Tab 8
Index
January 23, 2015

MANITOBA HYDRO

2015/16 & 2016/17 GENERAL RATE APPLICATION

DEMAND SIDE MANAGEMENT

INDEX

Appendices

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

DEMAND SIDE MANAGEMENT

8.0 OVERVIEW

Tab 8 provides an overview of Manitoba Hydro's Demand Side Management ("DSM") program. Section 8.1 discusses the role of DSM at Manitoba Hydro, Section 8.2 provides a summary of the current DSM plan, and Section 8.3 provides a summary of the progress of Power Smart Programs to date.

8.1 DSM'S ROLE IN FULFILLING MANITOBA HYDRO'S MANDATE

By taking an integrated approach, DSM activities play a key role in a number of the Corporation's core business activities, including:

1) Integrated Resource Planning;
2) Demand Side Management;
3) Customer Care/Service & Relationship Management; and
4) Corporate Branding/Image.

8.1.1 Integrated Resource Planning

Manitoba Hydro's mandate is to provide for the continuance of a supply of energy to meet the needs of Manitoba consumers in the most reliable, economic and environmentally sustainable manner. In fulfilling this mandate, Manitoba Hydro's mission includes promotion of economy and efficiency in the supply and end-use of energy, requiring consideration of all available options for the supply and delivery of energy to Manitobans. These options include both supply-side resources and demand-side resources with both playing a significant role in meeting the province's existing and future energy needs as outlined in Tab 9.

Through an investment of $576 million, DSM efforts to 2013/14 have achieved an estimated 768 MW and 2,481 GW.h in capacity and energy savings, and 88 million cubic metres in natural gas savings. In addition to achievements to date,

Manitoba Hydro's DSM plan targets the achievement of 1,136 MW and 3,978 GWh of savings over the next 15 years, involves an investment of more than a billion dollars and will be relied upon to meet 66% of projected electricity load growth in Manitoba during this period. The electricity savings achieved through DSM is significant with the magnitude being in the same range as a number of large generating stations.

Manitoba Hydro updates its DSM plans on an annual basis to reflect new and updated information. With the passing of *The Energy Savings Act* in the spring of 2012, the process and framework for establishing DSM plans in Manitoba was changed. Key changes include:

- Manitoba Hydro is to develop the DSM plan in consultation with the Minister Responsible for Manitoba Hydro, which provides a framework for the Province to guide Manitoba Hydro's DSM targets and priorities;
- A requirement for the DSM plan to be updated annually by March 31st of each year.
- A requirement to have the results of the DSM plan reported annually by March 31st of each year.

The 2014 – 2017 Power Smart Plan was developed under this new framework.

Subject to concurrence with the Minister, Manitoba Hydro incorporates all economic opportunities in its DSM plan. The energy savings targeted in the plan are incorporated into the Corporation's long term resource plan. As such, DSM is included within Manitoba Hydro's integrated resource planning process and all economic DSM opportunities would be part of its overall plans to meet the province's future energy needs.

8.1.2 Demand Side Management

Manitoba Hydro's DSM initiative involves all activities to achieve the energy savings targeted within its DSM plan. Similar to building other long life resource options, the DSM Plan involves making a significant investment, taking a long term perspective and having broad and coordinated efforts over this period.

Manitoba Hydro's DSM Plan takes a comprehensive approach to support the efficient and productive use of energy including offering incentive based programs, education, research, support for codes and standards, rates initiatives, customer-sited self-generation

for load displacement, and load management activities. In aggregate, these activities form part of an overall integrated and long term strategy to lower the demand for electricity and natural gas in Manitoba and assist customers in managing their consumption and associated energy bills. Manitoba Hydro's Power Smart strategy is to ultimately create a sustainable market change where energy efficient technologies and practices become the market standard.

Codes, standards and regulations are an important aspect of DSM programming at Manitoba Hydro, providing tools for customers to evaluate their energy performance, validating the measurement and verification of program savings, and supporting substantial energy savings through energy performance regulation today and into the future. Codes and standards implemented through energy performance regulations help cement the savings obtained from Power Smart programs designed to accelerate the transformation of markets to more energy efficient technologies, locking those savings in for future generations.

Both the Canadian Standards Association (CSA) and Natural Resources Canada (NRCAN) recognize Manitoba Hydro as a leading contributor towards the national development of codes and standards governing energy performance. Manitoba Hydro's DSM initiative actively contributes financial resources and critical technical expertise to support the work undertaken by the CSA and NRCAN to develop new codes and standards in support of their long term and comprehensive strategy to reduce energy consumption by a broad range of consumer goods, residential and commercial buildings and industrial processes.

