

MANITOBA HYDRO
2015/16 & 2016/17 GENERAL RATE APPLICATION

ELECTRIC LOAD FORECAST

INDEX

11	7.0	Overview	1
12	7.1	Electric Load Forecast Summary	1
13	7.1	Residential Sector	3
14	7.2	General Service Sector	4
15	7.3	Gross Firm Energy	5
16	7.4	Gross Total Peak.....	6
17			
18		<i>Appendices</i>	
19	7.1	2014 Electric Load Forecast	

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36

MANITOBA HYDRO
2015/16 & 2016/17 GENERAL RATE APPLICATION

ELECTRIC LOAD FORECAST

7.0 OVERVIEW

Tab 7 provides a summary of the 2014 Electric Load Forecast.

The province of Manitoba is growing, both in population and economically, resulting in more housing and in increases in related services within the commercial sector. Economic growth results in the anticipated expansion associated with commercial and industrial customers. Together, forecast population and economic growth result in a Manitoba load that is expected to grow in all sectors.

This Tab provides information on both current load and load growth assumptions. Manitoba Hydro considers all available options for meeting the energy needs of Manitobans, including both demand-side resources and supply-side resources as discussed in Tab 9. The current Demand Side Management plan, as detailed in Tab 8, is combined with the load forecast to represent the forecast net load, which is used to forecast general consumers revenue in MH14.

7.1 ELECTRIC LOAD FORECAST SUMMARY

The Electric Load Forecast provides a long term projection of future electricity demand in Manitoba with a forecast provided for both energy and capacity requirements. The load forecast is reviewed and updated on an annual basis as part of the annual corporate planning cycle. A copy of the 2014 Electric Load Forecast is provided in Appendix 7.1.

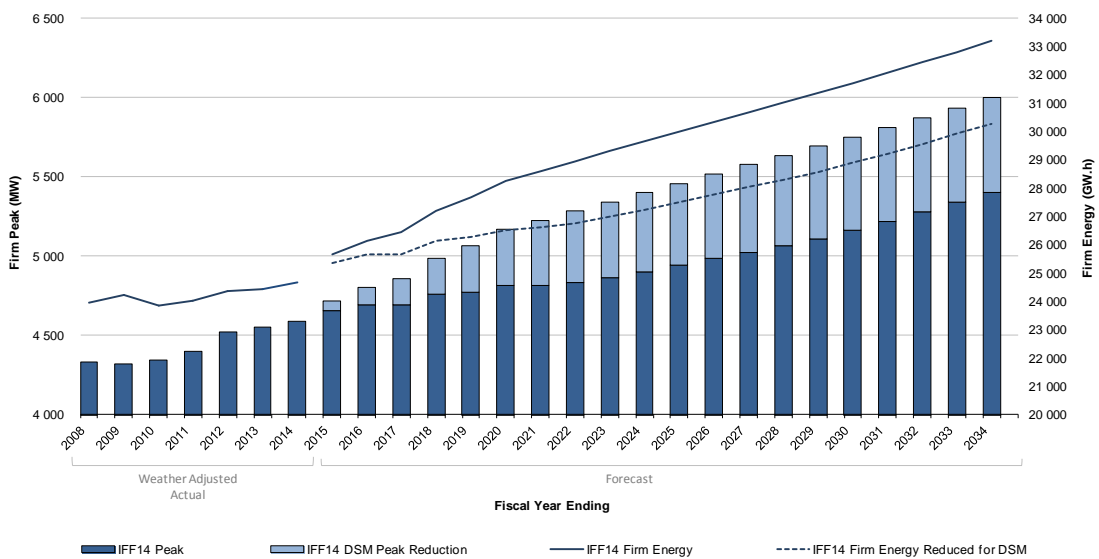
Manitoba load is forecast for the following sectors: Residential, General Service – Mass Market, General Service – Top Consumers, Losses and Station Service, and Miscellaneous. The Residential and General Service markets combined represent the majority of energy use in Manitoba.

