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**CENTRA GAS MANITOBA INC.
2019/20 GENERAL RATE APPLICATION**

NATURAL GAS VOLUME FORECAST & DEMAND SIDE MANAGEMENT

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CENTRA GAS MANITOBA INC.
2019/20 GENERAL RATE APPLICATION

NATURAL GAS VOLUME FORECAST & DEMAND SIDE MANAGEMENT

7.0 OVERVIEW

This Tab discusses the forecast of gas sales volumes and customers for the 2019/20 Test Year. Section 7.1.1 outlines the gas customer and volume estimates for the 2019/20 Test Year as compared to the volumes and customers actuals from the 2014/15 to 2017/18 fiscal years. Section 7.1.2 discusses changes in forecasting methodologies since the 2012 Natural Gas Forecast as presented during Centra’s 2013/14 General Rate Application.

Additionally, this Tab provides an overview of Centra’s Demand Side Management (“DSM”) initiatives. Section 7.2 discusses the current status of DSM, outlines the current DSM plan, and Section 7.3 provides an overview of Centra’s Affordable Energy Program (“AEP”).

7.1 GAS VOLUME FORECAST

Centra is providing the Natural Gas Volume Forecast for the period of 2017/18 to 2026/27 as Appendix 7.1 to this Tab. Appendix 7.1 contains the assumptions, methodology and summary of the forecast and includes the tables of the monthly forecast of customers, volumes and average use for the years 2017/18 and 2018/19 and annual forecast of customers, volumes and average use from 2017/18 to 2026/27. The forecast tables begin on page 23 of Appendix 7.1.

The 2019/20 Forecast is based on an average of 286,897 customers and a total volume forecast of [REDACTED] 10³m³, as shown on pages 32 and 33 of Appendix 7.1 respectively. The forecast includes customers in the Small General Service (“SGS”) Residential and Commercial classes, Large General Service (“LGS”), High Volume Firm (“HVF”), Mainline Firm (“MLF”), Interruptible Sales (“INT”), Power Stations and Special Contract. The HVF, MLF and INT form the Top Consumers as defined on page 18 of Appendix 7.1, and

1d

1 Power Stations and Special Contract form the Special Rate category as defined on page
2 19 of Appendix 7.1.

3
4 **7.1.1 Natural Gas Customer & Volume Forecast Summary**

5 For the 2019/20 Test Year, the forecast number of customers in the SGS Residential is
6 [REDACTED], SGS Commercial is [REDACTED], LGS is [REDACTED].

1e

7
8 For the 2019/20 Test Year, the forecast volume for SGS Residential is [REDACTED] 10³m³,
9 SGS Commercial is [REDACTED] 10³m³ and LGS is [REDACTED] 10³m³. The forecast volume for
10 HVF is [REDACTED] 10³m³, MLF is [REDACTED] 10³m³ and INT is [REDACTED] 10³m³.

1d

11
12 Figures 7.1, 7.2 and 7.3 summarize the average customers, total use and average use
13 and by customer class with actuals for 2014/15 to 2017/18, and forecast amounts for
14 2018/19 and 2019/20. The schedules provided in Appendix 7.2 provide a more detailed
15 breakdown of the number of customers, average use, and annual volumes by customer
16 class for 2011/12 to 2019/20 for System Supply, Fixed Rate Primary Gas Service, and
17 Direct Purchase customers.

18
19 **Figure 7.1: Average Customer by Class**

Average Customers by Class						
	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
	Actual	Actual	Actual	Actual	Forecast *	Forecast *
SGS Residential	[REDACTED]					
SGS Commercial	[REDACTED]					
Large General Service	[REDACTED]					
High Volume Firm	[REDACTED]					
Mainline Firm	[REDACTED]					
Interruptible Sales	[REDACTED]					
Power Stations	2	2	2	2		
Special Contract	1	1	1	1		
Total Average Customers	273,465	275,728	277,899	280,509		