Manitoba Hydro's strategy also engages external third parties to promote and deliver programs or components of programs through arrangements that extend from third party delivery contracts to registered suppliers. The Refrigerator Retirement, Water & Energy Savings, Commercial Kitchen – Pre Rinse Spray Valve, and Residential LED Lighting programs are a few examples of programs delivered through third party delivery contracts. Manitoba Hydro has also entered into partnership arrangements with organizations such as, but not limited to, North End Community Renewal Corporation, Brandon Neighbourhood Renewal Corporation, Building Urban Industries for Local Development (BUILD), Brandon Energy Efficiency Program (BEEP) and numerous First Nation Communities to promote and deliver energy efficiency upgrades to lower income households under the Affordable Energy Program. Manitoba Hydro is further working

with AKI Energy, an aboriginal social enterprise, to promote and deliver the Community Geothermal Program in First Nation communities. To leverage industry, Manitoba Hydro has signed Power Smart agreements with 2,500 retailers and contractors actively promoting Manitoba Hydro's programs directly to customers. Industrial programs also actively leverage the capabilities of equipment suppliers and vendors to assist customers in identifying opportunities for increased energy efficiency and related productivity improvement.

8.1.3 Customer Care/Service & Relationship Management

Operationally, DSM and customer care activities are integrated to complement the Corporation's overall objective of serving its customers in a comprehensive, efficient and convenient manner. Offering DSM programs and energy services provides Manitoba Hydro with an excellent opportunity to assist customers with lowering their energy bills and concurrently the activities build positive relationships with customers, industry and stakeholders. Numerous DSM related opportunities occur on a daily basis with customers in all sectors and the depth of interactions are reflected in the participation rates under the many Power Smart programs. For example, Manitoba Hydro is working with 54 First Nation communities to implement energy efficient measures in their communities, approximately 10,000 lower income customers have participated in the Affordable Energy Program, over 850,000 customers have participated in residential programs, over 26,000 customers have participated in commercial programs and with over $300 million being provided in convenient on-bill financing.

The customer care/service & relationship management functional activities align with the Corporation's DSM activities and allow Manitoba Hydro to capture synergies to reduce overall operational costs and to provide customers with exceptional customer service through addressing customers' energy needs in a convenient approach.

8.1.4 Corporate Branding/Image

Manitoba Hydro has successfully delivered DSM initiatives for over 20 years under the "Power Smart" brand. The Power Smart brand and associated significant DSM activities have been leveraged by the Corporation to enhance its corporate image with the general public, communities, key stakeholders and all customer sectors. A significant majority of customers report that they are very satisfied with Manitoba Hydro's "Efforts to Encourage Customers to be More Energy Efficient" with 82% reporting a satisfaction level of 7 or higher on a satisfaction scale of 1 - 10.

8.2 CURRENT DSM PLAN

Manitoba Hydro has a strong commitment to DSM, focusing on pursuing all cost effective energy efficiency opportunities and continually monitoring the market for emerging trends and additional opportunities. Under Manitoba Hydro's current long range plan for DSM, "The 2014-17 Power Smart Plan – 15 Year Supplemental Report", (see Appendix 8.1), energy and demand savings resulting from Power Smart initiatives are targeted to achieve 3,978 GW.h and 1,136 MW by 2028/29. This activity represents 13% of the estimated electric load forecast offsetting 66% of projected load growth during this period. Combined with the energy savings to date, total electric savings of 6,286 GW.h and 1,635 MW will be realized by 2028/29.

Over the last year, Manitoba Hydro has introduced a number of new DSM initiatives and enhancements to existing initiatives to assist residential, commercial and industrial customers in managing their energy bills. More specifically, new programs launched include the Residential LED Lighting program, the LED Roadway Lighting Conversion Program and the Load Displacement Program. In addition, a number of enhancements to existing Power Smart programs were introduced, such as increased incentives, new measures, and enhanced sales and technical support. Some examples are as follows:

- increased insulation incentives and introduced free energy assessments for electrically heated homes;
- added direct installation of high efficiency pre-rinse spray valves to the Commercial Kitchen program;
- introduced higher performance levels beyond the new energy code for buildings, and increased incentives and technical assistance to support energy modeling under the Commercial New Buildings program;
- increased incentives under the Refrigerator Retirement, Commercial Lighting, Commercial Building Envelope, Commercial CO2 Sensors, and Commercial Refrigeration programs; and
- expanded financial and technical support for embedded energy managers in large commercial and industrial facilities under the Industrial Performance Optimization Program, accelerating the identification of efficiency improvements among Manitoba's largest energy users.

8.3 SUMMARY OF PROGRESS TO DATE

Manitoba Hydro's Power Smart Programs have been and continue to be very successful at reducing customers' energy bills while contributing to a sustainable energy supply for the needs of the Province of Manitoba as a whole. Appendix 8.2 provides the 2012/13 Power Smart Annual Review, highlighting Power Smart achievements including annual load reductions of 2,296 GW.h and 637 MW in winter peak demand reductions (at generation). These Power Smart electrical savings translate into a cumulative reduction of $660 million in customer electricity bills to date, and indirect greenhouse gas emission reductions of approximately 1,532,000 tonnes of carbon dioxide equivalent emissions in 2012/13 alone.

