NATURAL GAS VOLUME FORECAST

2017

MARKET FORECAST
OCTOBER 2017

Manitoba Hydro

EXECUTIVE SUMMARY

Overview

In 2016/17 Manitoba Hydro had 277,899 natural gas customers who used a Heating Value and Weather Adjusted volume of [redacted] 10^3m^3.

During 2016/17 there were an average of [redacted] System Supply customers who used a Heating Value and Weather Adjusted volume of [redacted] 10^3m^3. Manitoba Hydro has two different rate options for their supply: a Quarterly service, and a Fixed Rate service.

During 2016/17 there were an average of [redacted] Western Transportation Service (WTS) customers who used a Heating Value and Weather Adjusted volume of [redacted] 10^3m^3 and there were [redacted] Transportation Service (T-Service) customers who used a Heating Value and Weather Adjusted volume of [redacted] 10^3m^3.

2017/18 - First Year of the Forecast

The 2017/18 forecast is for an average of [redacted] customers with a total volume of [redacted] 10^3m^3. This is a customer [redacted] of [redacted] customers [redacted] from 2016/17 and a volume [redacted] of [redacted] 10^3m^3 [redacted] from the Heating Value and Weather Adjusted actuals in 2016/17.

For the 2017/18 fiscal year, Quarterly Rate customers are forecast to [redacted] customers to [redacted] Fixed Rate customers to [redacted] customers to [redacted] WTS customers to [redacted] customers to [redacted] and T-Service to [redacted] customer to [redacted]

Also for 2017/18, Quarterly Rate volume is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3. Fixed Rate volume is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3. WTS volume is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3. T-Service is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3. These are all compared to the 2016/17 Heating Value and Weather Adjusted actuals.

Comparison of the 2016 Forecast to the 2017 Forecast

The 2017 forecast of [redacted] customers for 2017/18 represents a [redacted] of [redacted] customers from the 2016 forecast of [redacted] customers. By 2026/27, the forecast is for [redacted] customers, an [redacted] of [redacted] customers compared to the 2016 forecast of [redacted]

In 2016/17, [redacted] SGS Residential customers [redacted] Manitoba Hydro's Quarterly service [redacted] the WTS service than forecast in the 2016 Forecast. The forecast for SGS Residential Quarterly customers is [redacted] while the forecast for SGS Residential WTS customers is [redacted]

The volume forecast is [redacted] 10^3m^3 from the 2016 forecast in 2017/18. This is mostly due to the adjusted starting point as there was [redacted] natural gas consumed in 2016/17 than projected under the 2016 forecast.

Volume Variability

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

Table 1 – Volume Forecast by Supply Source

MANITOBA HYDRO NATURAL GAS FORECAST BY SUPPLY SOURCE

2007/08 - 2026/27

	System Supply				WTS		T-Service		Total	
	Quarterly Rate		Fixed Rate							
Fiscal Year	Ave Custs	10^3m^3	Ave Custs	10^3m^3	Ave Custs	10^3m^3	Ave Custs	10^3m^3	Ave Custs	10^3m^3
2007/08	[redacted]								259,602	[redacted]
2008/09									261,935	
2009/10									263,391	
2010/11									264,978	
2011/12									266,699	
2012/13									268,625	
2013/14									270,953	
2014/15									273,465	
2015/16									275,728	
2016/17									277,899	
2017/18	[redacted]									
2018/19										
2019/20										
2020/21										
2021/22										
2022/23										
2023/24										
2024/25										
2025/26										
2026/27										

Note: Historical Volumes are Heating Value and Weather Adjusted

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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.

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 [redacted] 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 [redacted] $GJ/10^3m^3$

[redacted]

In 2016/17 Manitoba Hydro had 277,899 natural gas customers who consumed a Heating Value and Weather Adjusted volume of [redacted] 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 2016/17 there were an average of [redacted] General Service customers who used a Heating Value and Weather Adjusted volume of [redacted] 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 [redacted] 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 a Heating Value and Weather Adjusted volume of [redacted] 10^3m^3 in 2016/17.

Supply Services

System Supply is the service where Manitoba Hydro's purchases the primary gas for the customer. During 2016/17 there were an average of [redacted] System Supply customers who used a Heating Value and Weather Adjusted of [redacted] 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 2016/17 there were an average of [redacted] WTS customers who used a Heating Value and Weather Adjusted volume of [redacted] 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 2016/17 there were [redacted] Transportation Service customers who used a Heating Value and Weather Adjusted volume of [redacted] 10^3m^3.

Table 2 - 2016/17 Average Customers

2016/17 AVERAGE CUSTOMERS BY CLASS
Actuals

	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	[redacted]				
SGS Commercial					
LGS					
High Volume Firm					
Mainline Firm					
Interruptible Sales					
Power Stations				2	2
Special Contract				1	1
Total				[redacted]	277,899

Table 3 - 2016/17 Volume

2016/17 VOLUME BY CLASS (10^3m^3)
Heating Value and Weather Adjusted Actuals

	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	[redacted]				
SGS Commercial					
LGS					
High Volume Firm					
Mainline Firm					
Interruptible Sales					
less Curtailed Int					
Power Stations					
Special Contract					
Total					

Table 4 - 2016/17 Average Use

2016/17 AVERAGE USE PER CUSTOMER (m^3/yr)
Heating Value and Weather Adjusted Actuals

	Quarterly Rate	Fixed Rate	WTS	T-Service	Overall
SGS Residential	[redacted]				
SGS Commercial					
LGS					
High Volume Firm					
Mainline Firm					
Interruptible Sales					
Power Stations					
Special Contract					
Overall					

FORECAST OVERVIEW

2017/18 - First Year of the Forecast

The 2017/18 forecast is for an average of [redacted] customers with a total volume of [redacted] 10^3m^3. This is a customer [redacted] of [redacted] customers [redacted] from 2016/17 and a volume [redacted] of [redacted] 10^3m^3 [redacted] from the Heating Value and Weather Adjusted actual from 2016/17.

For the 2017/18 fiscal year, Quarterly Rate customers are forecast to [redacted] customers to [redacted] Fixed Rate customers to [redacted] customers to [redacted] WTS customers to [redacted] customers to [redacted] and T-Service to [redacted] customer to [redacted]

Also for 2017/18, Quarterly Rate volume is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3. Fixed Rate volume is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3. WTS volume is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3. T-Service is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3. These are all compared to the 2016/17 Heating Value and Weather Adjusted actuals.

The average use of SGS Residential customers is forecast to [redacted] m^3/year [redacted] to [redacted] m^3/year. The average use of SGS Residential Fixed Rate customers are forecast to [redacted] as SGS Residential Quarterly Rate customers at [redacted] m^3/year, but SGS Residential WTS customers are [redacted] customers on average and are forecast to use [redacted] at [redacted] m^3/year.