1d

* Based on 2017 Natural Gas Volume Forecast

1 **Figure 7.2: Total Volume by Class**

Total Volumes by Class (in 10 ³ m ³)						
	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
	Actual	Actual	Actual	Actual	Forecast *	Forecast *
SGS Residential						
SGS Commercial						
Large General Service						
High Volume Firm						
Mainline Firm						
Interruptible Sales						
Power Stations						
Special Contract						
Total Volumes	2,070,902	1,846,425	1,986,482	2,048,790		

* Based on 2017 Natural Gas Volume Forecast

1d,
2d

2
3 **Figure 7.3: Average Customer Use by Class**

Average Use by Class (in 10 ³ m ³)						
	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
	Actual	Actual	Actual	Actual	Forecast *	Forecast *
SGS Residential						
SGS Commercial						
Large General Service						

* Based on 2017 Natural Gas Volume Forecast

1d

4 **7.1.2 Natural Gas Forecast Methodology**

5 The Natural Gas Forecast is comprised of four major forecasting sectors; SGS
6 Residential, SGS Commercial & LGS, Top Consumers and Special Rate Customers.

7
8 The forecast of the number of SGS Residential customers is derived from the growth in
9 total residential customers as forecast by Manitoba Hydro's Forecast of Key Economic
10 and Financial Indicators and the Energy Price Forecast. Of the total residential customer
11 growth forecast, the percentage of customers choosing gas heat was econometrically
12 forecast for two geographic areas (Winnipeg, and Gas Available Areas Outside of
13 Winnipeg). Natural gas prices and electricity prices were inputs to the model.

1 The SGS Commercial and LGS customer forecasts were prepared by combining the
2 number of customers for both classes into one consistent data sequence. This approach
3 has been followed in the preparation of past Natural Gas Volume Forecasts and is
4 appropriate given the ability of customers to transfer between the SGS and LGS
5 customer classes. The annual increase in customers was forecast using historical
6 correlation with the electric General Service Mass Market customer growth based on
7 the forecast of GDP and residential customers. Without this relationship, the gas
8 customer forecast would not properly relate to growth in the electric Commercial
9 sector. The approach to forecasting the combined SGS Commercial and LGS customers is
10 the only methodology change in the 2017 Natural Gas Forecast as compared to the 2012
11 Natural Gas Forecast presented as part of 2013/14 General Rate Application. The
12 change of methodology from the linear trend method used in the 2012 Forecast to an
13 econometric model beginning with the 2014 Forecast was also discussed in response to
14 PUB/Centra I-64 (a) and (d) filed as part of Centra's 2015/16 Cost of Gas Application. The
15 forecast number of combined SGS Commercial and LGS customers for each year was
16 allocated between the two classes based on historical trends.

17
18 The larger volume customer classes were forecast on a customer by customer basis.
19 Each customer was analyzed individually, and a monthly forecast was determined for
20 the first three forecast years. To help forecast monthly volumes, historic monthly
21 consumption for the past three years was first adjusted to the standard heating value
22 and then weather adjusted. Information on individual company operating plans are
23 collected from industry news and Manitoba Hydro's Key and Major Account
24 representatives. For customers with unchanging usage over the last three years, the
25 three years of monthly data were averaged and used.

26
27 The Special Contract customer and the two Power Station customers have usage levels
28 that can vary significantly based on operating conditions, market conditions, and the
29 price of natural gas, and are therefore forecast using a three year average of historical
30 consumption.

1 **7.2 DEMAND SIDE MANAGEMENT**

2
3 **7.2.1 DSM Forecast**

4 In June 2017 the Government of Manitoba passed *The Efficiency Manitoba Act*, which
5 moves the responsibility for the planning, design and implementation of demand side
6 management to a new Crown corporation called Efficiency Manitoba. The legislation
7 also sets minimum average annual targets over a 15 year period of 0.75 per cent of the
8 previous year's natural gas volume. While Efficiency Manitoba is still in its formative
9 stage, Centra continues to deliver DSM programming on a "business as usual" basis to
10 meet the needs of Manitoba customers.