The energy savings realized during 2013/14 are presently being evaluated with the report expected to be finalized in the spring of 2015. The Corporation's DSM efforts are on target with estimated savings 768 MW and 2,481 GW.h as of March, 2014.

Manitoba Hydro's leadership role and continued commitment to DSM has been recognized by independent organizations including:

- In 2014, Manitoba Hydro won E Source's inaugural DSM Achievement Award for the Most Energy Savings per Customer for a gas utility. E Source benchmarked savings for portfolios from across North America and highlighted the best performing utilities in four categories.

- Manitoba Hydro's Power Smart financing programs were highlighted in a case study in the State and Local Energy Efficiency (SEE Action) Network "Financing Energy Improvements on Utility Bills: Market Updates and Key Program Design Considerations for Policymakers and Administrators" published May 22, 2014. This report, prepared by energy efficiency financing experts at the Lawrence Berkeley National Laboratory, examined best practices regarding structure and implementation of on-bill energy efficiency financing programs. Manitoba Hydro's inclusion in this report was highlighted as the company has achieved significant market penetration; having been adopted by 17 per cent of Manitoban households and representing $350 million in financing since program inception, this is the highest penetration of all 30 of the programs included in the report.

- Manitoba Hydro was asked to present their Affordable Energy Program (formally known as the Lower Income Energy Efficiency Program) at the Chartwell's Best Practices Summit on Serving Low-Income Customers in April 2009.

- The Canadian Energy Efficiency Alliance (CEEA), a leading non-government energy efficiency advocate, awarded Manitoba an "A+"; the highest rating awarded to any province of territory in its most recent (2009) National Report Card on Energy Efficiency. Manitoba Hydro was the key contributor to achieving this rating. This was the fourth consecutive report card covering eight years where Manitoba had either led or tied for first place in the national rating. CEEA no longer conducts these reviews.

- Manitoba Hydro's leadership and success in promoting energy efficiency in compressed air and other processes is well recognized by other utilities such as BC Hydro, Toronto Hydro and others from across North America who have contracted Manitoba Hydro to facilitate training for their industrial customers and local suppliers.

Figures 8.1 and 8.2 depict the energy and demand savings realized through to 2012/13.