The 2014 Load Forecast reflects the following with respect to Demand Side Management (“DSM”):

- Historical load values include the effect of Manitoba Hydro’s past DSM efforts, including both improvements to energy codes and standards, as well as past market-based Power Smart programs.
- Forecast load values reflect the future impact of implemented or committed energy codes and standards, but not future activity under market-based DSM programs.
- Forecast future activity under market-based DSM programs has not been removed from the 2014 Load Forecast. The energy savings forecast to be achieved through future market-based DSM programs are considered in the Peak and Energy demand information provided in Tab 9 of the Application.

The figure below provides the forecast growth in Manitoba Hydro’s load, as well as the reduction to forecast load growth including the impacts of the forecast DSM activities. Manitoba Hydro’s DSM initiatives are described in detail in Tab 8 of the Application.

Figure 7.1



17
18
19
20
21
22
23
24

The figures in section 7.1 below compare the 2014 Electric Load Forecast to the forecast adjusted for the DSM Savings attributable to the future market-based DSM Programs.

Manitoba Hydro continually seeks to enhance the forecast and its supporting methodologies. The load forecast is produced annually to take into account changes in the markets as well as new outlooks into the future. This allows the planning process at

1 Manitoba Hydro to make annual adjustments to account for incremental changes and
2 adjust for longer-term trends. A comparison describing the changes between the 2013
3 Electric Load Forecast and the 2014 Electric Load Forecast can be found in the 2014
4 Electric Load Forecast (Appendix 7.1) starting at page 12. The description of the
5 methodology can be found in the 2014 Electric Load Forecast starting on page 59.
6

7 **7.1 Residential Sector**

8 Historical Period (1994/95 - 2013/14):

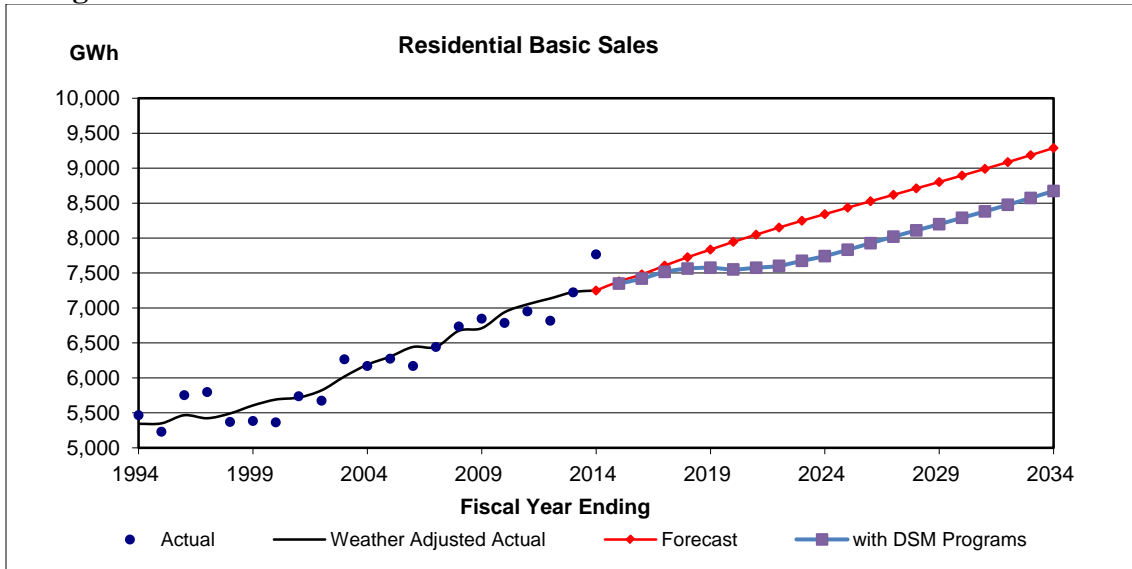
9
10 The residential sector had minimal growth during the 1990's but growth has been steady
11 since about 1999. During the last 20 years, weather adjusted Residential consumption has
12 been growing at an average of 100 GWh or 1.6% per year. This growth reflects the
13 effects of past improvements in energy efficiency codes and standards and past
14 participation in Power Smart programs.
15