11
12 This "business as usual" approach is reflected in the one year 2018/19 DSM Plan that
13 was prepared in consultation with the Province as outlined under *The Energy Savings*
14 *Act*. The projected natural gas savings for 2018/19 of 11.6 million cubic metres (before
15 electric interactive effects) represent 0.71 percent of the natural gas load. A copy of the
16 2018/19 Demand Side Management Plan is attached as Appendix 7.3.

17
18 The latest long range plan for DSM is the 2016/17 Demand Side Management Plan –
19 Supplemental Report: 15 year (2016 to 2031). Energy savings resulting from natural gas
20 initiatives (including savings to date) outlined in this plan are targeted to achieve 258
21 million cubic metres by 2031/32. A copy of the 2016/17 Demand Side Management Plan
22 is also provided as part of Appendix 7.3.

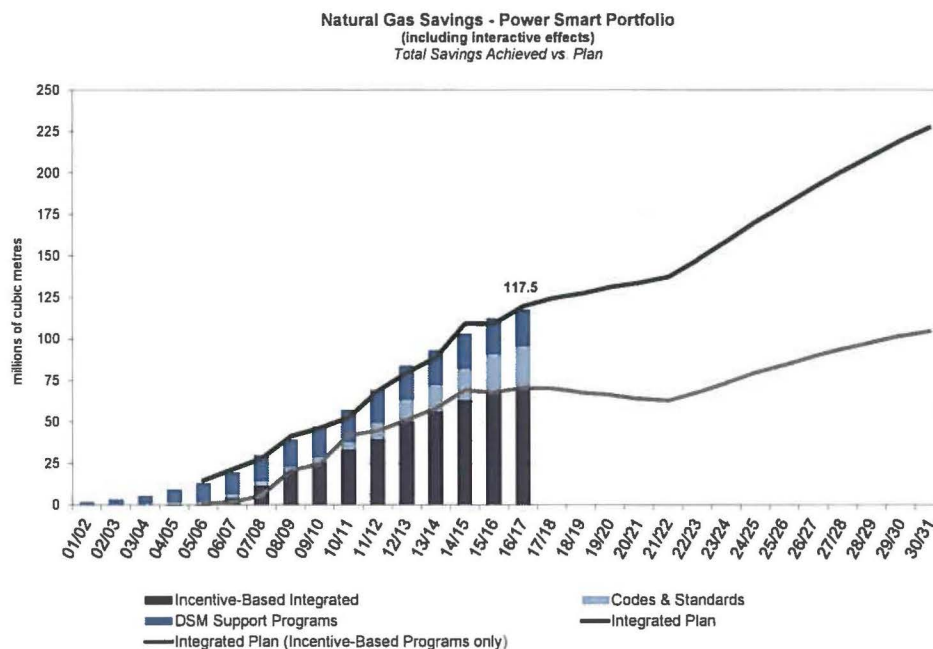
23
24 **7.2.2 DSM Results**

25 The corporation's DSM programs have been and continue to be very successful.
26 Appendix 7.4 provides a copy of the Power Smart Annual Provincial Report for the year
27 ended March 31, 2017. As of the end of 2016/17, natural gas DSM programs are
28 estimated to have achieved an annual energy reduction of 118 million cubic metres.
29 These natural gas savings translate into a cumulative reduction of \$266 million in
30 customer bills to date and greenhouse gas emission reductions of approximately
31 223 000 tonnes of carbon dioxide equivalent emission in 2016/17 alone. Energy savings
32 realized during 2017/18 are currently being evaluated, with the Annual Provincial
33 Report expected to be finalized by March 31, 2019.

The corporation's continued commitment to DSM was recognized in 2016 with the corporation being named the 2015 ENERGY STAR Utility of the Year by Natural Resources Canada ("NRCan"). NRCan presents the ENERGY STAR Canada awards annually to recognize participants who are the best in their class and have demonstrated excellence in energy efficiency.

Figure 7.4 below depicts the natural gas savings achieved through 2016/17 compared to plan.