Figure 8.1

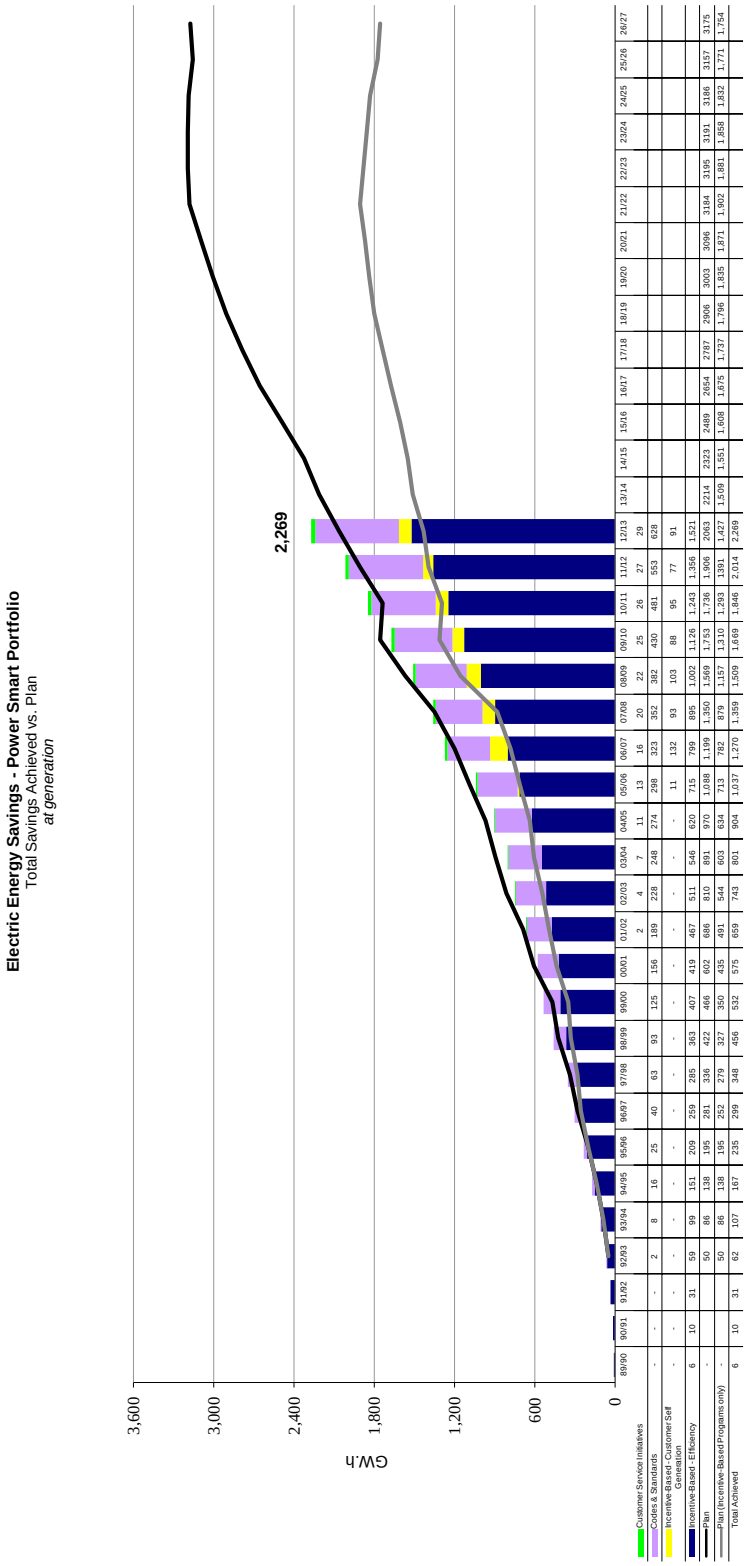
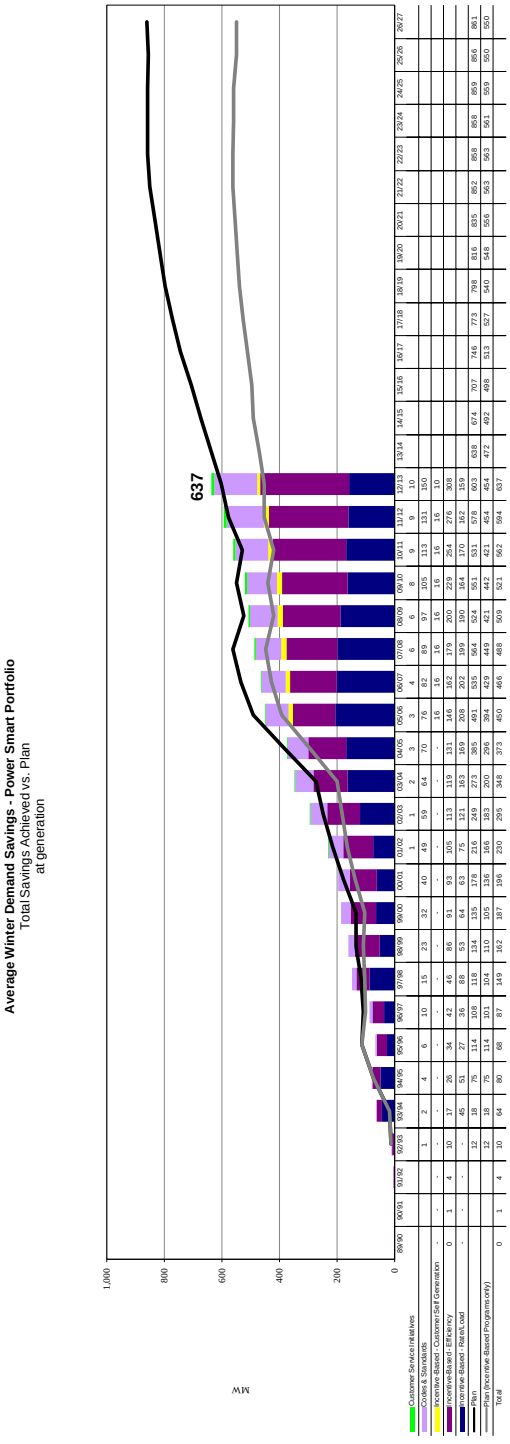

Electric Energy Savings - Power Smart Portfolio
Total Savings Achieved vs. Plan
at generation
GW.h
3,600
3,000
2,400
1,800
1,200
600
0
2,269
Customer Service Initiatives
Codes & Standards
Incentive-Based - Customer Self Generation
Incentive-Based - Efficiency
Plan
Plan (Incentive-Based Programs only)
Total Achieved

Figure 8.2


Average Winter Demand Savings - Power Smart Portfolio
Total Savings Achieved vs. Plan
at generation
637
MW
1,000
800
600
400
200
0
Customer Service Initiatives
Codes & Standards
Incentive-Based - Customer Self Generation
Incentive-Based - Efficiency
Incentive-Based - Retail Load
Plan (Incentive-Based Programs only)
Total