The average use of SGS Commercial customers is forecast to [redacted] m^3/year [redacted] to [redacted] m^3/year. The average use of SGS Commercial Quarterly and Fixed Rate customers are both forecast to be [redacted] m^3/year and SGS Commercial WTS customers are forecast to be [redacted] at [redacted] m^3/year.

The average use of LGS customers is forecast to [redacted] m^3/year [redacted] to [redacted] m^3/year. The average use of LGS Quarterly and Fixed Rate customers are both forecast to be [redacted] m^3/year and LGS WTS customers are forecast to be [redacted] at [redacted] m^3/year.

Table 5 - 2017/18 Average Customers by Class

2017/18 AVERAGE CUSTOMERS BY CLASS 2017 Forecast	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	[redacted]				
SGS Commercial					
LGS					
High Volume Firm					
Mainline Firm					
Interruptible Sales					
Power Stations					
Special Contract					
Total					

Table 6 - 2017/18 Volume by Class

2017/18 VOLUME BY CLASS (10^3m^3) 2017 Forecast	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential	[redacted]				
SGS Commercial					
LGS					
High Volume Firm					
Mainline Firm					
Interruptible Sales					
less Curtailed Int					
Power Stations					
Special Contract					
Total					

Table 7 - 2017/18 Average Use Per Customer

2017/18 AVERAGE USE PER CUSTOMER (m^3/yr) 2017 Forecast	Quarterly Rate	Fixed Rate	WTS	T-Service	Overall
SGS Residential	[redacted]				
SGS Commercial					
LGS					
High Volume Firm					
Mainline Firm					
Interruptible Sales					
Power Stations					
Special Contract					
Overall					

2018/19 - Second Year of the Forecast

The 2018/19 forecast is for an average of [redacted] customers with a total volume of [redacted] 10^3m^3. This is a customer [redacted] of [redacted] customers [redacted] from the 2017/18 forecast and a volume [redacted] of [redacted] 10^3m^3 [redacted] from the 2017/18 forecast.

Quarterly Rate customers are forecast to [redacted] customers to [redacted] in 2018/19, Fixed Rate customers to [redacted] customers to [redacted] in 2018/19, WTS customers to [redacted] customers to [redacted] in 2018/19, and T-Service to [redacted] to [redacted] customers in 2018/19. These are all compared to the 2017/18 forecast year.

Quarterly Rate volume is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3 in 2018/19. Fixed Rate volume is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3 in 2018/19. WTS volume is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3 in 2018/19. T-Service is forecast to [redacted] 10^3m^3 [redacted] to [redacted] 10^3m^3 in 2018/19. These are all compared to the 2017/18 forecast year.

The 2018/19 SGS Residential customer average use forecast [redacted]

The 2018/19 average use is forecast to be [redacted] m^3/year for SGS Commercial customers and [redacted] m^3/year for LGS customers. [redacted]

Table 8 - 2018/19 Average Customers by Class

2018/19 AVERAGE CUSTOMERS BY CLASS 2017 Forecast	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential					
SGS Commercial					
LGS					
High Volume Firm					
Mainline Firm					
Interruptible Sales					
Power Stations					
Special Contract					
Total					

Table 9 - 2018/19 Volume by Class

2018/19 VOLUME BY CLASS (10^3m^3) 2017 Forecast	Quarterly Rate	Fixed Rate	WTS	T-Service	Total
SGS Residential					
SGS Commercial					
LGS					
High Volume Firm					
Mainline Firm					
Interruptible Sales					
less Curtailed Int					
Power Stations					
Special Contract					
Total					

Table 10 - 2018/19 Average Use Per Customer

2018/19 AVERAGE USE PER CUSTOMER (m^3/yr) 2017 Forecast	Quarterly Rate	Fixed Rate	WTS	T-Service	Overall
SGS Residential					
SGS Commercial					
LGS					
High Volume Firm					
Mainline Firm					
Interruptible Sales					
Power Stations					
Special Contract					
Overall					

Comparison of the 2016 Forecast to the Actuals

There were [redacted] customers in 2016/17 than forecast. There were [redacted] in the SGS Residential group and [redacted] in the combined SGS Commercial and LGS groups. Each year some LGS customers are expected to qualify as SGS Commercial when their consumption reduces. [redacted] customers than expected switched from LGS to SGS Commercial during 2016/17 so the number of LGS customers was [redacted] than forecast and the number of SGS Commercial customers was [redacted] than forecast.

The number of WTS customers was [redacted] than forecast and the number of Quarterly Rate customers was [redacted] than forecast.

The Heating Value and Weather Adjusted actual volume for 2016/17 was [redacted] 10^3m^3 [redacted] than forecast. The majority of the difference was spread across the SGS Residential, LGS, MLF and Special Contract groups.

Excluding Power Stations and Special Contract, whose forecasts are based on their 3-year historic average, the total Heating Value and Weather Adjusted actual volume was [redacted] 10^3m^3 or [redacted] than forecast. The largest differences were in the SGS Residential group that used [redacted] 10^3m^3 [redacted] than forecast, the LGS group that used [redacted] 10^3m^3 [redacted] than forecast and the INT group that used [redacted] 10^3m^3 [redacted] than forecast.

Table 11 - 2016 Forecast Compared to Actuals

	2016 FORECAST COMPARED TO ACTUALS					
	2016/17 Average Customers			2016/17 Volume (10^3m^3)		
	Actual	Forecast	Act - Fcst	Actual	Forecast	Act - Fcst
SRES	[redacted]					
SCOM						
LGS						
HVF						
MLF						
INT						
PS	2					
SPEC	1					
TOTAL						
SRES-S						
SCOM-S						
LGS-S						
HVF-S						
MLF-S						
INT-S						
CURT-S						
TOTAL-S						
SRES-F						
SCOM-F						
LGS-F						
TOTAL-F						
SRES-W						
SCOM-W						
LGS-W						
HVF-W						
MLF-W						
INT-W						
CURT-W						
TOTAL-W						
HVF-T						
MLF-T						
INT-T						
PS-T	2					
SPEC-T	1					
TOTAL-T	[redacted]					

Note: Actuals are Heating Value and Weather Adjusted

Change Between the 2016 and 2017 Forecasts

The 2017 forecast of [redacted] customers for 2017/18 represents a [redacted] of [redacted] customers from the 2016 forecast of [redacted] customers. By 2026/27, the forecast is for [redacted] customers, an [redacted] of [redacted] customers compared to the 2016 forecast of [redacted]

In 2016/17, [redacted] SGS Residential customers selected Manitoba Hydro's Quarterly service [redacted] the WTS service than forecast in the 2016 Forecast. The forecast for SGS Residential Quarterly customers is [redacted] while the forecast for SGS Residential WTS customers is [redacted]

The volume forecast is [redacted] 10^3m^3 from the 2016 forecast in 2017/18. This is mostly due to the adjusted starting point as there was [redacted] natural gas consumed in 2016/17 than projected under the 2016 forecast.

