

October 2011

2011 Power Smart Plan

Power Smart Planning, Evaluation & Research Department
Customer Care & Marketing Business Unit



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Executive Summary

Manitoba Hydro's 2011 Power Smart Plan provides a roadmap for the future direction of the Corporation's energy conservation program. The Plan was developed through an intensive planning process which builds on the Corporation's experience and continuous involvement in energy management since 1989. The planning process involved research on energy management technologies and practices, research on activities of other leading-edge organizations delivering energy efficiency programs and the development of program design concepts.

The 2011 Power Smart Plan is a 15-year plan that forecasts Manitoba Hydro's energy savings and investments to the benchmark year of 2025/26 which will be achieved through electricity and natural gas Power Smart Programs. The plan sets out to realize electricity savings of 597 MW and 1,944 GW.h, natural gas savings of 99 million cubic meters and combined global greenhouse gas emission reductions of 1.5 million tonnes by 2025/26. These savings represent 3.8 percent of the estimated electric load forecast for 2025/26 and 3.8 percent of the natural gas load forecast for 2020/21.

The total cost of achieving the energy savings is \$560 million; \$388 million of the costs are funded through the Corporation's Power Smart electricity budget, \$133 million from the Power Smart natural gas budget, \$28 million from the Affordable Energy Fund, and \$11 million from the Lower Income Natural Gas Furnace Replacement budget for targeting furnace replacement.

Combined with energy savings achieved to date, total electrical savings of 906 MW and 3,283 GW.h and total natural gas savings of 153 million cubic meters will be realized by 2025/26. These combined energy savings are expected to result in an overall reduction of greenhouse gas emissions of 2.5 million tonnes by 2025/26.

By reducing electricity and natural gas consumption through innovative products, participating customers can expect to save \$ 91 million in 2025/26 and \$896 million cumulatively by 2025/26. When combined with bill reductions achieved to date, programs are expected to save participating customers \$148 million in 2025/26 and over \$2.5 billion cumulatively.

The overall Total Resource Cost (TRC) for the electric and natural gas Power Smart portfolio is 2.0. The electric Power Smart portfolio has an overall Rate Impact Measure (RIM) of 1.2 and an overall levelized utility cost of 2.4 cents per kilowatt-hour. The natural gas Power Smart portfolio has an overall RIM of 0.7 and an overall levelized utility cost of 13.9 cents per cubic meter.

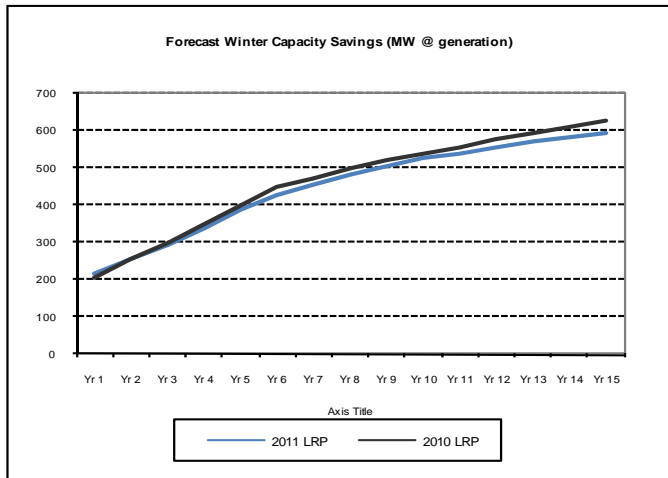
Changes from the 2010/11 Power Smart Plan

Electric DSM Target and Utility Cost Comparison

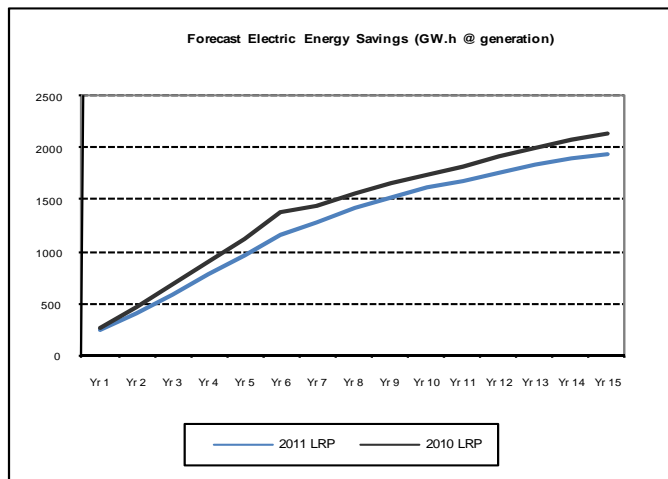
The following tables and graphs outline changes in electric savings expected to be achieved through the 2011 Power Smart Plan relative to the targets outlined in the 2010 Power Smart Plan.

Electric DSM Targets – Differences

Overall, electric capacity savings are expected to decrease slightly from the 2010 Plan.

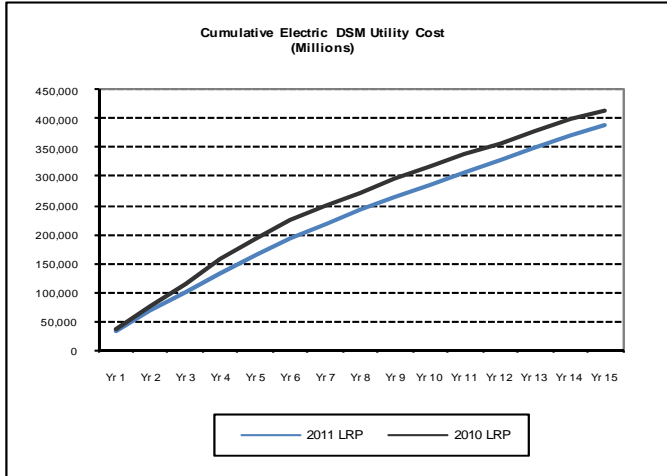


Electric energy saving are expected to decrease by 8.9% from the 2010 Plan. This decrease is mainly the result of decreased savings from the Commercial Lighting Program and from the impacts of Codes and Standards.



Electric DSM Utility Costs - Differences

Overall, the electric utility cost expenditures are expected to decrease by 6.3% from the 2010 Plan. This is mainly the result of decreased spending in the residential and commercial sectors.

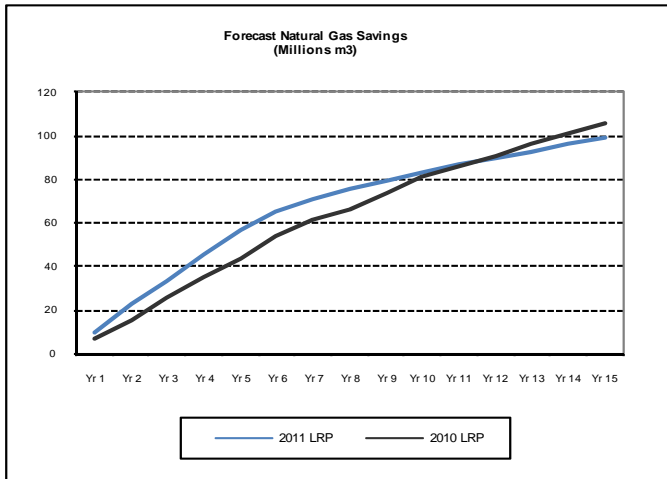


Natural Gas DSM Target and Utility Cost Comparison

The following tables and graphs outline changes in natural gas savings expected to be achieved through the 2011 Power Smart Plan relative to the targets outlined in the 2010 Power Smart Plan.

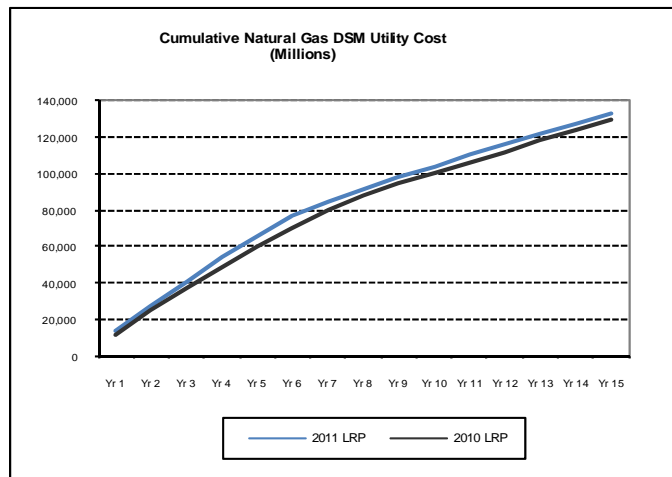
Natural Gas DSM Targets – Differences

Overall, natural gas savings are expected to decrease by 6.6% from the 2010 Plan. The differences in estimated natural gas savings is mainly the result of a decrease in forecast savings from the Commercial HVAC – Boiler Program.



Natural Gas DSM Utility Costs – Differences

Overall, the natural gas utility cost expenditures are expected to increase slightly over the 2010 Plan. This is mainly the result of increased spending in the commercial sector.



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1 The 2011 Power Smart Plan

Manitoba Hydro's 2011 Power Smart Plan provides a roadmap for the future direction of the Corporation's energy conservation program. The Plan was developed through an intensive planning process which builds on the Corporation's experience and continuous involvement in energy management since 1989. The planning process involved research on energy management technologies and practices, research on activities of other leading-edge organizations delivering energy efficiency programs and the development of program design concepts.

1.1 Portfolio Strategy

Power Smart Programs for all sectors are designed through an in-depth technology and market research process. Energy efficient technologies or practices ("EE measure") are first screened to determine the economic viability to the customer. Inputs into the process include energy savings, demand savings, interactive effects, product life, product cost and persistence rates. The resulting marginal resource cost ratio is a guide to this process, however, other factors are also considered in determining whether an EE measure should continue into the program design phase. For example, emerging technologies often do not provide enough benefits to outweigh the costs but the target market may have a higher threshold for longer payback periods. In these instances, a program may be pursued to assist in stimulating market activity which builds the market capability and helps deliver more cost effective savings in the future.