Figure 7.4: Natural Gas Savings



7.3 AFFORDABLE ENERGY PROGRAM

The Affordable Energy Program ("AEP"), formerly the Lower Income Energy Efficiency Program, was launched in December 2007. The program is designed to assist lower income homeowners and renters across the province in implementing energy efficiency upgrades. The upgrades offered through the program can provide significant energy

1 savings, decreasing the customer's monthly energy bills while increasing the comfort of
2 their home. Through the program, customers may receive:

- 3 • Free insulation upgrades, including installation (attic, wall cavity, basement, and
4 crawlspace).
- 5 • A new high-efficiency natural gas furnace for \$9.50/month for five years (\$570
6 total cost) when upgrading from a standard efficiency natural gas furnace.
- 7 • A rebate of \$3,000 towards the purchase of a qualifying high efficiency
8 condensing boiler when upgrading from a standard efficiency natural gas boiler.
- 9 • A free in-home energy efficiency assessment and installation of basic energy
10 saving measures:
 - 11 ○ Low flow shower head;
 - 12 ○ Low flow faucet aerators;
 - 13 ○ Pipe wrapping for water heater;
 - 14 ○ Electrical socket caps;
 - 15 ○ Electrical socket draft stoppers;
 - 16 ○ Window weatherization kits; and,
 - 17 ○ LED (Light Emitting Diodes) light bulbs.

18
19 Program eligibility for all customers is determined using 125% of the Low Income Cut-
20 Off ("LICO") thresholds set by Statistics Canada for Census Metropolitan Areas of
21 500,000 inhabitants or more. Customers are asked to provide copies of their Income Tax
22 Return and Notice of Assessment as proof of income. If they are unable to provide tax
23 documentation there are other forms of documents accepted to verify their eligibility.
24 This includes proof of participation in programs such as Manitoba Employment and
25 Income Assistance, Homeowner Renovation Assistance Program, Manitoba Emergency
26 Repair Program, Legal Aid, and other programs that have similar income qualifying
27 thresholds to the AEP. Results of the program participation are filed on a quarterly basis,
28 and reports from 2015/16 to the first quarter of 2018/19 are included in Appendix 7.5.

1 From program inception to the end of March 2018, the following energy efficiency
2 retrofits have been undertaken in natural gas heated homes: approximately 12,305
3 participants have received the basic measures, 6,612 insulation projects have been
4 completed, and 5,707 furnace and 130 boiler replacements have been completed.¹ The
5 estimated average annual bill reduction for natural gas customers are as follows:

- 6 • Basic measures \$34
- 7 • Insulation \$194
- 8 • Furnace \$189

9
10 The AEP is offered through four different approaches: Individual, Community,
11 Indigenous, and Multi Unit Residential Building (“MURB”), with each approach
12 customized to meet the unique needs of the customer.

13
14 The Individual Approach involves customers working directly with Manitoba Hydro’s
15 staff and external contractors. Dedicated staff, energy advisors, and contractors ensure
16 energy upgrades are completed in a timely manner and provide direct customer service
17 to individuals as needed.

18
19 Through the Community Approach, Manitoba Hydro partners with social housing
20 groups, community groups, social organizations, and non-profit organizations in order to
21 increase AEP program participation through the various groups. The Community
22 Approach includes the Neighbourhood Power Smart Project (“NPSP”) which began in
23 2012. Manitoba Hydro has worked with multiple community organizations, including the
24 North End Community Renewal Corporation (NECRC), the Brandon Neighbourhood
25 Renewal Corporation (“BNRC”), the Selkirk Community Renewal Corporation (“SCRC”),
26 Dakota Ojibway Tribal Council (“DOTC”) in Portage la Prairie, and the Manitoba Metis

¹ These numbers cannot be added to yield a total number of homes as some homes may have received multiple measures.

1 Federation (“MMF”) in Thompson. The goal of the NPSP is to increase customer
2 participation by using a “block by block” approach. Energy Advocates from the
3 community organizations are responsible for promoting the AEP and offering customers
4 assistance when completing the required documentation.

5
6 The Indigenous Approach is designed to provide energy efficiency upgrades to
7 Indigenous Communities by providing the basic measures and insulation, as well as
8 training and funding for labour to enable local residents to install these energy efficiency
9 materials.