Table 12 - Change Between the 2016 and 2017 Forecast

	CHANGE BETWEEN THE 2016 AND 2017 FORECASTS					
	2017/18 Average Customers			2017/18 Volume (10^3m^3)		
	2017 Fcst	2016 Fcst	Change	2017 Fcst	2016 Fcst	Change
SRES	[redacted]					
SCOM						
LGS						
HVF						
MLF						
INT						
PS						
SPEC						
TOTAL						
SRES-S						
SCOM-S						
LGS-S						
HVF-S						
MLF-S						
INT-S						
CURT-S						
TOTAL-S						
SRES-F						
SCOM-F						
LGS-F						
TOTAL-F						
SRES-W						
SCOM-W						
LGS-W						
HVF-W						
MLF-W						
INT-W						
CURT-W						
TOTAL-W						
HVF-T						
MLF-T						
INT-T						
PS-T						
SPEC-T						
TOTAL-T						

FORECAST DETAILS

SGS Residential

SGS Residential (SRES) includes the residential customer class portion of the Small General Service (SGS) rate class. This is made up of dwellings that are directly billed by Manitoba Hydro for their natural gas use.

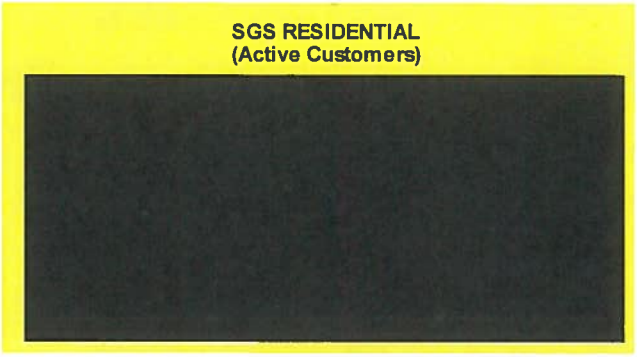
Excluded are multi-family gas heated dwellings (multiplexes, townhouses and apartments) where the individual residential units are not directly billed by Manitoba Hydro for their natural gas use. The bill and recorded consumption for their gas use is associated with a common service that serves multiple units. The gas used by these common services is part of the commercial sector: SGS Commercial or Large General Service. Also excluded are about a dozen very large dwellings that have high usage and are classified in the Large General Service (LGS) class.

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.

All but approximately [redacted] SGS Residential Customers use natural gas for space heating of their dwelling. The remainder either uses their natural gas for other purposes (e.g. natural gas fireplace or barbeque) or has a gas connection but is not using it. Approximately [redacted] of Residential gas use is for space heating. About [redacted] is for water heating, and the remaining [redacted] is for other natural gas end uses such as ranges, dryers, fireplaces, barbeques, saunas, hot tubs, and pool heaters.

SGS Residential Customers

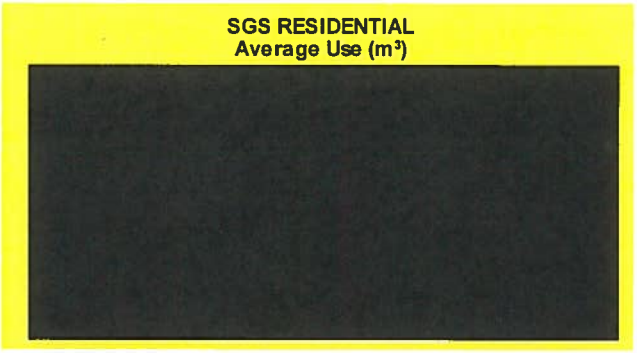
Figure 1 – SGS Residential Customers



During 2016/17 there was an average of [redacted] SGS Residential customers. Over the last nine years, this class has [redacted] an average of [redacted] customers or [redacted] per year. They are forecast to [redacted] at an average of [redacted] customers or [redacted] per year between 2016/17 and 2026/27. The [redacted] is due to the customer [redacted] forecast in Manitoba Hydro's Forecast of Key Economic and Financial Indicators and forecast [redacted] in the saturation of natural gas space heating.

SGS Residential Average Use

Figure 2 – SGS Residential Average Use



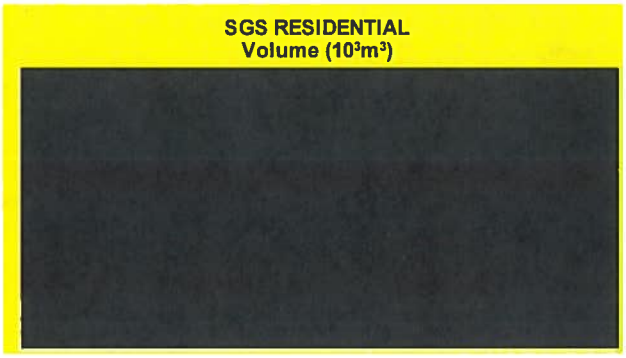
SGS Residential average use is currently [redacted] m^3 per customer. It has [redacted] m^3 or [redacted] per year since 2007/08. It is forecast to decline at [redacted] m^3 or [redacted] per year up to 2026/27.

[redacted]

SGS Residential Volume

Figure 3 – SGS Residential Volume

The Residential volume is forecast to [redacted] until 2021/22 primarily due to the Heating Fuel Choice Initiative that encourages the use of natural gas as the fuel of choice for space and water heating. From 2021/22 and forward, the volume starts to [redacted]



Since 2007/08, SGS Residential volume has [redacted] an average of [redacted] 10^3m^3 or [redacted] per year. It is forecast to [redacted] by [redacted] 10^3m^3 or [redacted] per year until 2026/27.

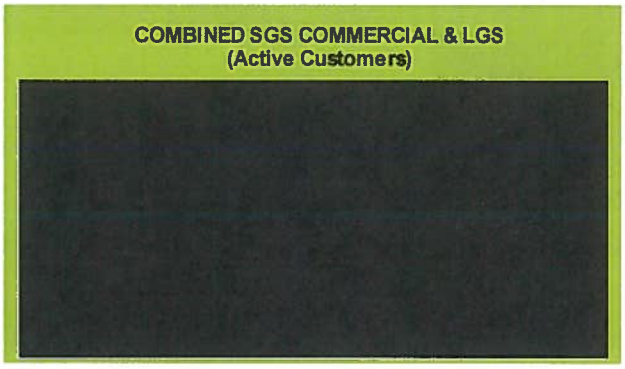
SGS Commercial and LGS

SGS Commercial (SCOM) includes the commercial customer class portion of the Small General Service (SGS) rate class. SCOM customers typically have an annual volume of less than 15,000 m^3 per year.