A thorough understanding of the market; both overall characteristics and drivers and detractors to the EE measure; is essential to ensure that the program design is addressing the proper target market and contains the tools and strategies that will address the barriers present. Market detail includes the target customers, current market share of the EE measure, alternatives to the EE measure including those that are considered the most standard practice, incremental costs of the measure including installation, channels through which the EE measure gets to the market and ancillary customer benefits to the EE measure. These details will guide the overall marketing strategy to ensure that a meaningful message reaches the intended target market in order to drive participation in the program. Although the fundamental processes may be similar, the levels or type of customer engagement will differ for each sector. Residential markets are usually pursued through targeted mass market activities. For the commercial/institutional sector, Manitoba Hydro uses a combination of these approaches. The industrial sector is pursued with greater focus on specific customer relationship building, site-specific energy efficiency screening/monitoring and utilizing a site-specific system approach in identifying opportunities for customers' facilities.

The overall life span of a program will vary by EE measure but generally is established by the length of time that is thought to be required to transform the market to that measure. Tools for permanent market transformation are considered with each design and most commonly come in the form of a regulation (most often for retrofit market) or a code (applies only to new construction opportunities). In addition to the active role Power Smart plays with the Provincial departments responsible for energy regulations and building codes (see section 5), Manitoba Hydro also partners with the Federal Government's Office of Energy Efficiency and the Canadian Standards Association to continually improve the energy performance of products. Manitoba Hydro staff also regularly monitors activities of other Provincial and Territorial Regulation and Code Authorities and the United States Department of Energy since regulatory activities in other jurisdictions may increase a timeline for a regulation locally or, alternatively, result in an influx of inefficient products into Manitoba.

Manitoba Hydro continually monitors the market to identify emerging trends and opportunities, such as integrated manufacturing and sustainable communities, which may become viable and cost effective within the planning horizon. Manitoba Hydro continues to support emerging technologies and practices via research and demonstration projects through both provincial and national industry partnerships.

1.2 Residential Portfolio

The 2011 **Power Smart Residential Portfolio** consists of the following programs:

Customer Service Initiatives and Cost-Recovery Programs

Home Comfort & Energy Savings Program

The Home Comfort & Energy Savings Program encourages homeowners to make energy efficient renovations to increase comfort and reduce home heating bills. The following services are offered under this customer service program:

- Power Smart Do-It-Yourself Home Assessments
 - Mail-in Energy Assessment Survey
 - Online Home Comfort & Energy Assessment
- Existing Homes Energy Workshops
- Consumer Information Services
- Power Smart “Energy Expert”
- Power Smart Residential Loan (Cost-Recovery) (See Financial Loan Programs)

In addition to the above programs, Manitoba Hydro also provides customers with basic information on the energy saving opportunities via the following initiatives:

- Residential Seasonal LED Lighting
 - Residential seasonal light emitting diode (SLED) light strings and SLED screw-in replacement bulbs for standard incandescent light strings.
- Residential CFL Lighting
 - Encouraging the replacement of residential incandescent lights with CFLs.
- Standby Power
 - Educate and inform homeowners on the issue of standby power and its impact on energy consumption in the home, while also focusing on steps they can take to reduce the standby power used by their current devices, and promoting the purchase of new devices which use less standby power.
- Consumer Electronics
 - Promote ENERGY STAR electronics by providing technical and general information, with a focus on Set Top Boxes and Televisions.
- Energy Efficient Appliances
 - Encouraging our customers to buy energy efficient appliances for their homes. The ENERGY STAR symbol identifies the models that meet or exceed technical specification that is meant to ensure that they are among the most energy efficient in their class and do not compromise performance. ENERGY STAR appliances are 10–50 per cent more efficient than conventional models. When you buy an ENERGY STAR qualified appliance, you are being Power Smart.

- Residential High Efficiency Furnaces
 - Replace your old furnace with a new ENERGY STAR qualified high efficiency furnace. A high efficiency natural gas furnace or boiler uses less energy, costs less to operate, helps conserve natural gas, and reduces greenhouse gas emissions.

Financial Loan Programs

Power Smart Residential Loan ^

As per of the Home Comfort & Energy initiative, Manitoba Hydro offers a Low interest financing, with a fixed interest rate for up to five years for Power Smart home renovations. The loan covers the following energy efficient upgrades:

- Windows and doors
- Residential space heating equipment;
- Insulation;
- Air leakage sealing;
- Ventilation;
- Lighting;
- Residential water heating equipment;
- Water conservation.

The current terms of the loan are as follows:

- Borrow up to \$7,500 per residence; up to \$5,500 of that may be put toward the purchase of a high efficiency natural gas furnace.
- The maximum term is 5 years for all energy efficiency upgrades and 15 years for the purchase of a high efficiency natural gas furnace.
- Annual interest rate is fixed at 4.9 per cent (O.A.C.) for the first 5 years.
- Monthly installments will be included on your energy bill.
- Applicant must be a Manitoba Hydro customer and the owner of the home in which energy improvements are to take place.
- Upgrades must be made to levels recommended by Manitoba Hydro.
- The loan does not apply to central air conditioning

Residential Earth Power Loan ^

The Residential Earth Power Loan assists homeowners with the cost of installing a geothermal heat pump and/or a solar water heating system.

Geothermal Heat Pumps

The Residential Earth Power Program's primary objective is to maximize the adoption of geothermal heat pump technology to offset the use of conventional electric heating. The program attempts to mitigate the market barriers of low customer awareness, underdeveloped industry infrastructure and high capital costs. Mitigation of capital costs is achieved by offering residential consumers the opportunity to finance a geothermal heat pump installation through the cost-recovery based Earth Power Loan.

The current terms of the loan are as follows:

- Financing up to \$20,000;
- Maximum term: 15 years;
- Interest rate: 4.9 per cent (initial 5-year fixed term);
- Available for new installations and retrofits.

Solar Water Heating System

This initiative promotes harnessing the sun's power and transferring the energy to preheat water for water tanks. The program attempts to mitigate the market barriers of low customer awareness and high capital costs. Mitigation of capital costs is achieved through utilizing the cost-recovery based Earth Power Loan.

The current terms of the loan are as follows:

- Financing up to \$7,500 per residence;
- Maximum term: 15 years;
- Interest rate: 4.9 per cent (for the initial 5-year fixed term);

Note: ^ Program impacts classified as Customer Service Initiative in Appendices.

Incentive Based Programs

New Home Program

Manitoba Hydro is currently assessing the New Home Program. This program provides residential customers with incentives to incorporate energy savings features and construction techniques into the construction of new homes. These standards incorporate cost-effective energy upgrades to achieve maximum economically achievable opportunities of the baseline new home.

Home Insulation Program

The Home Insulation Program encourages existing homeowners utilizing electricity or natural gas to heat their homes to upgrade the insulation in their attics, walls, and foundations to Power Smart recommended levels. Information and financial incentives are offered to encourage customer participation.

Water and Energy Saver Program

The Water and Energy Saver Program encourages customers to replace their existing inefficient showerheads and faucet aerators with low-flow energy efficient showerheads and faucet aerators.

Lower Income Energy Efficiency Program (LIEEP)

The Lower Income Energy Efficiency Program (LIEEP) is designed to bring Power Smart and energy efficient measures to qualifying Manitoba lower income households. The program leverages Manitoba Hydro Power Smart programs, the Affordable Energy Fund, the Natural Gas Furnace Replacement Budget, provincial government programs and existing community-based infrastructures. Energy efficiency measures include pre and post in-home energy evaluations, installation of basic energy efficiency items such as CFLs and low-flow showerheads, insulation upgrades, and natural gas furnace upgrades.

Energy Efficient Light Fixtures Program

The Energy Efficient Light Fixtures program encourages the replacement of residential incandescent and halogen fixtures with ENERGY STAR qualified fixtures and installation of other energy efficient devices including dimmer switches and LED night lights.

Refrigerator Recycling Program

The Refrigerator Recycling Program will provide pick-up and recycling services for customers to remove their old and working secondary fridges and freezers earlier than their expected end of life. This will be supported by a marketing campaign promoting the benefits of removing the older working appliance as well as a financial incentive to encourage customers to give up their appliance. The program will be implemented through a third party service provider specializing in appliance removal and recycling.

1.3 Commercial Portfolio

The **Power Smart Commercial Portfolio** consists of the following programs:

Incentive Based Programs

Commercial Lighting Program

The Commercial Lighting Program encourages commercial, industrial and agricultural customers to install cost-effective energy efficient lighting systems in new construction and renovation projects as well as provide assistance to lighting distributors, installers, contractors and manufacturers with helping customers save electricity.

Custom Measures Program

The Commercial Custom Measures Program encourages commercial customers who are renovating, undergoing expansions or building new facilities to improve system performance by installing or upgrading technologies such as direct digital controllers, variable frequency drives, heat recovery ventilation systems and solar space & water heating. The program is designed for energy efficient projects that are not included in any of the existing POWER SMART programs.

Commercial Building Envelope - Windows and Insulation Programs

This program encourages building owners to incorporate window systems and/or insulation that meets POWER SMART levels into their renovation plans and helps to reduce air leakage that leads to heat loss.

Commercial HVAC Program - Chillers

The program promotes the use of higher efficiency cooling systems in commercial buildings thru the installation of energy efficient water-cooled chillers.

Commercial HVAC Program - Boilers

The program promotes the use of higher efficiency heating systems in commercial buildings thru the installation of near condensing and condensing boilers.

Commercial HVAC Program - CO2 Sensors

The Commercial CO2 Sensor Program promotes the installation of carbon dioxide demand-controlled ventilation sensors through financial incentives and promotional activities, as well as increasing the levels of education to customers and channel intermediaries.

City of Winnipeg Power Smart Agreement

The City of Winnipeg Power Smart Agreement (PSA) encourages, promotes and implements energy saving measures to improve the efficiency of City-owned facilities

Commercial Refrigeration Program

The Commercial Refrigeration Program encourages retail stores and restaurants to install energy efficient refrigeration equipment for their walk-ins, display cases and mechanical rooms to reduce energy consumption and create a more comfortable environment for their customers.

Commercial Earth Power Program

The Commercial Earth Power Program provides information and financial incentives to customers who install a geothermal heat pump to offset a conventional electric heating system or for customers without access to natural gas in existing commercial buildings.

Commercial New Construction Program

The Power Smart New Buildings Program provides technical guidance and financial incentives for designing, constructing, and operating new, energy efficient buildings in Manitoba.

