached Homes in Gas Available Areas Excluding Winnipeg with Electric Heat Billed (t-1)} \\ + \text{Change in Percentage of Newly Constructed Single Detached Homes in Gas Available Areas Excluding Winnipeg with Electric Heat Billed (t)}$$

Change in Percentage of Newly Constructed Single Detached Homes in Gas Available Areas Excluding Winnipeg with Electric Heat Billed (t)

$$= 0.001 + 0.668 \times \text{Chg PG/PE}$$

Change in PG/PE

$$= \text{Price of Gas per mMBTU (t-1)} / \text{Price of Electricity per mMBTU (t-1)} \\ - \text{Price of Gas per mMBTU (t-2)} / \text{Price of Electricity per mMBTU (t-2)}$$

R-squared: 44.6%

T-stats:

Constant	: 0.14
Chg PG/PE	: 3.81

And:

Percentage of Newly Constructed Single Detached Homes in Gas Available Areas Excluding Winnipeg Choosing Other Heating Fuels is as determined by the 2009 Residential Energy Use Survey.

A modified version of this model was used to forecast heating appliances in newly constructed single detached homes in Winnipeg.

d) Appliance Forecast - Historical saturation and age distribution data was collected from the 2009 Manitoba Hydro Residential Energy Use Survey. Saturations were forecast using a birth/death/replacement model.

e) Average Appliance Usage - The current estimates of annual appliance usage, also called Unit Energy Consumptions (UECs) were calculated using Residential Energy Use Survey information, Conditional Demand Analysis techniques and expert opinion. The survey results were screened for consumption records and survey completeness. Missing values for the size of home, people per household and income questions were imputed. Degree days heating/cooling and demographic factors such as income and people per household were added to help explain usage variations. They were then normalized for the average customer.

f) New Appliance Usage - New end uses are typically more efficient than existing stock. UECs for new appliances were calculated and these were used in the birth/death/replacement model.

g) Total Energy Use - The forecast number of appliances was multiplied by the forecast UECs to get the forecast volume per appliance. The appliance usages were summed to get the total use for the SGS Residential rate class.

SGS Commercial and LGS Methodology

Customer Forecast

The combined number of SGS Commercial and LGS customers was generated for each year of the forecast period. The annual increase in customers was forecast using an average of annual changes in total GS customers (SGS plus LGS) over the previous ten years.

The number of Commercial Customers for each year was split into SGS Commercial and LGS classes based on historical trends. In 2011/12, 68.1% of the customers were in the SGS Commercial class and 31.9% were in the LGS class. The SGS Commercial percentage is forecast to increase to 72.1% by 2021/22. The increase in the percentage of SGS Commercial customers is due to ongoing efficiency improvements that are reducing customer use and therefore moving customers from LGS to SGS Commercial.

When a customer's volume is reduced below 15,000 m³, the customer is generally switched from the LGS customer class to the SGS Commercial customer class and the SGS Commercial proportion of the total customer's increases.

Average Use

As noted earlier, the SGS Commercial class consists of customers using between 0 m³ and 15,000 m³ of gas per year, and the LGS class consists of customers using between 15,000 m³ and 680,000 m³ per year. By definition, the truncation of these classes results in relatively stable average uses for each respective class.

In other words, if usage by individual customers increases sufficiently then they will be re-classed, switching from either SGS Commercial to LGS or from LGS to High Volume Firm (HVF). Conversely, if usage by individual customers decreases, customers will either move from HVF to LGS or from LGS to SGS Commercial. These shifts have tended to offset each other over time, so SGS Commercial and LGS classes have not exhibited either significant upward or downward trends in average use. This result could be expected since the classes are defined by specific volume ranges.

The SGS Commercial average use is forecast to be 5,708 m³ up to 2021/22 and the LGS class average use is forecast to be 64,620 m³ to 2021/22.

Volume Forecast

The forecasts for customers and average use are multiplied together for each class to calculate demand in m³ for SGS Commercial and LGS.

SGS Commercial Total Use (t)

$$\begin{aligned} &= \text{SGS Commercial Number of Customers (t)} \\ &\times \text{SGS Commercial Average Annual Use (t)} \end{aligned}$$

LGS Total Use (t)

$$\begin{aligned} &= \text{LGS Number of Customers (t)} \\ &\times \text{LGS Average Annual Use (t)} \end{aligned}$$

Top Consumers Methodology

The Top Consumers forecast was prepared on a customer by customer basis. Each customer was analyzed individually, and a monthly forecast was determined for the first three forecast years.

To help forecast monthly volumes, historic monthly consumption for the past three years was first adjusted to the standard heating value and then weather adjusted. For customers with unchanging usage over that time, the three years of monthlies were averaged and used. In cases where the historic volume trended up or down, the last year of monthlies or two years of averaged monthlies was used.

Similarly, historic monthly recorded demand for the past three years was used to help forecast monthly peak consumption. From the forecast of customer monthly peaks, the billed demand was determined. Billed demand is the highest recorded demand of the current month and the previous 11 months, but only from the winter months of November through March.