16 Forecast Period (2014/15 – 2033/34):

17 Over the forecast period, the Residential sector is expected to grow by 102 GWh or 1.2%
18 per year. This is primarily due to anticipated growth in population which accounts for 1%
19 of the growth. The increase in average use per customer is expected to add 0.2% to the
20 annual growth. With the inclusion of energy savings to be achieved through Power Smart
21 programs, the overall net Residential growth is expected to be 71 GWh or 0.9% per year.
22

23 Figure 7.2 below provides a graphical representation of the historical and forecast usage
24 of the Residential sector.

1 **Figure 7.2- Residential Sales**



2
3 Note: Sales forecast at meter.

4 **7.2 General Service Sector**

5 Historical Period (1994/95 - 2013/14):

6 During the past 20 years, the General Service sector overall has grown 203 GWh or 1.7%
7 per year on a weather-adjusted basis. This growth reflects the effects of past
8 improvements in energy efficiency codes and standards and past participation in Power
9 Smart programs.

10
11 The General Service sector primarily consists of two categories of consumers: Mass
12 Market and Top Consumers. Mass Market has grown steadily at an average of 117 GWh
13 per year or 1.6%. The Top Consumers are more sensitive to economic conditions and
14 were growing at an average of 173 GWh per year until the onset of the economic
15 downturn of 2009/10. During 2009/10 and 2010/11, the Top Customers decreased
16 741 GWh and excluding the loss of one Top Consumer, have since recovered and
17 resumed normal operations.

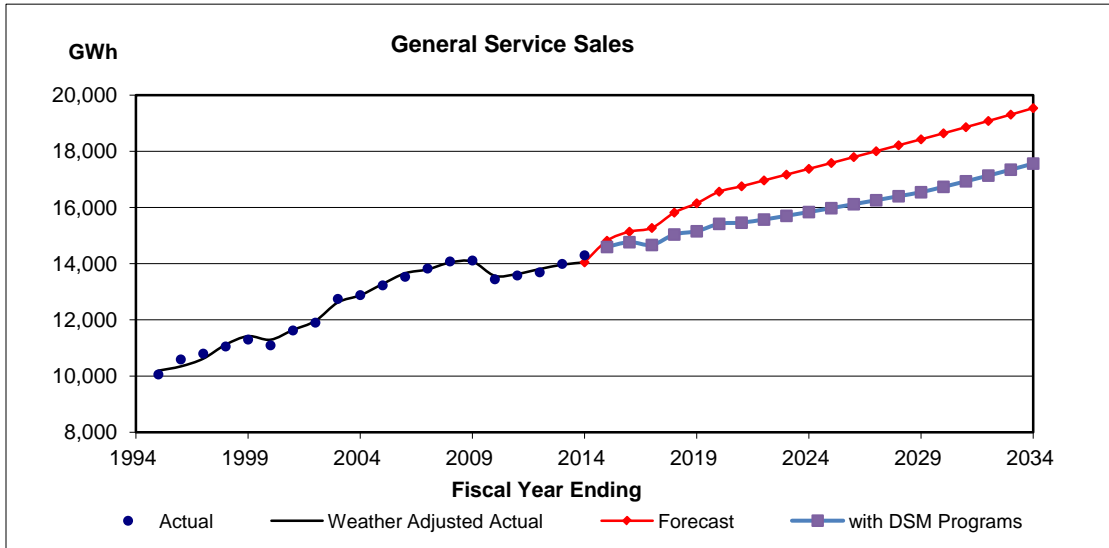
18
19 Forecast Period (2014/15 – 2033/34):

20 Growth in the General Service sector is forecast to grow 274 GWh or 1.7% per year over
21 the forecast period. Mass Market is expected to contribute 142 GWh per year of projected
22 growth with Top Consumers contributing the remaining 132 GWh per year. This includes
23 the anticipated short term committed load growth in the Pipeline sector, minor growth in

1 other Top Consumers and an expected Top Consumer load decrease. The inclusion of
2 Power Smart programs lowers General Service growth to 176 GWh or 1.1% per year.