10
11 The MURB Approach is designed to provide basic energy efficiency items such as low
12 flow showerheads and faucet aerators, draft stoppers, socket caps, window kits and LED
13 light bulbs to lower income tenants living in apartment-style buildings. Manitoba Hydro
14 works with private landlords as well as community housing co-ops or social housing
15 groups to provide these measures, which can be installed by certified technician or left
16 for the building manager to install.

17
18 Customers are encouraged to participate through multiple communication channels
19 including: mass media advertising and community-based campaigns, customized
20 information sessions, community networks and Manitoba Hydro bill inserts.

21
22 One component of the AEP mentioned above is the Furnace Replacement Program
23 (“FRP”). In accordance with the PUB’s direction in Order 99/07, Centra launched a
24 subsidized loan program to assist qualifying lower income homeowners with replacing
25 their standard efficiency natural gas furnace with the installation of high-efficiency
26 furnaces. Initially the customer loan payment was set at \$19 per month for five years for
27 a total of cost to the customer of \$1,140. In accordance with the PUB’s direction in
28 Order 85/13, effective August 1, 2013, this co-payment amount was decreased to \$9.50
29 per month for five years, for a total cost to the customer of \$570. The boiler
30 replacement incentive was also increased from \$2,500 to \$3,000. This program is
31 funded in the amount of \$3.8 million per year by the SGS class, as directed by the PUB in
32 Order 99/07.

Since the FRP was introduced in 2008, a total of 5,707 standard efficiency furnaces and 130 standard efficiency boilers have been upgraded to high efficiency to the end of 2017/18. The total cost of this initiative to March 31, 2018 is \$18.2 million with \$14.1 million of that cost being customer incentives and the remainder being administration costs. Customer incentives include all costs, beyond the \$570 loan contribution from the customer, paid by the utility to the furnace contractor installing the new furnace. There are a total of 55 active furnace contractors servicing this program and the average cost is \$3,130 per furnace. However, new code requirements may require the average installation cost going forward to increase by approximately \$1,000 per furnace to account for the installation of chimney liners for homes with existing natural draft natural gas water heaters.

Preliminary indications from the 2017 Residential Energy Use Survey indicates the number of standard efficiency furnaces converted to High Efficiency since 2014 is lower than previously estimated, resulting in a greater number of standard efficiency furnaces remaining in the low income market than previously estimated. As a result, the program is expected to continue replacing furnaces until 2025/26 in order to convert the remaining units. All standard efficiency natural gas furnaces are expected to be depleted from the market by end of 2025/26, as shown in Figure 7.5 below.

Figure 7.5: Natural Gas Furnace Replacements- CEF18

Natural Gas Furnace Replacement - CEF18

	Total Utility Costs	Incentives	Admin Costs	Total Units	No. Furnaces	No. Boilers
2008/09	\$ 264,258	\$ 264,258	\$ -	285	280	5
2009/10	\$ 815,205	\$ 813,975	\$ 1,231	517	508	9
2010/11	\$ 1,311,620	\$ 863,256	\$ 448,364	461	445	16
2011/12	\$ 1,627,033	\$ 1,151,786	\$ 475,247	680	662	18
2012/13	\$ 2,166,856	\$ 1,683,761	\$ 483,095	639	630	9
2013/14	\$ 2,011,944	\$ 1,527,967	\$ 483,977	623	605	18
2014/15	\$ 3,117,414	\$ 2,467,032	\$ 650,382	817	796	21
2015/16	\$ 2,394,050	\$ 1,869,063	\$ 524,987	684	673	11
2016/17	\$ 2,169,978	\$ 1,719,544	\$ 450,434	558	547	11
2017/18	\$ 2,297,974	\$ 1,740,807	\$ 557,168	573	561	12
UP TO END 2017/18	\$ 18,176,832	\$ 14,101,448	\$ 4,074,884	5837	5707	130
Yr-1 2018/19 F2019	\$ 2,137,032	\$ 1,624,800	\$ 512,232	520	510	10
Yr-2 2019/20 F2020	\$ 2,394,757	\$ 1,806,330	\$ 588,427	469	459	10
Yr-3 2020/21 F2021	\$ 2,191,703	\$ 1,632,180	\$ 559,523	423	413	10
Yr-4 2021/22 F2022	\$ 2,002,087	\$ 1,469,640	\$ 532,447	382	372	10
Yr-5 2022/23 F2023	\$ 1,829,650	\$ 1,322,580	\$ 507,070	345	335	10
Yr-6 2023/24 F2024	\$ 1,591,079	\$ 1,129,080	\$ 461,999	294	284	10
Yr-7 2024/25 F2025	\$ 1,383,158	\$ 963,540	\$ 419,618	251	242	9
Yr-8 2025/26 F2026	\$ 1,260,470	\$ 866,790	\$ 393,680	226	217	9
Yr-9 2026/27 F2027	\$ 18,450	\$ 24,000	\$ 14,450	8	-	8
Yr-10 2027/28 F2028	\$ 39,704	\$ 24,000	\$ 15,704	8	-	8
Total	\$ 14,868,040	\$ 10,862,940	\$ 4,005,100	2,926	2,832	94
Total to End	\$ 33,044,372	\$ 24,964,388	\$ 8,079,984	8763	8539	224