Commercial Building Optimization Program

The Commercial Building Optimization Program encourages commercial customers with existing buildings to use an investigation process known as “retrocommissioning” to help return their buildings to their design intent. The goal is to identify energy conservation opportunities with short payback periods.

Internal Retrofit Program

The Internal Retrofit Program encourages energy efficiency in Manitoba Hydro buildings by retrofitting existing and constructing new buildings to POWER SMART levels.

Commercial Kitchen Appliance Program

The Commercial Kitchen Appliance Program promotes the installation of ENERGY STAR commercial natural gas and electric steam cookers and natural gas fryers.

Network Energy Management Program

The Network Energy Management Program is a software-technology based program targeted at commercial customers utilizing personal computers (PCs) in a network setting.

Commercial Clothes Washers

The Commercial Clothes Washer Program promotes ENERGY STAR® qualified front-loading commercial clothes washers (Washers) while raising awareness of lower operating costs and increased water savings.

In addition to the above programs, Manitoba Hydro also provides commercial customers with basic information on the energy saving opportunities via the following initiatives:

- Power Smart Recreation Facility Survey
- Religious Buildings Initiatives

1.4 Industrial Portfolio

The **Power Smart Industrial Portfolio** consists of the following programs:

Incentive Based Programs

Performance Optimization Program

The Performance Optimization Program encourages industrial and large commercial customers to study and implement energy efficient measures in their electro-technology processes and motor-driven systems. The program offers Custom Engineered Solutions (inclusive of compressed air, pump, fan and process system initiatives) Eco-efficiency Audits & Feasibility Studies, Energy Management Systems and Waste Stream Thermal Recovery systems.

Emergency Preparedness Program

Manitoba Hydro is currently assessing the Emergency Preparedness Program. This program will provide electrical demand and energy savings in support of the Corporation's Power Smart mandate while providing operational support during a crisis that impacts the availability of supply for the Corporation's customers in the Greater Winnipeg Area.

Industrial Natural Gas Optimization Program

The Industrial Natural Gas Optimization Program provides industrial and large commercial customers with technical support and financial incentives necessary to identify, investigate and implement systematic efficiency improvements throughout their facility.

In addition to the above programs, the Industrial portfolio consists of the following Customer Service initiatives:

- Consumer Information Sheets
- High Efficiency Motor Market
- Industrial Technology Workshops
- Engineering Expertise
 - Managing customer energy strategically
 - Building envelope & infrastructure
 - Process & motive power systems
 - On-site generation & heat recovery
 - Power quality analysis

1.5 Load Management Portfolio

The **Power Smart Load Management Portfolio** consists of the following program:

Incentive Based Programs

Curtable Rates Program

Under the Curtable Rate Program, qualifying customers receive a monthly credit on load (kW) which can be curtailed on notice from Manitoba Hydro.

1.6 Customer Self-Generation Portfolio

The **Power Smart Customer Self-Generation Portfolio** consists of the following programs:

Incentive Based Program

Bioenergy Optimization Program

The Bioenergy Optimization Program encourages customer self-generation through the use of cost-effective biomass to energy conversion systems. The program targets large agricultural and industrial customers with low-cost readily available sources of biomass, continual needs for heat and power and operation capability. As the market for biomass to energy conversion systems mature and customers become more focused on sustainable manufacturing and the impacts of climate change, the target market will be expanded. All customers billed at the General Service rate categories will be eligible for the program; however, only agricultural and industrial customers with readily available, low-cost sources of biomass are anticipated to actively participate in the program.

2 Electric Demand Side Management

2.1 Electric DSM Targets

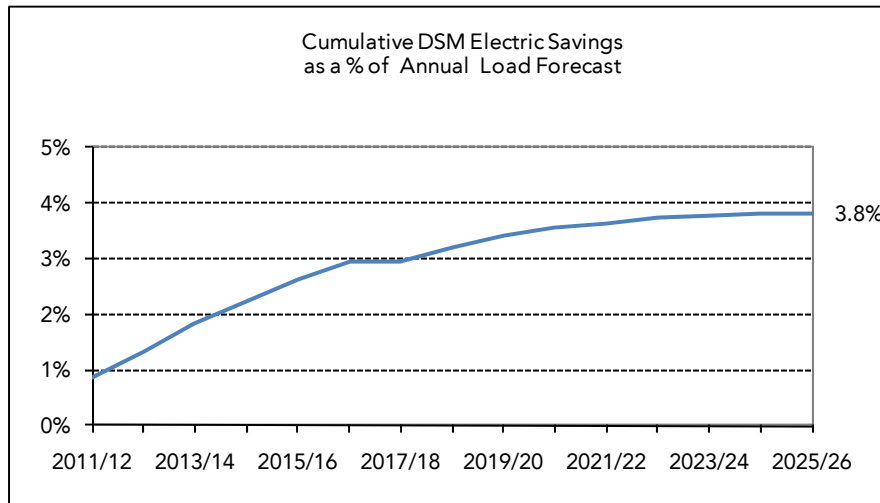
In summary, the 2011 Power Smart Plan forecasts achieving capacity savings of 597 MW, energy savings of 1,944 GW.h and a global greenhouse gas emission reduction of 1.3 million tonnes from 2011/12 to 2025/26 with a total utility investment of \$388 million.

In combination with savings to date, the 2011 Power Smart Plan forecasts achieving capacity savings of 906 MW, energy savings of 3,283 GW.h and a global greenhouse gas emission reduction of 2.2 million tonnes to 2025/26 at a total utility investment of \$732 million

Most notably, the Curtailable Rates Program offers the most significant demand reductions of all DSM programs with approximately 40% of demand savings, with the commercial sector accounting for approximately an additional 30%.

Moreover, the commercial sector provides the largest percentage of expected energy efficiency GW.h savings (53%). The industrial sector offers the second largest area for efficiency savings, followed by the residential sector.

This activity represents 3.8% of the estimated load forecast at the benchmark year.



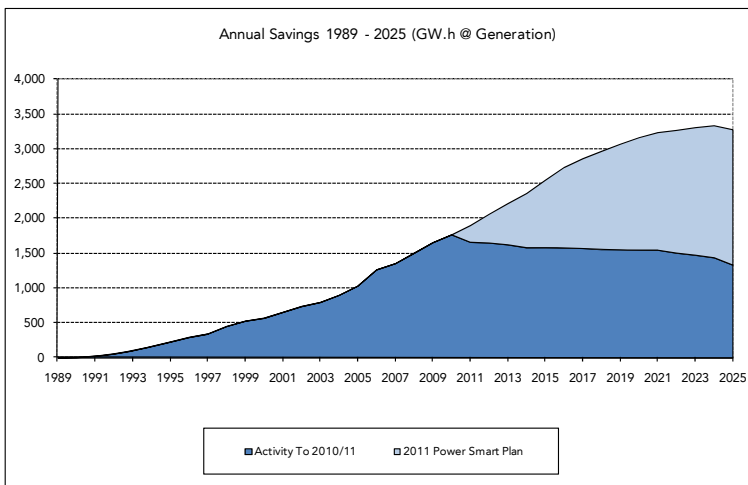
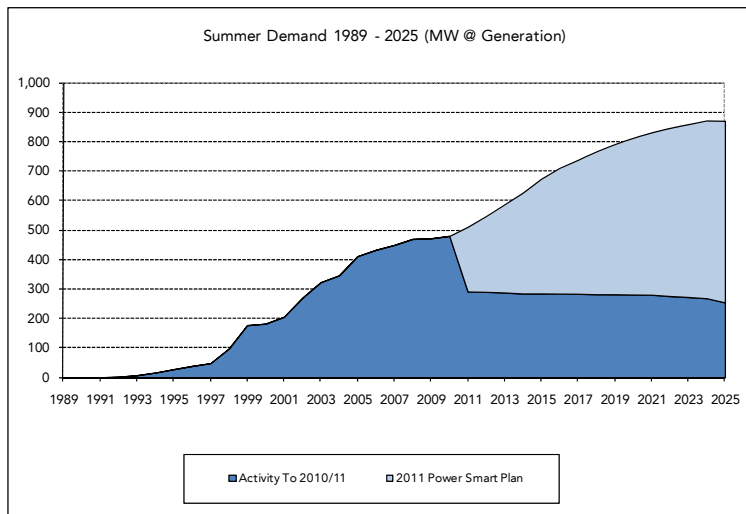
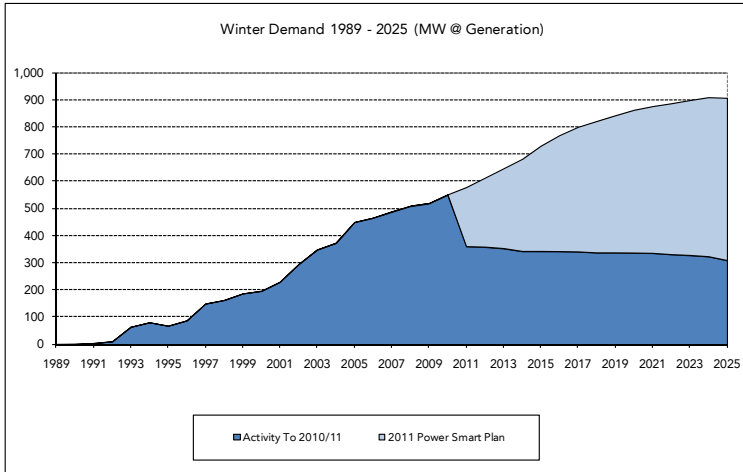
Note:
Total DSM Electric savings per the above graph includes savings from program impacts and excludes savings from Codes, Standards and Regulations

Source of Load Forecast: Electric Load Forecast 2010/11 to 2030/31

The following table shows detailed savings and costs associated with the Power Smart Plan by sector to 2025.