Information on individual company operating plans was collected from industry news and from Manitoba Hydro's Key and Major Account representatives. This information was used to help forecast volume and demand changes, rate classifications and gas supply arrangements. The first three years of the forecast includes production-related and square footage related increases that are confirmed to be taking place.

For each Top Consumer customer, year three of their forecast is used from year four and on.

Monthly Allocations

Monthly Customers

The monthly historical growth pattern of the number of customers in each rate class is used to allocate annual growth throughout the year. This way, customer growth is reflected more accurately to the month in which it will occur.

Table 33 – Monthly Allocation of Customer Changes

MONTHLY ALLOCATION OF CUSTOMER CHANGES												
Class	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SGS Res	6.81%	2.26%	3.16%	3.41%	7.21%	13.29%	11.81%	11.70%	12.21%	9.38%	9.72%	9.03%
SGS Com	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.37%
LGS	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.33%	8.37%

Monthly Volumes

Monthly historical volumes for each rate class are heating value and weather adjusted and monthly percentages are calculated. Those percentages are then applied to the annual forecast volumes of each rate class to give the monthly forecast.

Table 34 – Monthly Allocation of Volume

MONTHLY ALLOCATION OF VOLUME												
Class	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SGS Res	6.84%	3.76%	1.83%	1.83%	1.97%	2.54%	6.29%	11.26%	16.82%	18.55%	15.35%	12.96%
SGS Com	6.60%	2.79%	1.39%	1.49%	1.63%	1.55%	5.78%	11.20%	17.89%	19.76%	16.57%	13.36%
LGS	7.20%	3.82%	2.38%	1.64%	1.76%	2.83%	6.62%	11.79%	16.50%	18.03%	14.59%	12.85%

GLOSSARY OF TERMS

Small General Service Class (SGS) – is made up of residential and small commercial customers with an annual volume of less than 15,000 m³ per year. If their volume is higher, then it is in their favor to switch to Large General Service (LGS) which has a higher basic charge but lower per unit charge. In this document, SGS Residential is abbreviated as SRES, and SGS Commercial is abbreviated as SCOM.

Large General Service Class (LGS) - Typically medium-sized commercial and industrial customers (and a few residential customers) with annual consumption greater than 15,000 m³ and less than 680,000 m³.

High Volume Firm Class (HVF) - Commercial and industrial customers where annual consumption exceeds 680,000 m³.

Mainline Firm Class (MLF) - Commercial and industrial customers where annual consumption exceeds 680,000 m³ and where the customer is served directly from the Company's transmission system or through dedicated distribution facilities at high pressure.

Interruptible Class (INT) - Commercial and industrial customers where annual consumption must exceed 680,000 m³, and elect to allow their service to be interrupted upon notice. The customer pays a lower cost for this service. Manitoba Hydro may help the customer find alternative service, but the customer is expected to have an alternative energy source available.

Curtailed Interruptible – Refers to the gas that was not supplied to interruptible customers due to the interruptions.

Quarterly Service (-S) - This is the Quarterly Service of gas that Manitoba Hydro procures (System Supply) and delivers to its gas customers. The primary gas rate is set every three months.

Fixed Rate Primary Gas Service (-F) - This is the 1-year, 3-year and 5-year contract service that Manitoba Hydro procures (System Supply) and delivers to its gas customers.

Western Transportation Service (WTS or -W) - This is an unbundled service pertaining only to the primary gas portion of the gas consumed at a customer's facility. Under WTS, Manitoba

Hydro receives, manages and re-delivers broker-provided primary gas. Manitoba Hydro bills WTS customers for the primary gas portion of the customer's consumption on behalf of the broker (using the broker's primary gas price) and remits the money collected to the broker.

Transportation Service (T-Service or -T) - Under this service, the customer is obligated to arrange for the supply and delivery of its own gas to the Manitoba gate stations. The gas is then received by Manitoba Hydro at the Manitoba gates and transported to the customer's plant gate (Manitoba Hydro does not purchase the gas from the customer). Charges for this service include delivery on the Manitoba Hydro system but do not include any supply cost component other than a charge to cover a proportionate share of unaccounted for gas losses on the Manitoba Hydro distribution system.

Billed Demand – is the level at which customers are assessed a Demand Charge. For High Volume Firm, Mainline and Interruptible customers, the Monthly Billed Demand is equal to each customer's maximum recorded demand during the last twelve months, but only in the months covering the November to March period.

Recorded Demand – is the peak daily usage for a month. Daily usage is based on a gas day that begins that day at 9 a.m. and ends 24 hours later on the next day.

Gas Year - is the year from November to October. This is the fiscal year used for gas purchasing.

Cubic Meter (m³) – is the unit of measurement used for natural gas volumes.

Ten-Three-M-Three (10³m³) - Thousands of cubic meters.

Thousands of cubic feet (Mcf) - The older form of measurement for natural gas volumes prior to the metric system. 1 Mcf = 28.32784 m³.

Gigajoule (GJ) - Equals one billion joules, which are units of energy used to measure energy content.

Heating Value (HV) - Measures the energy content of gas. Units are given in GJ/10³m³. Heating Value varies depending on the richness of the gas, but normal is considered to be 37.8 GJ/10³m³. To convert GJ to 10³m³, divide the GJ by the Heating Value.