3
4 Figure 7.3 below provides a graphical representation of the historical and forecast usage
5 of the General Service sector.

6
7 **Figure 7.3- General Service Sales**



8
9 Note: Sales forecast at meter.

10 **7.3 Gross Firm Energy**

11 Gross Firm Energy includes all electricity that is generated to meet firm energy
12 requirements for all customers within Manitoba and excludes non-firm (interruptible
13 load).

14 Historical Period (1994/95 - 2013/14):

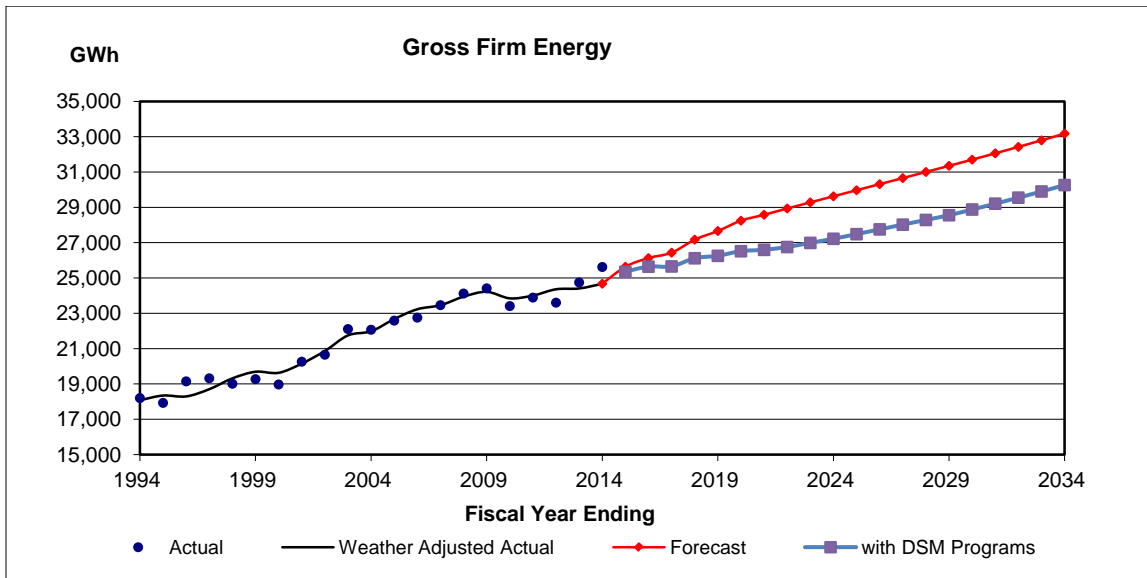
15 During the past 20 years, Gross Firm Energy has grown 333 GWh or 1.6% per year on a
16 weather-adjusted basis. The trend in Gross Firm Energy growth has been relatively
17 consistent over the period and reflects the effects of past improvements in energy
18 efficiency codes and standards and past participation in Power Smart programs. As noted
19 earlier, the economic downturn had a significant impact on some General Service Top
20 Consumers in 2009/10 and was the main reason for the decline that year; however, since
21 then excluding the loss of one Top Consumer, this sector has since recovered and
22 resumed normal operations.
23
24

1 Forecast Period (2014/15 – 2033/34):

2 During the forecast period, Gross Firm Energy is expected to grow 425 GWh or 1.5% per
3 year. The inclusion of Power Smart programs will lower Gross Firm Energy growth to
4 279 GWh or 1.0% per year.
5

6 Figure 7.3 below provides a graphical representation of the historical and forecast usage
7 of Gross Firm Energy.
8

9 **Figure 7.4- Gross Firm Energy**



10

11

Note: Energy forecast at generation.