	Winter (MW)		Summer (MW)		Annual (GW.h)		Cumulative Utility Costs (Millions, 2011\$)	
Residential								
New Home Program	12.0		2.6		33.5		\$3.0	
Home Insulation Program	9.0		0.0		18.6		\$6.2	
Water and Energy Saver Program	2.7		1.5		17.2		\$3.4	
Lower Income Energy Efficiency Program	4.6		0.1		10.0		\$2.0	
EE Light Fixtures	0.1		0.1		0.4		\$0.3	
Fridge Recycling Program	0.2		0.4		2.1		\$5.8	
Residential Programs Total (@ Meter)	28.6	7%	4.6	1%	81.8	9%	\$20.6	7%
Customer Service Initiatives								
Power Smart Residential Loan Program	5.1		0.0		9.6		\$0.0	
ecoEnergy	0.0		0.0		0.0		\$0.1	
Residential Earth Power Program	9.0		0.0		17.9		\$0.0	
Customer Service Initiatives Total (@ Meter)	14.1	4%	0.0	0%	27.5	3%	\$0.1	0%
Commercial								
Commercial Lighting Program	33.0		35.3		161.7		\$66.0	
Commercial Custom Measures Program	1.8		0.6		9.8		\$2.6	
Commercial Windows Program	11.2		4.9		34.6		\$4.3	
Commercial HVAC Program - Chiller	0.0		0.1		5.4		\$1.1	
City of Winnipeg Power Smart Agreement	0.0		0.0		0.0		\$0.1	
Commercial Refrigeration Program	4.4		3.2		35.4		\$3.7	
Commercial Insulation Program	25.7		10.3		53.9		\$10.1	
Commercial Earth Power Program	11.5		0.9		32.0		\$5.0	
Commercial New Construction Program	18.2		27.0		95.0		\$12.3	
Commercial Building Optimization Program	5.9		2.9		18.2		\$2.5	
Internal Retrofit Program	6.2		2.4		24.1		\$5.3	
Commercial Kitchen Appliance Program	1.3		1.3		3.7		\$1.1	
Commercial Clothes Washers Program	0.6		0.6		0.8		\$0.5	
Network Energy Management Program	0.0		0.1		0.6		\$0.8	
CO2 Sensors	0.0		0.0		1.6		\$0.0	
Commercial Programs Total (@ Meter)	119.8	30%	89.7	28%	476.8	53%	\$115.4	38%
Commercial Market Effects								
Agricultural Heat Pad Program	0.1		0.1		1.2		\$0.1	
Commercial Parking Lot Controller Program	0.0		0.0		3.6		\$0.5	
Commercial Rinse & Save Program	0.0		0.0		0.0		\$0.0	
Commercial Market Effects Total (@ Meter)	0.1	0%	0.1	0%	4.8	1%	\$0.6	0%
Industrial								
Performance Optimization Program	29.3		29.3		193.5		\$41.0	
Emergency Preparedness Program	35.3		35.3		35.3		\$17.5	
Industrial Programs Total (@ Meter)	64.5	16%	64.5	20%	228.8	26%	\$58.5	19%
Energy Efficiency - Subtotal (@ Meter)	227.0	58%	158.9	49%	819.7	92%	\$195.3	63%
Load Management								
Curtailable Rate Program	157.6		157.6		0.0		\$89.3	
Load Management Programs Total (@ Meter)	157.6	40%	157.6	48%	0.0	0%	\$89.3	29%
Customer Self-Generation								
Bioenergy Optimization Program	9.4		9.4		75.2		\$23.0	
Self-Generation Programs Total (@ Meter)	9.4	2%	9.4	3%	75.2	8%	\$23.0	7%
Program Impacts Total (@ Meter)	394.0	100%	325.9	100%	894.9	100%	\$307.5	100%
Codes, Standards and Regulations (@ Meter)	137.7		223.0		820.8			
Incremental Support and Contingency Costs							\$80.3	
Power Smart 2011 to 2025 Impacts (@ Meter)	531.7		548.9		1715.7			
Power Smart 2011 to 2025 Impacts (@ Generation)	596.9		616.5		1943.8		\$387.8	
Savings Achieved To 2010/11 (@ Meter)	273.7		225.7		1,185.2			
Savings Achieved To 2010/11 (@ Generation)	309.1		254.7		1,338.8		\$344.4	
Grand Total (@ Meter)	805.5		774.6		2,901.0			
Grand Total (@ Generation)	906.1		871.2		3,282.6		\$732.2	

The following three charts graphically represent the demand and energy savings achieved to date and the savings anticipated from future DSM activity for the 2011 Power Smart Plan:



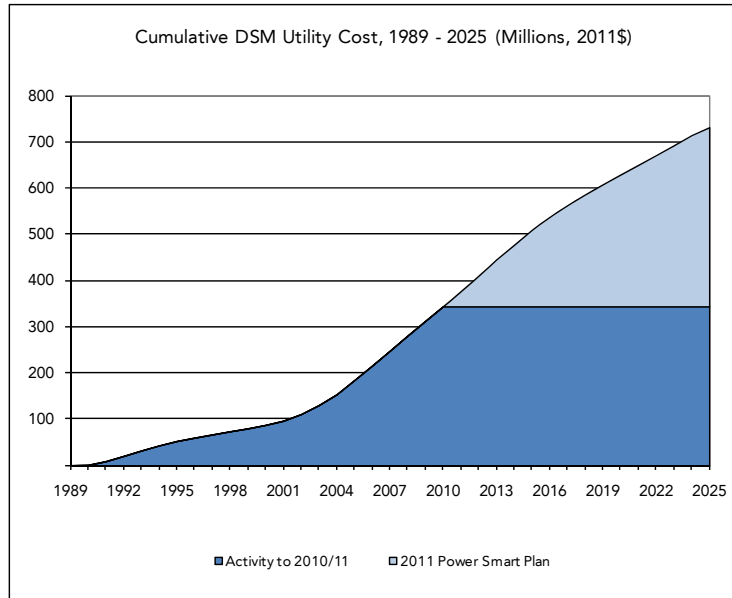
2.2 Electric DSM Utility Investment

The following table provides the projected annual electric DSM investment and cumulative totals to 2025/26 broken down by market sector and cost basis. It is expected that by 2025/26, a cumulative investment amount of \$732.2 million dollars will have been spent on Power Smart electric programs.

Electric Power Smart Utility Budget
2011/12 - 2025/26
(Millions, 2011 \$)

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Residential	4.6	5.2	4.9	2.7	1.7	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Customer Service Initiatives	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial	12.5	10.7	9.8	9.4	8.7	8.9	8.9	8.5	6.2	6.1	6.0	5.9	5.9	6.7	1.9
Industrial	2.7	3.5	4.3	5.2	6.0	4.3	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.7
Rate/Load Management	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Customer Self-Generation	2.5	4.2	4.3	3.2	4.3	2.7	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Support and Codes & Standards	4.1	3.9	3.9	3.9	3.9	3.9	3.7	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.6
Contingency	0.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Annual Costs	32.5	34.4	34.7	31.8	32.1	28.7	24.5	23.9	21.5	21.3	21.2	21.2	21.1	21.9	17.1
Cumulative Cost, 2011 - 2025	\$32.5	\$66.9	\$101.6	\$133.4	\$165.5	\$194.2	\$218.7	\$242.6	\$264.1	\$285.4	\$306.5	\$327.7	\$348.8	\$370.7	\$387.8
Cumulative Cost, 1989 - 2025	\$376.9	\$411.3	\$446.0	\$477.8	\$509.9	\$538.6	\$563.0	\$586.9	\$608.4	\$629.7	\$650.9	\$672.1	\$693.2	\$715.1	\$732.2

The following graph provides the cumulative electric DSM utility cost for electric DSM from 1989/90 through to 2025/26. Electric expenditures to date comprise 47% of the projected cumulative electricity expenditures for 2025/26.



2.3 Electric DSM Cost Effectiveness

The following table outlines the cost effectiveness of the electric program offerings provided in the 2011 Power Smart Plan.

Power Smart Plan Economic Cost Effectiveness Ratios and Levelized Costs 2011/12 - 2038/39			
	RIM	LUC (¢/kW.h)	Customer Payback (years)
Residential			
New Home Program	1.5	0.7	8.4 * c
Home Insulation Program	1.5	2.1	2.7 *
Water and Energy Saver Program	1.0	1.6	n/a ^
Lower Income Energy Efficiency Program ** >	1.5	1.1	10.6
EE Light Fixtures	0.7	4.7	n/a ^
Fridge Recycling Program	0.8	1.9	2.7
Residential Programs Total	1.3	1.5	2.0
Commercial			
Commercial Lighting Program	1.2	2.4	4.2 *
Commercial Custom Measures Program	1.3	1.9	9.5
Commercial Windows Program	1.6	0.8	0.4
Commercial HVAC Program - Chiller	1.0	1.3	12.6
City of Winnipeg Power Smart Agreement	1.5	0.7	0.0
Commercial Refrigeration Program	1.2	0.9	1.7
Commercial Insulation Program	1.7	1.3	1.8
Commercial Earth Power Program	1.5	1.3	7.5 *
Commercial New Construction Program	1.4	0.8	3.1 c
Commercial Building Optimization Program	1.6	1.2	1.1
Internal Retrofit Program	1.3	6.7	n/a ^
Commercial Kitchen Appliance Program	1.2	2.8	0.0 c
Commercial Clothes Washers Program	1.4	4.4	4.9 *
Network Energy Management Program	1.3	0.8	1.2 *
CO2 Sensors	2.0	0.3	1.4 *
Commercial Programs Total	1.3	1.9	3.5
Commercial Market Effects			
Agricultural Heat Pad Program	1.6	0.3	n/a * ^
Commercial Parking Lot Controller Program	1.1	1.3	1.6 *
Commercial Rinse & Save Program	1.1	1.0	n/a * ^
Commercial Market Effects Total	1.3	1.0	1.6
Industrial			
Performance Optimization Program	1.3	1.5	3.2 *
Emergency Preparedness Program	1.1	3.9	3.2 ^
Industrial Programs Total	1.2	1.9	3.2
Energy Efficiency - Subtotal	1.3	1.8	3.0
Load Management			
Curtable Rate Program	1.0	n/a	n/a
Customer Self-Generation			
Bioenergy Optimization Program	1.3	1.8	1.0
Overall Portfolio Ratio	1.2	2.4	2.3

Notes:

* Program assumption includes Spillover, future Market Transformation and/or Participant Re-investment

** Excludes all Affordable Energy Fund Expenditures. Including AEF costs, LIEEP's RIM is 1.2 and LUC is 3.5 ¢/kW.h

c Program assumption includes savings from Codes & Standards

^ Program with nil or negative net customer costs

1) Overall RIM includes Curtable Rates Program / Overall LUC and Customer Payback does not include Curtable Rates Program

2) Overall benefit/cost ratios & utility cost do not include Curtable Rates Program