Large General Service (LGS) consists of medium-sized customers with usage between 15,000 m^3 and 680,000 m^3 per year. Most of these are commercial customers, but approximately [redacted] large residential dwellings are included in this class as well.

Figure 4 – SGS Commercial & LGS Customers

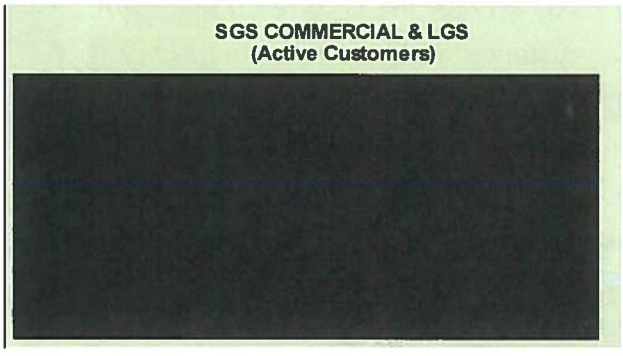
SGS Commercial and LGS Customers



The total number of customers in the combined SGS Commercial and LGS classes is continuing to [redacted] Over the past nine years, the [redacted] has been about [redacted] customers or [redacted] per year. Over the next ten years, these classes are forecast to continue to grow by [redacted] customers or [redacted] per year.

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 rate perspective to be classified as an SGS Commercial customer.

Figure 5 - SGS Commercial & LGS Customers Separated



The SGS Commercial class has [redacted] by [redacted] customers or [redacted] per year over the last nine years. It is forecast to [redacted] by [redacted] customers or [redacted] per year over the next ten years. LGS has [redacted] by [redacted] customers or [redacted] per year over the last nine years. It is forecast to [redacted] by [redacted] customers or [redacted] per year over the next ten years.

SGS Commercial and LGS Average Use

Figure 6 - SGS Commercial & LGS Average Use

The combined average use of SGS Commercial and LGS has been [redacted] by [redacted] m^3 or [redacted] over the last nine years. [redacted]

Figure 7 - SGS Commercial Average Use

The SGS Commercial average use is currently [redacted] m^3 per customer and is forecast [redacted] at [redacted] m^3. The group is limited to a maximum of 15,000 m^3 per customer, [redacted]

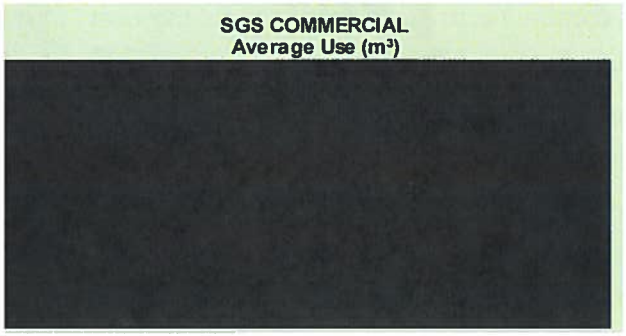
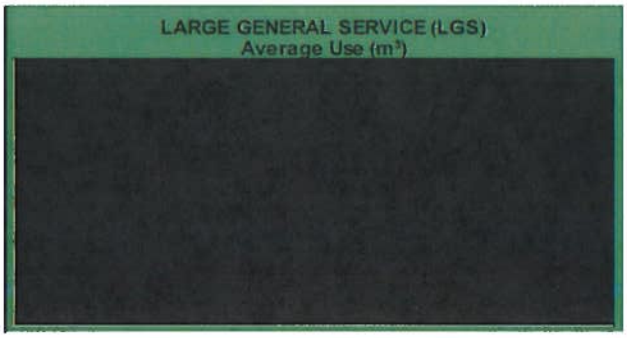


Figure 8 - LGS Average Use

The LGS average use is currently [redacted] m^3 per customer and is forecast to [redacted] m^3 per customer. The group is limited to the range 15,000 m^3 to 680,000 m^3 per customer, so as overall customer usage goes [redacted]



SGS Commercial and LGS Volume

Figure 9 - SGS Commercial & LGS Volume

The combined total volume of SGS Commercial and LGS classes has [redacted] by [redacted] 10^3m^3 or [redacted] per year over the last nine years. It is expected to [redacted] by [redacted] 10^3m^3 or [redacted] per year for the next ten years.

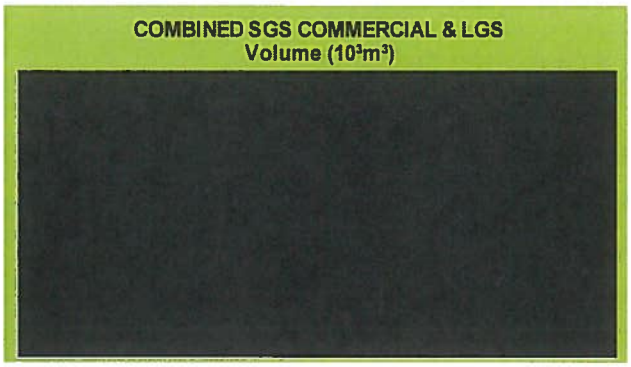


Figure 10 - SGS Commercial Volume

SGS Commercial volume has [redacted] by [redacted] 10^3m^3 or [redacted] over the last nine years. The SGS Commercial class is forecast to [redacted] by [redacted] 10^3m^3 or [redacted] per year for the next ten years.

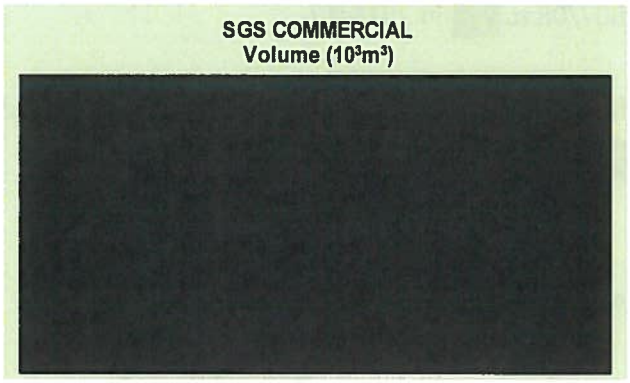
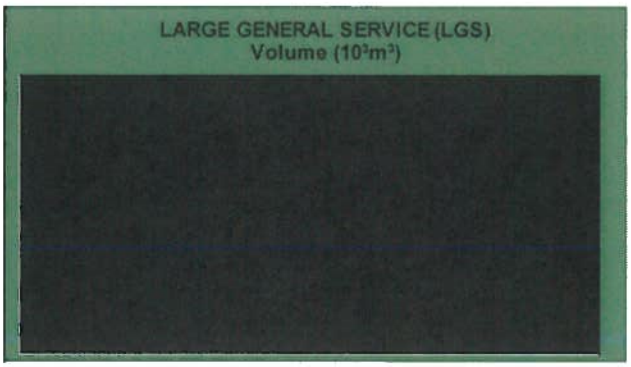