12

7.4 Gross Total Peak

13

The Gross Total Peak is the maximum hourly load required to serve Manitoba Hydro's customers on the Integrated System. It excludes exports and diesel customers with curtailed loads added back in. The term "integrated" indicates that the average load within the peak hour is used.

14

15

16

17

18

1 Historical Period (1994/95 - 2013/14):

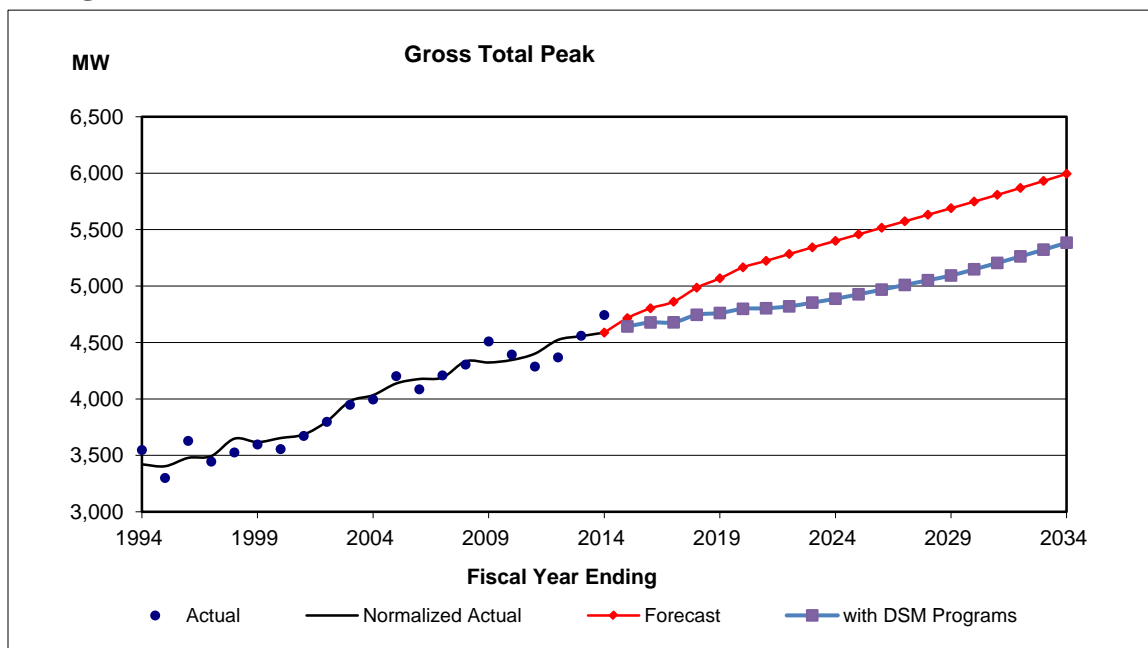
2 During the past 20 years, Gross Total Peak has grown 62 MW or 1.6% per year on an
3 adjusted basis. Gross Total Peak has grown significantly since 2000/01, reflecting the
4 general growth in energy load over that period.

5
6 Forecast Period (2014/15 – 2033/34):

7 During the forecast period, Gross Total Peak is projected to grow 70 MW or 1.3% per
8 year. The inclusion of Power Smart programs will lower the demand growth to 40 MW
9 or 0.8% per year.

10
11 Figure 7.5 below provides a graphical representation of the historical and forecast of
12 Gross Total Peak.

13
14 **Figure 7.5- Gross Total Peak**



15
16 Note: Peak forecast at generation.