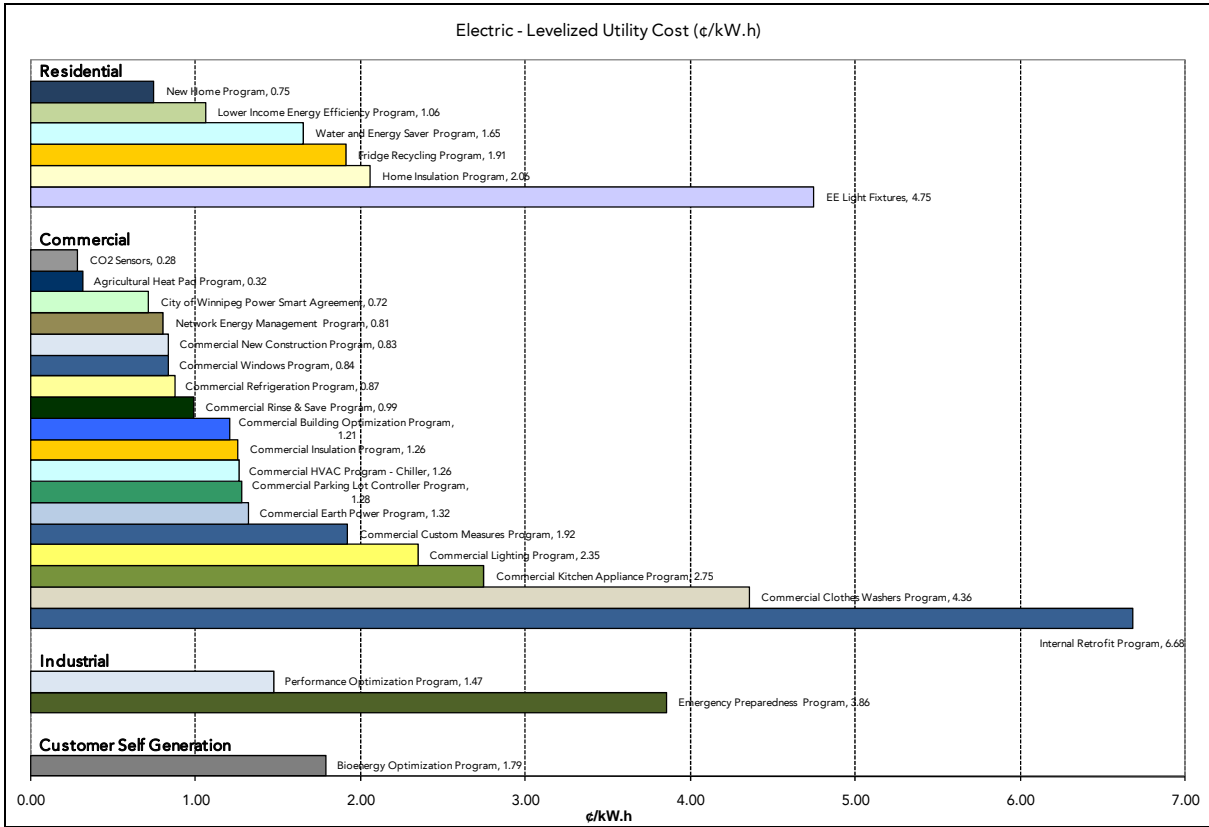
3) Overall portfolio ratios include support and contingency costs

4) Overall portfolio ratios do not include Affordable Energy Fund Expenditures

5) Customer Payback tests include first year water savings benefits

For electricity, the overall Rate Impact Measure (RIM) benefit/cost ratio is 1.2. The overall levelized utility cost for electric programs including support and contingency costs is 2.4 cents per kilowatt-hour.

The following chart compares the Levelized Utility Cost of the electric program offerings provided in the 2011 Power Smart Plan.



3 Natural Gas Demand Side Management

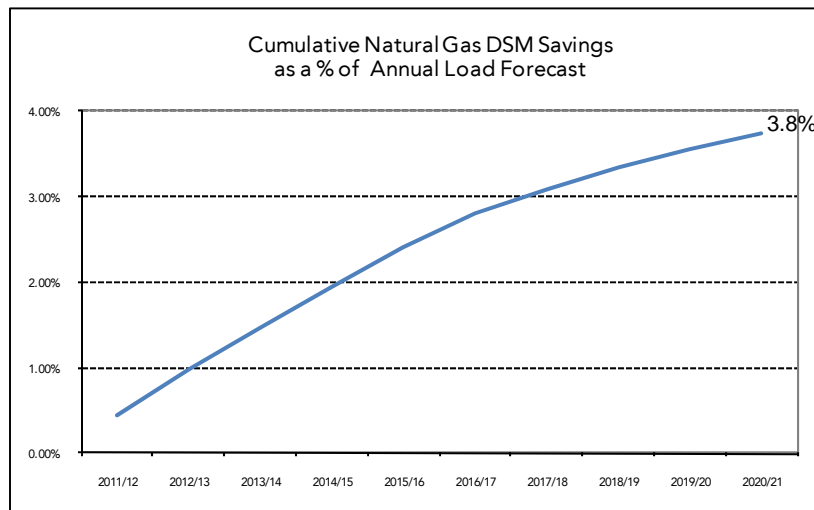
3.1 Natural Gas DSM Targets

In summary, the 2011 Power Smart Plan forecasts achieving natural gas savings of 99 million cubic meters and a global greenhouse gas emission reduction of 0.2 million tonnes from 2011/12 to 2025/26 at a total utility investment of \$133 million.

Most notably, the Commercial sector offers the most significant contribution with approximately 57% of natural gas savings, with the residential sector accounting for approximately an additional 29%.

In combination with savings to date, the 2011 Power Smart Plan forecasts achieving natural gas savings of 153 million cubic meters and global greenhouse gas emission reduction of 0.3 million tonnes to 2025/26 at a total utility investment of \$196 million.

This activity represents 3.8% of the estimated load forecast by 2020/21.



Note: Total DSM Natural Gas savings per the above graph includes savings from program impacts and excludes savings from Codes, Standards and Regulations
Source of Natural Gas Volume Forecast: Natural Gas Volume Forecast 2010/11 to 2020/21

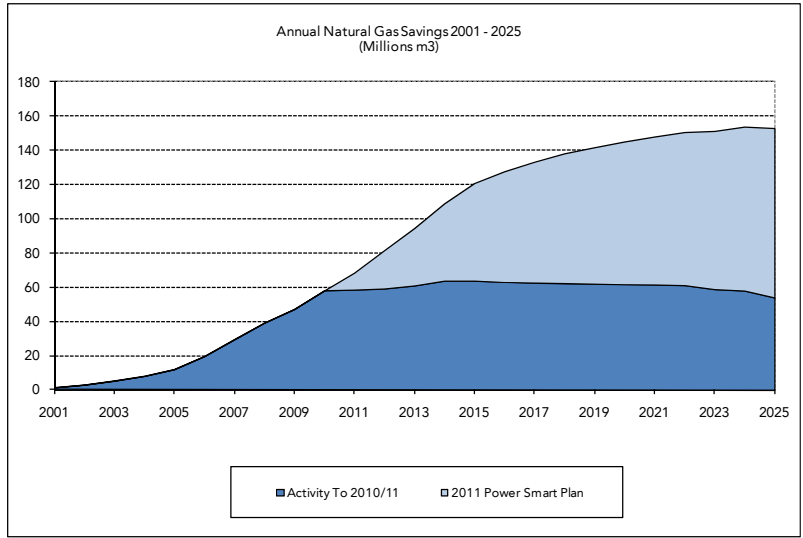
The following table shows detailed savings and costs associated with the Power Smart Plan by sector to 2025:

	Annual (million m3)		Cumulative Utility Costs (Millions, 2011\$)	
Residential				
New Home Program	3.02		\$0.6	
Home Insulation Program	6.97		\$15.2	
Water and Energy Saver Program	1.96		\$2.6	
Lower Income Energy Efficiency Program	2.96		\$3.4	
Residential Programs Total	14.92	17%	\$21.8	25%
Customer Service Initiatives				
Power Smart Residential Loan Program	7.50		\$0.0	
ecoEnergy	0.00		\$0.4	
Residential Earth Power Program	2.69		\$0.0	
Customer Service Initiatives Total	10.19	12%	\$0.4	0%
Commercial				
Commercial Custom Measures Program	1.23		\$1.5	
Commercial Windows Program	5.19		\$6.4	
Commercial Insulation Program	21.93		\$36.3	
Commercial New Construction Program	6.64		\$2.3	
Commercial Building Optimization Program	4.92		\$6.0	
Commercial Kitchen Appliance Program	1.73		\$0.7	
Commercial Clothes Washers Program	0.06		\$0.0	
Commercial Boiler Program	4.41		\$3.4	
Commercial Water Heater Program	1.10		\$0.8	
CO2 Sensors	1.42		\$0.6	
Commercial Programs Total	48.64	57%	\$58.0	67%
Commercial Market Effects				
Commercial Rinse & Save Program	0.00	0%	\$0.0	0%
Industrial				
Industrial Natural Gas Optimization Program	8.40		\$5.3	
Industrial Programs Total	8.40	10%	\$5.3	6%
Energy Efficiency - Subtotal	82.1	96%	\$85.6	98%
Customer Self-Generation				
Bioenergy Optimization Program	3.82		\$1.4	
Self-Generation Programs Total	3.82	4%	\$1.4	2%
Program Impacts Total	85.96	100%	\$86.9	100%
Interactive Effects	-0.62		n/a	
Codes, Standards and Regulations	13.72			
Incremental Support and Contingency Costs			\$45.6	
Power Smart 2011 to 2025 Impacts	99.06		\$132.6	
Savings Achieved To 2010/11	54.07		\$63.2	
Grand Total	153.13		\$195.8	

Note:

Natural gas interactive effects have been accounted for in the following: Energy Efficient Light Fixtures Program, Fridge Recycling Program, Internal Retrofit Program, Network Energy Manager Program, and Commercial Lighting Program. In addition, the Commercial Refrigeration Program results in a net positive natural gas effects, reducing natural gas consumption by 1.07 million cubic meters (m3) by the year 2025/26.