Figure 11 - LGS Volume

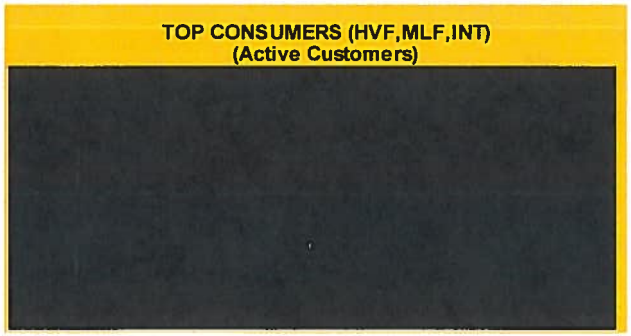
Large General Service volume has [redacted] by [redacted] 10^3m^3 or [redacted] per year. It is forecast to [redacted] by [redacted] 10^3m^3 or [redacted] per year for the next ten years.



Top Consumers

Top Consumers Customers

Figure 12 - Top Consumers Customers

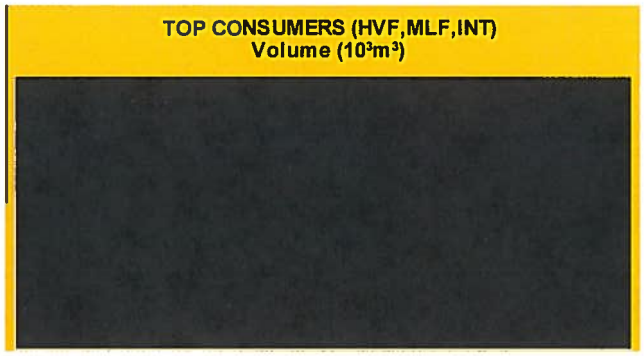


This category includes all active Top Consumers in the High Volume Firm (HVF), Mainline Firm (MLF) and Interruptible (INT) classes, whether their gas is supplied by Manitoba Hydro (System Supply) or a broker (WTS) or purchased directly by the customer (Transport). The number of Top Consumers has [redacted] from [redacted] in 2007/08 to [redacted] in 2016/17.

This forecast assumes that there will be [redacted] customers in the Top Consumers class [redacted]

Top Consumers Volume

Figure 13 - Top Consumers Volume



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

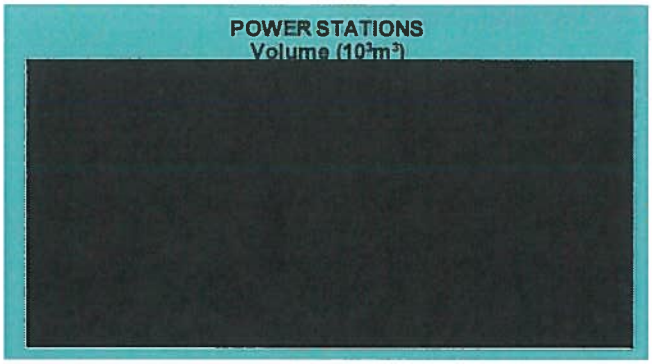
Special Rates

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.

Power Stations

There are two customers in the Power Stations Class. [redacted]

Figure 14 - Power Stations



Special Contract

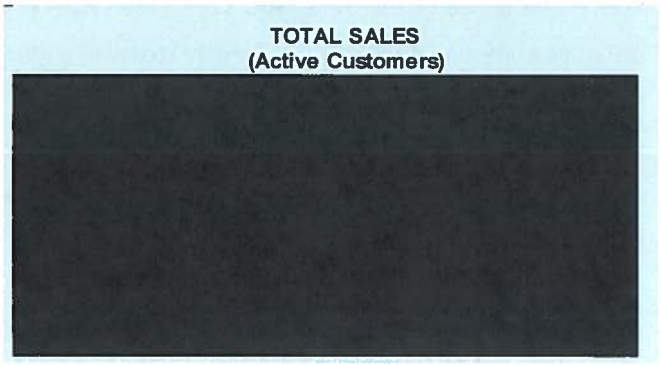
There is one customer [redacted]

Figure 15 - Special Contract

Total Sales

Total Sales Customers

Figure 16 - Total Sales Customers



Total Sales includes all active gas customers. Growth has been [redacted] over the past nine years with an average [redacted] of [redacted] customers or [redacted] per year. The number of customers is forecast to [redacted] customers or [redacted] per year [redacted]

Total Sales Volume

Figure 17 - Total Sales Volume

The Total Sales volume forecast is the sum of the volume forecasts for all SGS, LGS, HVF, MLF, INT, Power Station and Special Contract classes. Total Sales volume has [redacted] on average [redacted] 10^3m^3 or [redacted] per year in the last nine years. The Total Sales volume is forecast to [redacted] on average by [redacted] 10^3m^3 or [redacted] per year. The forecasted [redacted] in volume is attributed to the [redacted] in average use per customer in the SGS and LGS classes. [redacted]

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 2016/17 the number of customers enrolled averaged [redacted] for SGS Residential, [redacted] for SGS Commercial, and [redacted] for Large General Service customers. The Heating Value and Weather Adjusted volume consumed by these FRPGS Customers in 2016/17 was [redacted] 10^3m^3 for SGS Residential, [redacted] 10^3m^3 for SGS Commercial and [redacted] 10^3m^3 for LGS.

The number of FRPGS SGS Residential customers is forecast to be [redacted] in 2017/18, [redacted] in 2018/19 [redacted] in 2026/27. The number of FRPGS SGS Commercial customers is forecast to be [redacted] in 2017/18, [redacted] in 2018/19 and forecast to have [redacted] in 2026/27. The number of FRPGS LGS customers forecast is forecast to be [redacted] in 2017/18, [redacted] in 2018/19 [redacted] in 2026/27.

The FRPGS SGS Residential volume forecast is [redacted] 10^3m^3 in 2017/18, [redacted] 10^3m^3 in 2018/19 and [redacted] to [redacted] 10^3m^3 in 2026/27. The FRPGS SGS Commercial volume forecast is [redacted] 10^3m^3 in 2017/18, [redacted] 10^3m^3 in 2018/19 [redacted] 10^3m^3 in 2026/27. The FRPGS LGS volume forecast is [redacted] 10^3m^3 in 2017/18, [redacted] 10^3m^3 in 2018/19 [redacted] 10^3m^3 in 2026/27.