1 While it is estimated there are approximately 4,600 standard efficiency furnaces
2 remaining in the LICO market not all of those furnaces are expected to be replaced
3 under the program. This assumption draws on historical data that shows the number of
4 furnace permits pulled each year is greater than program participation levels. The
5 program invests in advertising efforts through mass media and community outreach
6 avenues and it is promoted through internal contact centre and credit staff, external
7 contractors and program partners. However, segments of the market may still not be
8 aware of or consider themselves eligible for the program, or they may elect not to
9 participate in the program for personal reasons such as they may not feel comfortable
10 providing their tax documents for income verification purposes. It should be noted that
11 a list of acceptable alternative documents is used to help minimize this barrier.
12

13 It is estimated based on past participation trends that another 2,832 furnace and 78
14 boiler replacements are forecast to occur through the program from 2018/19 to the end
15 of 2025/26. This will bring the total completed replacements over the life of the
16 program to 8,539 furnaces and 208 boilers. The cost to complete the transformation of
17 standard efficiency furnaces and boilers over the next 10 years is estimated to be \$14.2
18 million.
19

20 Boiler replacements are anticipated to continue further into the future as it is estimated
21 there are approximately 2,375 standard efficiency boiler units remaining in the market.
22 Due to the longer product life of boilers and traditionally low number of replacements,
23 projections are challenging to estimate. If the program continues to offer the boiler
24 incentive after furnaces are depleted from the market it is estimated eight boiler
25 replacements per year would cost just under \$40,000 per year.
26

27 As of March 31, 2018 the FRP fund has an account balance of approximately \$24.9
28 million. Figure 7.6 provides an overview of historical fund balances, annual
29 disbursements and funding for the FRP.

1 Figure 7.6: Furnace Replacement Program Funding and Disbursements since Program
2 Inception
3

SUMMARY (\$000)											
Historical FRP Data	2007/08*	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Opening Balance	0	2,127	3,972	9,050	11,644	14,143	16,071	18,176	19,277	20,971	22,927
Accrued Interest	27	54	93	144	200	267	337	416	491	570	651
Furnace Replacement Expenditures	0	(264)	(815)	(1,112)	(1,627)	(2,197)	(2,812)	(3,491)	(4,234)	(5,044)	(5,981)
Additional Funding from SGS Customer Class	2,800	2,855	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800
Year-ending Account Balance (Mar 31)	2,827	5,972	9,050	11,644	14,143	16,071	18,176	19,277	20,971	22,927	24,856

*Beginning balance August 1, 2007
This account captures the disbursements, accrued interest and the draw down of reserves to the liability account

4
5
6 As discussed in Tab 3 of the Application, Centra is seeking the PUB's approval to
7 discontinue funding the FRP and to remove the associated costs from rates for the SGS
8 class, as the current level of funding is sufficient to replace all furnaces and boilers
9 forecast under the program to 2027/28.