The following chart graphically represents the natural gas savings achieved to date and the savings anticipated from future DSM activity for the 2011 Power Smart Plan:



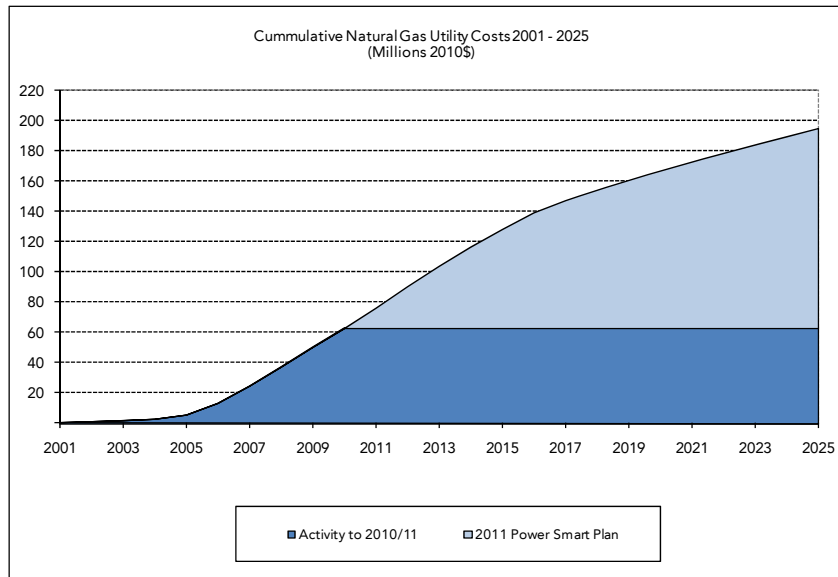
3.2 Natural Gas DSM Utility Investment

The following table provides the projected annual natural gas DSM investment and cumulative totals to 2025/26 broken down by market sector and cost basis. It is expected that by 2025/26, a cumulative investment amount of \$195.8 million dollars will have been spent on Power Smart natural gas programs.

Natural Gas Power Smart Utility Budget
2011/12 - 2025/26
(Millions, 2011 \$)

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Residential	4.1	4.0	4.0	3.8	3.0	2.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Customer Service Initiatives	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial	5.7	5.6	5.6	5.0	4.3	4.4	4.2	3.9	3.5	2.9	2.9	3.0	2.4	2.4	2.4
Industrial	0.9	0.9	0.8	0.8	0.8	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Customer Self-Generation	0.1	0.6	0.0	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Support and Codes & Standards	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Contingency	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Annual Costs	13.5	14.3	13.5	12.7	11.7	11.0	8.0	7.0	6.6	6.0	6.0	6.0	5.4	5.4	5.4
Cumulative Cost, 2011 - 2025	\$13.5	\$27.7	\$41.3	\$54.0	\$65.7	\$76.7	\$84.7	\$91.8	\$98.3	\$104.3	\$110.3	\$116.3	\$121.7	\$127.1	\$132.6
Cumulative Cost, 2001 - 2025	\$76.7	\$91.0	\$104.5	\$117.2	\$128.9	\$139.9	\$148.0	\$155.0	\$161.5	\$167.5	\$173.5	\$179.5	\$184.9	\$190.4	\$195.8

The following graph provides the cumulative natural gas DSM utility cost for natural gas DSM from 2001/02 through to 2025/26. Natural expenditures to date comprise approximately 32% of the projected cumulative electricity expenditures for 2025/26.



3.3 Natural Gas DSM Cost Effectiveness

The following table outlines the cost effectiveness of the natural gas program offerings provided in the Power Smart Plan.

Power Smart Plan Economic Cost Effectiveness Ratios and Levelized Costs
2011/12 - 2038/39

	RIM	LUC (€/m ³)	Customer Payback (years)
Residential			
New Home Program	0.9	2.0	24.2 * c
Home Insulation Program	0.6	15.5	4.1 *
Water and Energy Saver Program	0.7	13.3	n/a ^
Lower Income Energy Efficiency Program**	0.8	6.3	8.8
Residential Programs Total	0.7	10.8	3.8
Commercial			
Commercial Custom Measures Program	0.8	10.3	6.9
Commercial Windows Program	0.7	9.4	0.5
Commercial Insulation Program	0.7	12.7	1.9
Commercial New Construction Program	0.9	2.6	0.9 c
Commercial Building Optimization Program	0.7	12.6	1.7
Commercial Kitchen Appliance Program	0.8	4.5	2.2 c
Commercial Clothes Washers Program	1.0	0.0	n/a *
Commercial Boiler Program	0.8	6.5	1.1 * c
Commercial Water Heater Program	0.8	6.7	4.4 * c
CO2 Sensors	0.9	4.8	2.0 *
Commercial Programs Total	0.8	9.5	1.6
Commercial Market Effects			
Commercial Rinse & Save Program	0.8	6.3	n/a ^
Industrial			
Industrial Natural Gas Optimization Program	0.9	6.1	6.2
Energy Efficiency - Subtotal	0.7	9.4	3.0
Customer Self-Generation			
Bioenergy Optimization Program	0.9	3.5	2.1
Overall Portfolio Ratio (including interactive effects)	0.7	13.9	3.0

Notes:

* Program assumptions include Spillover, future Market Transformation and/or Participant Re-investment

** Excludes all Affordable Energy Fund Expenditures / Includes all Furnace Replacement Program expenditures.

Including apportioned AEF, without Furnace Replacement Program LIEEP's RIM is 0.5 and LUC is 35.5 €/m³

Including apportioned AEF and Furnace Replacement Program, LIEEP's RIM is 0.4 and LUC is 56.7 €/m³

Including only the Furnace Replacement Program, LIEEP's RIM is 0.3 and LUC is 110.5 €/m³

c Program assumption includes savings from Codes & Standards

^ Program with nil or negative net customer costs

1) Overall portfolio ratios do not include savings due to Customer Service Initiatives

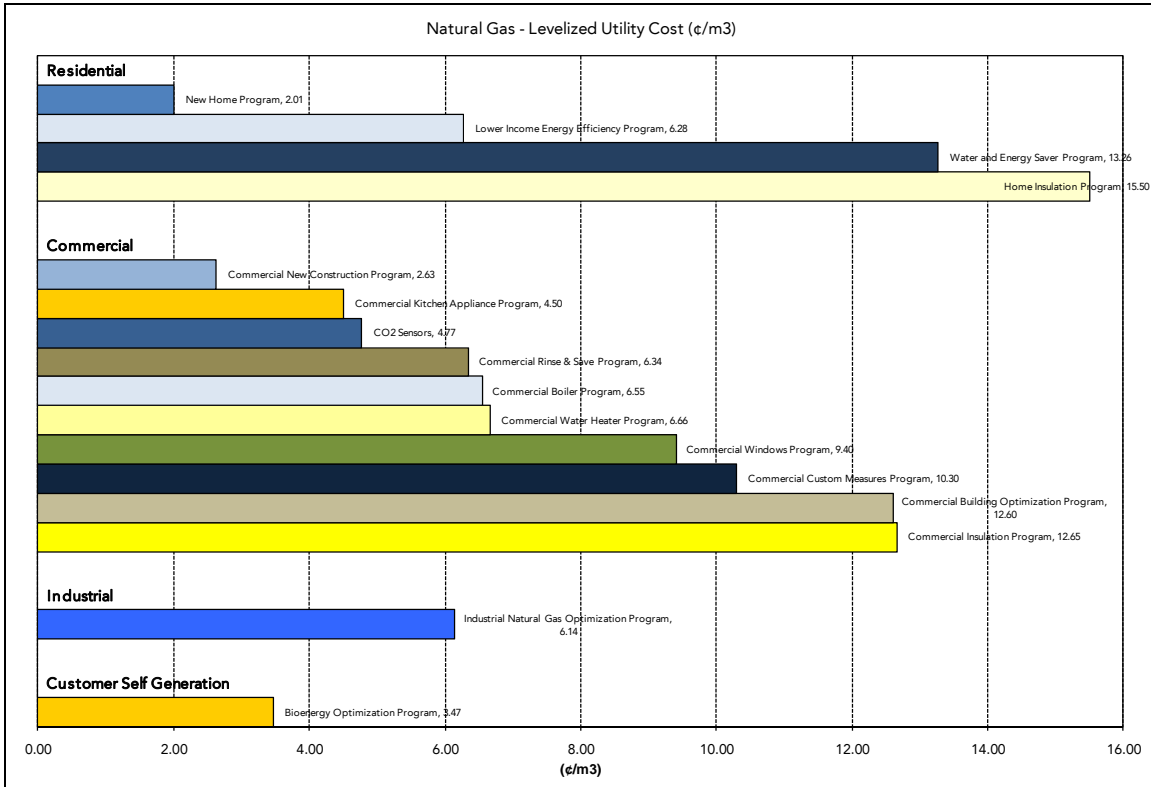
2) Overall portfolio ratios include support and contingency costs

3) Overall portfolio ratios do not include Affordable Energy Fund Expenditures or Furnace Replacement Program expenditures

4) Customer Payback tests include first year water savings benefits

For natural gas, the overall Rate Impact Measure (RIM) benefit/cost ratio is 0.7. The overall levelized utility cost for natural gas programs including support and contingency costs is 13.9 cents per cubic meter.

The following chart compares the Levelized Utility Cost of the natural gas program offerings provided in the 2011 Power Smart Plan.



4 Combined Demand Side Management

4.1 Combined DSM Program Duration and Cumulative Participation

The following table provides program durations and cumulative participation for incentive based and financial loan programs for the 2011 Power Smart Plan.