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 [redacted] of Manitoba gas customers in 2007, but have [redacted] customers or [redacted] as of March 2017.

SGS Residential customers using a broker are forecast to be [redacted] in 2017/18, [redacted] in 2018/19 and [redacted] by 2026/27.

The SGS Commercial customers using a broker are forecast to be [redacted] in 2017/18, [redacted] in 2018/19 and [redacted] by 2026/27.

The LGS customers using a broker are forecast to be [redacted] in 2017/18, [redacted] in 2018/19 and [redacted] by 2026/27.

For the forecast period, compared to the class average, the WTS monthly average use is forecast at [redacted] for SGS Residential, [redacted] for SGS Commercial and [redacted] for LGS.

There are also [redacted] WTS customers in the Top Consumers classes that are forecast to consume [redacted] 10^3m^3 in 2017/18, and is expected to [redacted] [redacted] 10^3m^3 for the remainder of the forecast period.

FORECAST TABLES

The forecast tables include monthly information on customers, volume and billed demand for 2017/18 and 2018/19. This document also includes fiscal year information on customers, volume and average use for the 2017/18 to 2026/27 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 13 - 2017/18 Monthly Customers

2017/18 MONTHLY CUSTOMERS												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES												
SCOM												
LGS												
HVF												
MLF												
INT												
PS												
SPEC												
TOTAL												
SRES-S												
SCOM-S												
LGS-S												
HVF-S												
MLF-S												
INT-S												
TOTAL-S												
SRES-F												
SCOM-F												
LGS-F												
TOTAL-F												
SRES-W												
SCOM-W												
LGS-W												
HVF-W												
MLF-W												
INT-W												
TOTAL-W												
HVF-T												
MLF-T												
INT-T												
PS-T												
SPEC-T												
TOTAL-T												

Table 14 - 2017/18 Monthly Volumes

2017/18 MONTHLY VOLUME (10^3m^3)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES												
SCOM												
LGS												
HVF												
MLF												
INT												
PS												
SPEC												
TOTAL												
SRES-S												
SCOM-S												
LGS-S												
HVF-S												
MLF-S												
INT-S												
CURT-S												
TOTAL-S												
SRES-F												
SCOM-F												
LGS-F												
TOTAL-F												
SRES-W												
SCOM-W												
LGS-W												
HVF-W												
MLF-W												
INT-W												
CURT-W												
TOTAL-W												
HVF-T												
MLF-T												
INT-T												
PS-T												
SPEC-T												
TOTAL-T												

Table 15 - 2017/18 Monthly Demand

2017/18 MONTHLY DEMAND (10^3m^3)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES	[redacted]											
SCOM												
LGS												
HVF												
MLF												
INT												
PS												
SPEC												
TOTAL												
SRES-S												
SCOM-S												
LGS-S												
HVF-S												
MLF-S												
INT-S												
TOTAL-S												
SRES-F												
SCOM-F												
LGS-F												
TOTAL-F												
SRES-W												
SCOM-W												
LGS-W												
HVF-W												
MLF-W												
INT-W												
TOTAL-W												
HVF-T												
MLF-T												
INT-T												
PS-T												
SPEC-T												
TOTAL-T												

Table 16 - 2017/18 Monthly Average Use

2017/18 MONTHLY AVERAGE USE PER CUSTOMER (m^3/yr)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES												
SCOM												
LGS												
HVF												
MLF												
INT												
PS												
SPEC												
TOTAL												
SRES-S												
SCOM-S												
LGS-S												
HVF-S												
MLF-S												
INT-S												
TOTAL-S												
SRES-F												
SCOM-F												
LGS-F												
TOTAL-F												
SRES-W												
SCOM-W												
LGS-W												
HVF-W												
MLF-W												
INT-W												
TOTAL-W												
HVF-T												
MLF-T												
INT-T												
PS-T												
SPEC-T												
TOTAL-T												

Note: HVF, MLF, INT, PS, SPEC and TOTAL-T are shown in 10^3m^3

Table 17 - 2018/19 Monthly Customers

2018/19 MONTHLY CUSTOMERS												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES												
SCOM												
LGS												
HVF												
MLF												
INT												
PS												
SPEC												
TOTAL												
SRES-S												
SCOM-S												
LGS-S												
HVF-S												
MLF-S												
INT-S												
TOTAL-S												
SRES-F												
SCOM-F												
LGS-F												
TOTAL-F												
SRES-W												
SCOM-W												
LGS-W												
HVF-W												
MLF-W												
INT-W												
TOTAL-W												
HVF-T												
MLF-T												
INT-T												
PS-T												
SPEC-T												
TOTAL-T												

Table 18 - 2018/19 Monthly Volumes

2018/19 MONTHLY VOLUME (10^3m^3)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES												
SCOM												
LGS												
HVF												
MLF												
INT												
PS												
SPEC												
TOTAL												
SRES-S												
SCOM-S												
LGS-S												
HVF-S												
MLF-S												
INT-S												
CURT-S												
TOTAL–S												
SRES-F												
SCOM-F												
LGS-F												
TOTAL-F												
SRES-W												
SCOM-W												
LGS-W												
HVF-W												
MLF-W												
INT-W												
CURT-W												
TOTAL-W												
HVF-T												
MLF-T												
INT-T												
PS-T												
SPEC-T												
TOTAL-T												

Table 19 - 2018/19 Monthly Demand

2018/19 MONTHLY DEMAND (10^3m^3)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES												
SCOM												
LGS												
HVF												
MLF												
INT												
PS												
SPEC												
TOTAL												
SRES-S												
SCOM-S												
LGS-S												
HVF-S												
MLF-S												
INT-S												
TOTAL-S												
SRES-F												
SCOM-F												
LGS-F												
TOTAL-F												
SRES-W												
SCOM-W												
LGS-W												
HVF-W												
MLF-W												
INT-W												
TOTAL-W												
HVF-T												
MLF-T												
INT-T												
PS-T												
SPEC-T												
TOTAL-T												

Table 20 - 2018/19 Monthly Average Use

2018/19 MONTHLY AVERAGE USE PER CUSTOMER (m^3/yr)												
CLASS	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SRES												
SCOM												
LGS												
HVF												
MLF												
INT												
PS												
SPEC												
TOTAL												
SRES-S												
SCOM-S												
LGS-S												
HVF-S												
MLF-S												
INT-S												
TOTAL-S												
SRES-F												
SCOM-F												
LGS-F												
TOTAL-F												
SRES-W												
SCOM-W												
LGS-W												
HVF-W												
MLF-W												
INT-W												
TOTAL-W												
HVF-T												
MLF-T												
INT-T												
PS-T												
SPEC-T												
TOTAL-T												