Program Duration and Cumulative Participation
2011/12 - 2025/26

Programs	Electric	Natural Gas	Program Duration	Cumulative Participation at 2025/26 *
Residential				
New Home Program	√	√	6	3,071
Home Insulation Program	√	√	6	18,360
Water and Energy Saver Program	√	√	4	102,602
Lower Income Energy Efficiency Program	√	√	6	9,221
EE Light Fixtures	√		1	3,182
Fridge Recycling Program	√		3	34,000
Power Smart Residential Loan	√	√	15	102,000 ^
Earth Power Loan	√	√	15	2,953 ^
Commercial				
Commercial Lighting Program	√		14	9,205
Commercial Custom Measures Program	√	√	15	216
Commercial Windows Program	√	√	15	3,533
Commercial HVAC Program - Chiller	√		7	20
City of Winnipeg Power Smart Agreement	√		2	15
Commercial Refrigeration Program	√		14	836
Commercial Water Heater Program	√	√	7	549
Commercial Earth Power Program	√		25	684
Commercial New Construction Program	√	√	8	792
Commercial Building Optimization Program	√	√	15	420
Internal Retrofit Program	√		4	147
Commercial Kitchen Appliance Program	√	√	7	759
Commercial Clothes Washers Program	√		6	1,634
Network Energy Management Program	√		3	197
CO2 Sensors	√	√	8	3,885
Commercial Parking Lot Controller Program	√		1	232
Commercial Boiler Program		√	4	430
Commercial Water Heater Program	√	√	7	549
Industrial				
Performance Optimization Program	√		15	1,245
Emergency Preparedness Program	√		29	545
Industrial Natural Gas Optimization Program		√	7	84
Load Management				
Curtable Rate Program	√		30	90
Self-Generation				
Bioenergy Optimization Program	√	√	9	69

* Represents cumulative participation based on number of applicants

^ Represents cumulative number of loans

4.2 Combined DSM Utility Investment

The following table provides the combined projected annual and cumulative Power Smart investment to 2025/26 for electric and natural gas DSM portfolios. Annual investment is broken down on a market sector and cost basis. It is expected that by 2025/26 a cumulative investment of \$928 million dollars will have been spent on all Power Smart programs.

	2011/12 - 2025/26 (Millions, 2011 \$)														
	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Residential	8.7	9.2	8.9	6.4	4.7	4.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Customer Service Initiatives	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial	18.2	16.3	15.4	14.3	13.0	13.3	13.0	12.5	9.6	9.0	8.9	8.9	8.3	9.0	4.2
Industrial	3.7	4.4	5.0	6.0	6.8	4.9	4.3	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.7
Rate/Load Management	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Customer Self-Generation	2.6	4.8	4.4	3.3	4.8	2.7	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Support and Codes & Standards	6.4	6.1	6.1	6.1	6.0	6.0	5.9	5.8	5.8	5.7	5.7	5.7	5.7	5.7	5.7
Contingency	0.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
Annual Costs	46.0	48.7	48.2	44.5	43.7	39.7	32.5	30.9	28.1	27.2	27.2	27.2	26.6	27.3	22.5
Cumulative Cost, 2011 - 2025	\$46.0	\$94.7	\$142.9	\$187.4	\$231.2	\$270.9	\$303.4	\$334.3	\$362.4	\$389.6	\$416.8	\$444.0	\$470.6	\$497.9	\$520.4
Cumulative Cost, 1989 - 2025	\$453.6	\$502.2	\$550.5	\$595.0	\$638.8	\$678.5	\$711.0	\$741.9	\$770.0	\$797.2	\$824.4	\$851.6	\$878.1	\$905.5	\$928.0

4.3 Combined DSM Cost Effectiveness

The following table outlines the cost effectiveness of all program offerings in the Power Smart Plan. The combined electric and natural gas Power Smart portfolio is cost-effective with an overall TRC of 2.0 and SC Test of 2.2.

Combined DSM Cost Effectiveness 2011/12 - 2039/40		
	Combined TRC Ratio	Combined SC Test
Residential		
New Home Program	1.1	1.2 * c
Home Insulation Program	2.1	2.3
Water and Energy Saver Program	5.5	6.1 ^
Lower Income Energy Efficiency Program	1.2	1.3 ^
EE Light Fixtures	1.2	1.3 *
Fridge Recycling Program	1.3	1.4 *
Residential Program Total	1.7	1.9
Commercial		
Commercial Lighting Program	1.8	1.9 *
Commercial Custom Measures Program	1.6	1.8
Commercial Windows Program	6.8	7.5
Commercial HVAC Program - Chiller	1.3	1.5
City of Winnipeg Power Smart Agreement	13.4	14.8
Commercial Refrigeration Program	5.3	5.9 *
Commercial Insulation Program	3.2	3.6
Commercial Earth Power Program	2.4	2.6
Commercial New Construction Program	5.7	6.3 c
Commercial Building Optimization Program	3.1	3.4
Internal Retrofit Program	1.3	1.4 *
Commercial Kitchen Appliance Program	3.3	3.7 ^ c
Commercial Clothes Washers Program	2.2	2.4 * ^
Network Energy Management Program	1.9	2.1 *
CO2 Sensors	3.0	3.4 ¹
Commercial Boiler Program	2.4	2.6 c
Commercial Water Heater Program	1.6	1.8 c
Commercial Total	2.7	2.9
Commercial Market Effects		
Agricultural Heat Pad Program	23.7	26.1
Commercial Parking Lot Controller Program	3.4	3.7
Commercial Rinse & Save Program	14.9	16.4 ^
Commercial Market Effects Total	4.9	5.3
Industrial		
Performance Optimization Program	2.7	2.9
Emergency Preparedness Program	2.8	3.0
Industrial Natural Gas Optimization Program	1.4	1.6
Industrial Total	2.5	2.7
Energy Efficiency Total	2.4	2.6
Load Management		
Curtable Rates Program	n/a	n/a
Customer Self-Generation Total		
BioEnergy Optimization Program	1.8	2.0
Overall Benefit Cost Ratio	2.0	2.2

Notes:

* Includes Natural Gas Interactive Effects

^ Includes Water Saving Benefits

c Program assumptions includes savings from Codes & Standards

1) Overall benefit/cost ratios do not include Curtable Rates Program

2) Overall benefit/cost ratios do not include savings due to Customer Service Initiatives

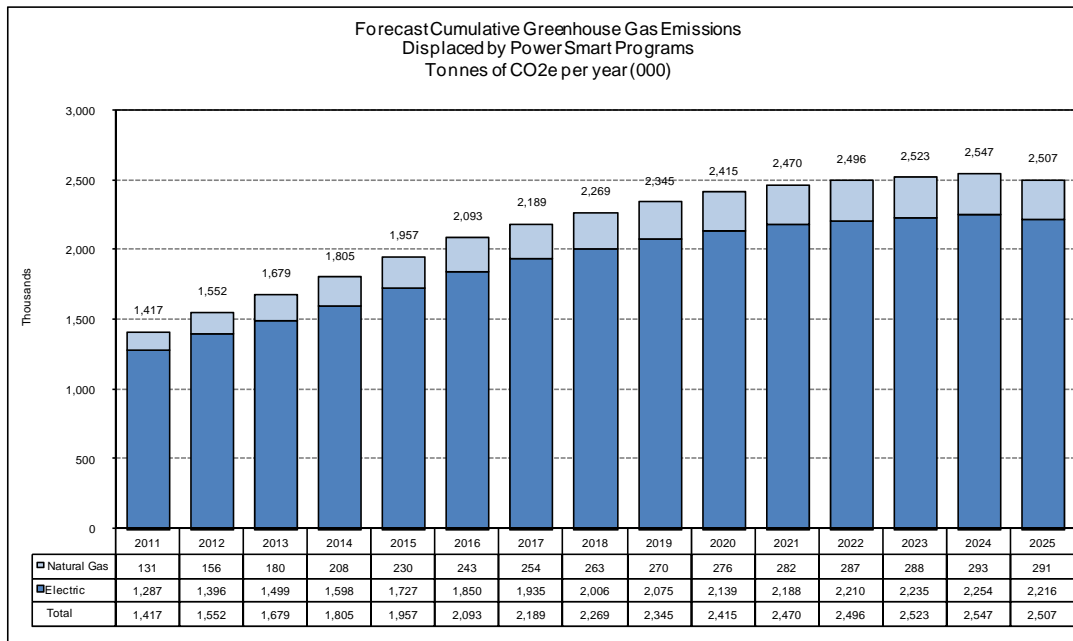
3) Overall benefit/cost ratios include support and contingency costs

4) Overall benefit/cost ratios do not include Affordable Energy Fund Expenditures or Furnace Replacement Program expenditures

4.4 Combined Global Greenhouse Gas Emissions Reductions

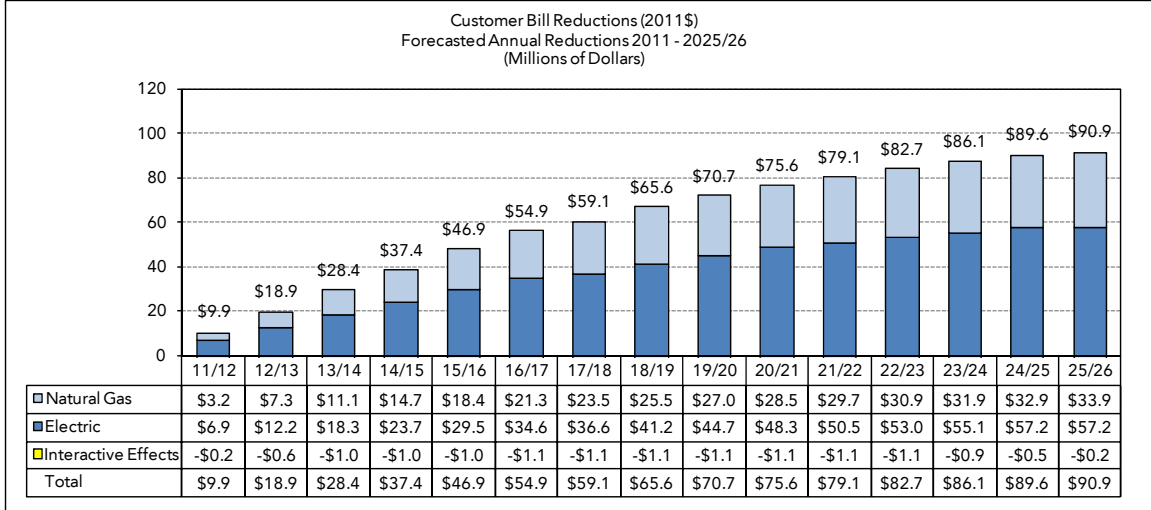
The following chart and graph depict the aggregate global greenhouse gas emissions reductions resulting from the electricity and natural gas DSM programs outlined in the 2011 Power Smart Plan, including greenhouse gas emission reductions resulting from Manitoba Hydro's Power Smart efforts since 1989. Global greenhouse gas emission reductions of 1.5 million tonnes are forecast to be achieved due to energy savings outlined in the Power Smart Plan. Including reductions achieved to date, approximately 2.5 million tonnes are forecast to be realized due to Manitoba Hydro's Power Smart efforts by 2025/26.