Note: HVF, MLF, INT, PS, SPEC and TOTAL-T are shown in $10^3 m^3$

Table 21 - Annual Average Customers

Long Term	AVERAGE CUSTOMERS									
Fiscal Year	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
SRES										
SCOM										
LGS										
HVF										
MLF										
INT										
PS										
SPEC										
TOTAL										
SRES-S										
SCOM-S										
LGS-S										
HVF-S										
MLF-S										
INT-S										
TOTAL-S										
SRES-F										
SCOM-F										
LGS-F										
TOTAL-F										
SRES-W										
SCOM-W										
LGS-W										
HVF-W										
MLF-W										
INT-W										
TOTAL-W										
HVF-T										
MLF-T										
INT-T										
PS-T										
SPEC-T										
TOTAL-T										

Table 22 - Annual Volume

Long Term	ANNUAL VOLUME (10^3m^3)									
Fiscal Year	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
SRES										
SCOM										
LGS										
HVF										
MLF										
INT										
PS										
SPEC										
TOTAL										
SRES-S										
SCOM-S										
LGS-S										
HVF-S										
MLF-S										
INT-S										
CURT-S										
TOTAL-S										
SRES-F										
SCOM-F										
LGS-F										
TOTAL-F										
SRES-W										
SCOM-W										
LGS-W										
HVF-W										
MLF-W										
INT-W										
CURT-W										
TOTAL-W										
HVF-T										
MLF-T										
INT-T										
PS-T										
SPEC-T										
TOTAL-T										

Table 23 - Annual Average Use

Long Term	ANNUAL AVERAGE USE PER CUSTOMER (m^3/yr)									
Fiscal Year	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
SRES	[redacted]									
SCOM										
LGS										
HVF										
MLF										
INT										
PS										
SPEC										
TOTAL										
SRES-S			2,246							
SCOM-S										
LGS-S										
HVF-S										
MLF-S										
INT-S										
TOTAL-S										
SRES-F										
SCOM-F										
LGS-F										
TOTAL-F										
SRES-W										
SCOM-W										
LGS-W										
HVF-W										
MLF-W										
INT-W										
TOTAL-W										
HVF-T										
MLF-T										
INT-T										
PS-T										
SPEC-T										
TOTAL-T										

Note: HVF, MLF, INT, PS, SPEC and TOTAL-T are shown in $10^3 m^3$

VARIABILITY AND ACCURACY

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 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 year-to-year variation:

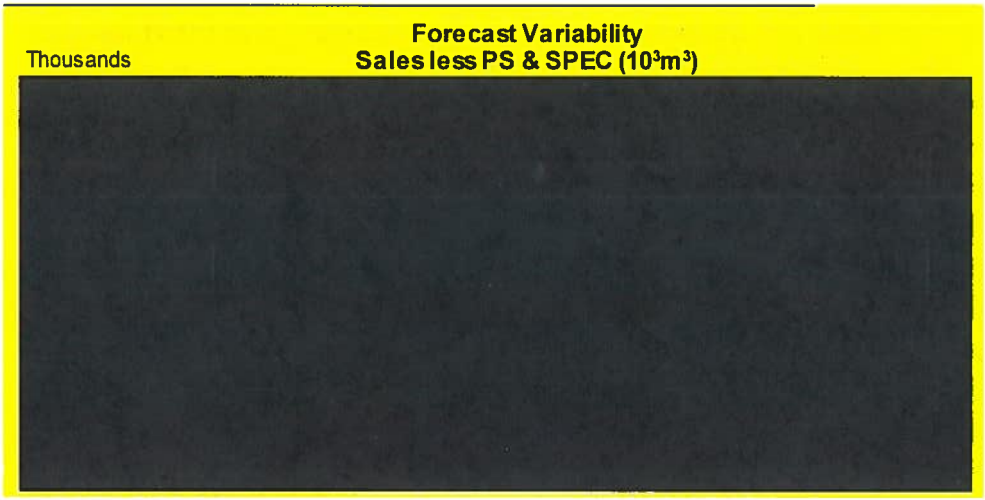
Table 24 - Volume Variability

Volume Variability (10^3m^3)						
Fiscal Year	Forecast 10^3m^3	Economic Std Dev	10% Prob Point	90% Prob Point	Bandwidth +/- to Forecast	Bandwidth +/- as % of Forecast
2017/18	[redacted]					
2018/19						
2019/20						
2020/21						
2021/22						
2022/23						
2023/24						
2024/25						
2025/26						
2026/27						

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

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 25 - First Year Forecast Accuracy

First Year Forecast Accuracy					
Forecast Created	Year being Forecast	Forecast 10^3m^3	Actual 10^3m^3	% Diff	Over/ Under
2016	2016/17	[redacted]	[redacted]		
2015	2015/16				
2014	2014/15				
2013	2013/14				
2012	2012/13				
2011	2011/12	1,577,627			
2010	2010/11	1,601,893			
2009	2009/10	1,612,727			
[redacted]					

Table 26 - Second Year Forecast Accuracy

Second Year Forecast Accuracy					
Forecast Created	Year being Forecast	Forecast 10^3m^3	Actual 10^3m^3	% Diff	Over/ Under
2015	2016/17	[redacted]	[redacted]		[redacted]
2014	2015/16				
2013	2014/15				
2012	2013/14				
2011	2012/13				
2010	2011/12	1,602,442			
2009	2010/11	1,617,771			
[redacted]					

After accounting for Heating Value and Weather Adjusted actual volume based on the normalized weather used in the year the forecast was created, the one year forecast has had an average difference of [redacted] and the two year forecast has had an average difference of [redacted]

ASSUMPTIONS

Economic Assumptions

Economic forecast assumptions are taken from the economic variables that become part of Manitoba Hydro's Forecast of Key Economic and Financial Indicators and the Energy Price Forecast. 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 Manitoba residential customers is forecast to increase by 1.2% (5,953 units) in 2017/18 and averages 1.1% per year over the forecast period. This compares to a historical average increase of 1.2% per year over the last ten years. This is used in the SGS Residential customer forecast and the SGS Commercial and LGS customer forecast.

Electricity to Gas Price Ratio - The electricity price forecast is based on the Consumer Price Index (CPI) and rate increase projections contained in the Integrated Financial Forecast. The real electricity price is forecast to increase by 5.8% in 2017/18 and then increase between 5.7% and 5.8% per year from 2018/19 to 2021/22 and then reduce to a 0% throughout the remainder of the forecast period. 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. The ratio of prices is used in the SGS Residential customer forecast.

Gross Domestic Product (GDP) - Real economic growth in Manitoba Is expected to grow 2.0% in 2017/18 and average 1.6% for the remainder of the forecast period. This is used in the electric GS Mass Market forecast which is then used in the SGS Commercial and LGS customer forecasts.

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 [redacted] $GJ/10^3m^3$.

Weather Effect and Normal Weather Assumptions

[redacted]

Demand Side Management (DSM) in the Forecast

This forecast reflects future DSM savings arising from future Power Smart natural gas offerings and market engagement as outlined in Manitoba Hydro's 2017/18 Power Smart Plan. 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 2017/18 Power Smart Plan.

METHODOLOGY

SGS Residential Methodology

The SGS Residential Basic forecast was derived from population forecasts that are part of Manitoba Hydro's Forecast of Key Economic and Financial Indicators. These were combined with an appliance forecast developed in an end use model.

1. **Forecast All Dwellings** - The forecast of Manitoba Hydro residential electric customers was taken from Manitoba Hydro's Forecast of Key Economic and Financial Indicators. This customer forecast was based on the average of several Manitoba population forecasts from various external agencies multiplied by a forecast of the people per customer ratio. The customer forecast was reduced by about 0.5% to account for customers with multiple services to obtain the forecast of individual dwellings.

2. **Forecast Existing Dwellings** – Existing gas-serviced dwellings were broken down by dwelling type (single detached, multi attached, and individually metered apartment suites) within Winnipeg and within the Gas Available regions outside Winnipeg. The rate of change due to demolitions was estimated and customer switches of their space heating fuel were taken into account.

3. **Historical Space Heating Systems –** The number of historical dwellings by type and region were each divided into four space heating systems: Gas High-Efficiency Furnace, Gas Mid-Efficiency Furnace, Gas Standard-Efficiency Furnace and Gas Boiler. Percentages of each heat type in existing dwellings were taken from the 2014 Residential Energy Use Survey.

4. **Forecast of Space Heating Systems in New Dwellings** – For the Electric Forecast, econometric equations were developed to forecast the number of electric space heating systems in new single detached and multi attached dwellings in Winnipeg and South Gas regions. The remaining new dwellings would all be heated with natural gas, and were considered to be the number of new gas heated dwellings.

5. **Forecast of Space Heating Systems in Existing Dwellings** – The average age of heating systems in existing dwellings was determined from the 2014 Residential Energy Use Survey. The number of replacements was estimated using a Weibull distribution based on the average age of each furnace type from the survey. Switches of furnace types were

estimated using survey respondents in older dwellings with newer heating systems. Their former heating system was verified using billing system information and notes.

6. **Forecast of Water Heating Systems in New and Existing Dwellings –** Natural gas water heater saturations and average age were estimated for dwellings with and without natural gas space heat using information from the 2014 Residential Energy Use Survey. The number of replacements was forecast using a Weibull distribution based on the average age of water heaters. Switches between fuels were taken into account when forecasting future numbers of water heaters.

7. **Other End Uses** – Gas cooking, gas clothes dryers and miscellaneous natural gas use were forecast by dwelling type using the saturation data from the 2014 Residential Energy Use Survey.

8. **Space Heating, Water Heating and Appliance Usage** – Conditional Demand Analysis using the 2014 Residential Survey data combined with 2014/15 customer annual use from billing data was used to derive the average annual energy use for different types of heating systems and natural gas appliances for existing and for newer dwellings. These average uses were multiplied by the number of each type of system and appliance to get the forecast of total energy use.

9. **Determine Total Usage** - The forecast number of appliances multiplied by the average use of each appliance determined the volume forecast. The forecast of Codes and Standards energy savings and projected savings of future Demand Side Management Programs as outlined in the 2017/18 Power Smart Plan were subtracted.

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 historical correlation with electric GS Mass Market customer growth, which was forecast by Manitoba GDP and with residential electric customers.

The yearend historical customer data from 1999/2000 to 2016/17 was modeled and the parameters are as follows:

Number of Customers (t)

= 8472 + 0.251 x GSMM

GSMM - electric General Service Mass Market Customer Count

R-squared: 91.5%

T-stats:

Constant : 6.89

GSMM : 13.12

The number of Commercial Customers for each year was split into SGS Commercial and LGS classes based on historical trends. In 2016/17, [redacted] of the customers were in the SGS Commercial class and [redacted] were in the LGS class. The SGS Commercial percentage is forecast to [redacted] by 2026/27. The [redacted] in the percentage of SGS Commercial customers is [redacted]

When a customer's expected annual volume reduces to less than 15,000 m^3, the customer is eligible to be switched from the LGS customer class to the SGS Commercial customer class. [redacted]

Average Use

The SGS Commercial class consists of customers using up to 15,000 m^3 of gas per year, and the LGS class consists of customers using between 15,000 m^3 and 680,000 m^3 per year. By

definition, the truncation of these [redacted]

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. [redacted]

[redacted]

Volume Forecast

The forecasts for customers and average use are multiplied together for each class to calculate demand in m^3 for SGS Commercial and LGS.

SGS Commercial Total Use (t)

= SGS Commercial Number of Customers (t)

x SGS Commercial Average Annual Use (t)

LGS Total Use (t)

= LGS Number of Customers (t)

x LGS Average Annual Use (t)

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 27 – 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 SGS Com LGS	[redacted]											

Monthly Volumes

[redacted]

Table 28 – Monthly Allocation of Volume

MONTHLY ALLOCATION OF VOLUME												
Class	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
SGS Res SGS Com LGS	[redacted]											

GLOSSARY OF TERMS

Small General Service Class (SGS) – Residential and small commercial customers with an annual volume of less than 15,000 m^3 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) – Medium-sized commercial and industrial customers (and a few residential customers) with annual consumption greater than 15,000 m^3 and less than 680,000 m^3.

High Volume Firm Class (HVF) – Commercial and industrial customers where annual consumption exceeds 680,000 m^3.

Mainline Firm Class (MLF) – Commercial and industrial customers where annual consumption exceeds 680,000 m^3 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 m^3, 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 for 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 – This 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 daily usage during the last twelve months, but only in the months covering the November to March period.

Recorded Demand – This is the maximum recorded daily usage during 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 – This is the year from November to October. This is the fiscal year used for gas purchasing.

Cubic Meter (m^3) – The unit of measurement used for natural gas volumes.

Ten-Three-M-Three (10^3m^3) – A thousand cubic meters.

Ten-Three-M-Six (10^3m^6) – A million cubic meters.

A Thousand cubic feet (Mcf) – The older form of measurement for natural gas volumes prior to the metric system. 1 Mcf = 28.32784 m^3.

Gigajoule (GJ) - One billion joules. A joule is a units of energy used to measure energy content.

Heating Value (HV) – A Measure of the energy content of gas. Units are given in GJ/10^3m^3. The Heating Value varies depending on the richness of the gas, but normal is considered to be [redacted] GJ/10^3m^3. To convert GJ to 10^3m^3, divide the GJ by the Heating Value.