	Annual CO₂ Reductions (Tonnes)
CO ₂ Reductions - Electric	1,312,061
CO ₂ Reductions - Natural Gas	188,481
2011 Power Smart Plan (2011-2025)	1,500,542
CO ₂ Reductions Achieved to Date - Electric	903,692
CO ₂ Reductions Achieved To Date - Natural Gas	102,873
Savings Achieved to 2010/11 (1989-2025)	1,006,566
Total Projected to 2025/26	2,507,108

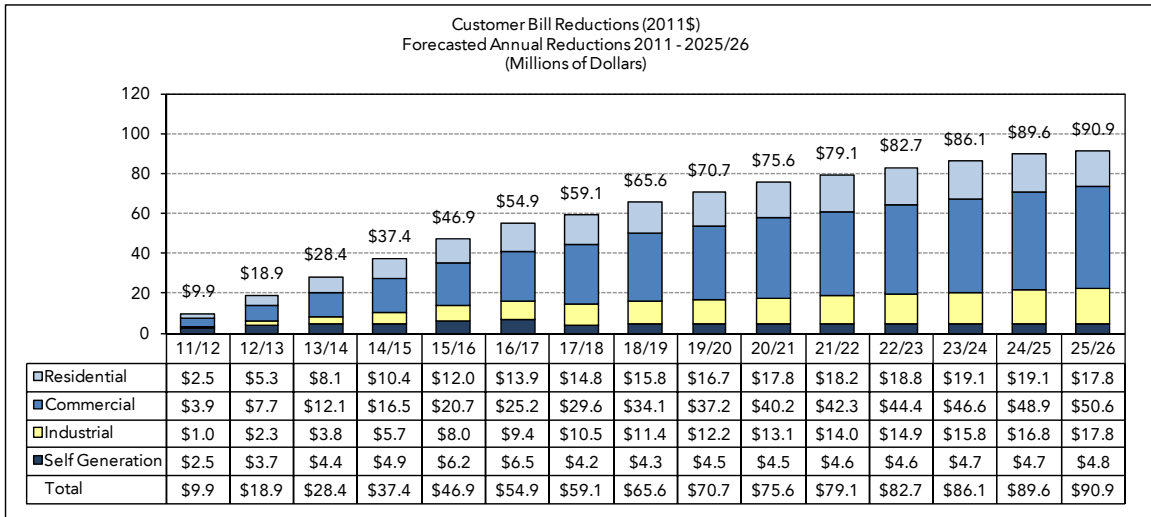


4.5 Combined Customer Bill Reductions

The following graph depicts customer bill reductions resulting from electric and natural gas programs outlined in the 2011 Power Smart Plan. Power Smart programs are expected to save participating customers \$91 million dollars in 2025/26 and \$896 million cumulatively by 2025.



The following graph depicts customer bill reductions resulting from electric and natural gas programs outlined in the 2011 Power Smart Plan by sector:



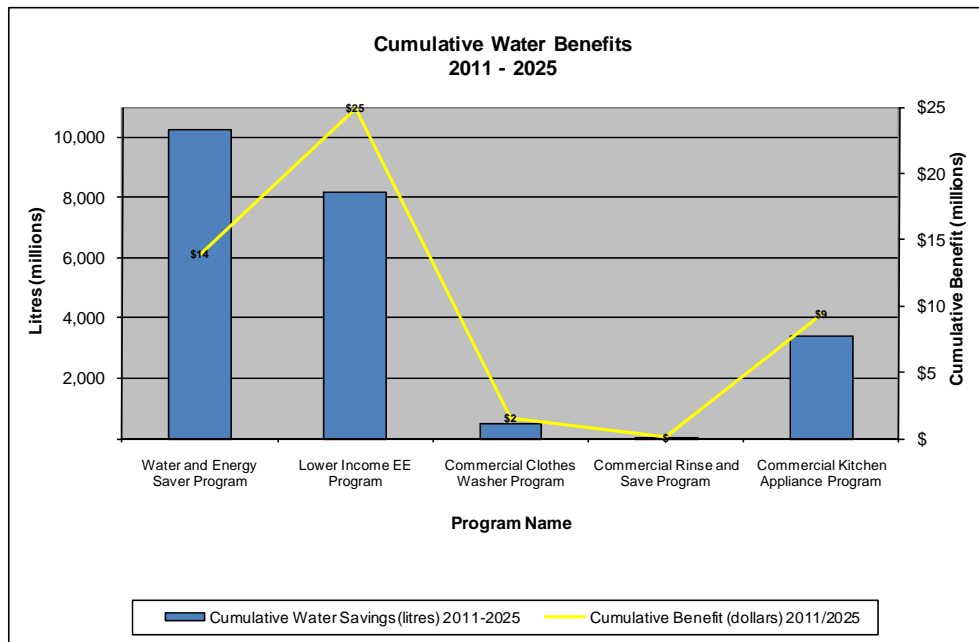
When combined with bill reductions to date, Power Smart programs are expected to save participating customers \$148 million in 2025/26 and over \$2.5 billion dollars cumulatively by 2025/26.

4.6 Combined Additional Non-Energy Benefits

As part of the 2011 Long Range Plan, the following residential and commercial programs are expected to capture additional water saving benefits:

- Water and Energy Saver Program
- Lower Income Energy Efficiency Program
- Commercial Clothes Washer Program
- Commercial Rinse and Save Program
- Commercial Kitchen Appliance Program

The following graph depicts cumulative water savings in litres and cumulative customer dollar savings from each of the above programs. It is estimated that savings of approximately 22 billion liters of water and \$50 million in bill savings will be achieved from 2011/12 to 2025/26.



When combined with savings to date, Power Smart programs are expected to save approximately 34 billion liters of water and \$90 million.

5 Energy Efficient Codes and Standards

Canadian and U.S. electric utilities, including Manitoba Hydro, have been engaged in DSM activities for many years. In addition to utility specific DSM programs, Manitoba Hydro's strategy to affect change in codes and standards involves being an aggressive and active participant and, in many cases, a driving force on a number of provincial and national energy efficiency codes and standards committees. The focus of Manitoba Hydro's efforts on these committees is to advance the progress of product efficiency improvements through the development of minimum energy performance standards and to develop energy efficient codes and standards.

Manitoba Hydro annually prepares a forecast of the expected influence of codes and standards, and since 1995 this forecast has been used to adjust Manitoba Hydro's system load forecast.

5.1 Energy savings from Codes & Standards

In many markets, the most effective and permanent form of market transformation for energy efficient technologies and practices is the adoption of energy efficient codes and standards as it ensures that customers do not revert to less efficient technologies/practices once the incentives and/or promotional activities are discontinued. Consequently, the process of achieving these changes is complex and lengthy as it involves many stakeholders, varying environmental and market conditions and market acceptance.

As a result of efforts to achieve energy savings through Energy Efficient Codes and Standards initiatives, the 2011 Power Smart Plan forecasts achieving capacity savings of 181.8 MW, energy savings of 1,034.3 GW.h and 23.6 million cubic meters of natural gas annually by 2025/26. As a result of these savings, a greenhouse gas emissions reduction of 0.7 million tonnes is expected by 2025/26.

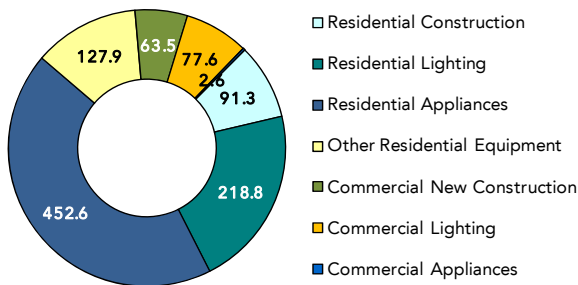
The following table and charts provide a summary of the planned energy savings in 2025/26 from codes and standards. Future DSM plans will provide updated forecasts of savings from codes and standards based on new information.

Energy Savings from Codes & Standards
(2025/26)

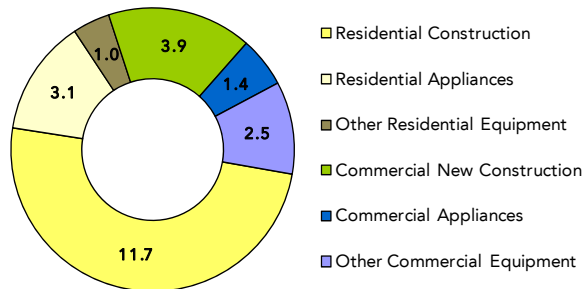
Code Category	Components	Winter MW (2025/26)	Energy and Demand Savings Summer MW (2025/26)	Annual GW.h (2025/26)	Natural Gas Annual Millions m3 (2025/26)	CO2 Reductions Annual Tonnes (2025/26)
Residential Construction	Insulation, Windows, Pilot Light Gas Fire Place, Furnance, Heat Recovery Ventilation, Showerhead	36.4	14.7	91.3	11.7	83,951
Residential Lighting	General Service Lamps	37.0	12.3	218.8	0.0	147,667
Residential Appliances	Dishwashers, Clothes Washers, Clothes Dryers, Refrigerators, Freezers, Ranges, Stoves, Cooktops	64.7	63.0	452.6	3.1	311,431
Other Residential Equipment	Electric Hot Water Tank, Central Air Conditioning, Residential Furnace	5.2	141.3	127.9	1.0	88,244
Commercial New Construction	Various Building Code Amendments	12.2	18.1	63.5	3.9	50,304
Commercial Lighting	Flourescent Lighting, Exit Signs, Flourescent Lamp Ballasts	25.5	25.5	77.6	0.0	52,388
Commercial Appliances	Fryers and Steamers	0.9	0.9	2.6	1.4	4,338
Other Commercial Equipment	Commercial Furnace, Boiler and Hot Water Tanks	0.0	0.0	0.0	2.5	4,737
Total @ Generation		181.8	275.8	1,034.3	23.6	743,061

* Totals per above include savings attributed to specific Power Smart programs and thus differ from Codes and Standards savings reported in Appendices A.1, A.2, A.3 and C.1

Electric Codes & Standards By Category (GW.h)



Natural Gas Codes & Standards By Category (million m3)



5.2 Status of Codes and Standards

The following table summarizes the status of the changes to codes and standards included in the 2011 PS Plan, including actual or expected dates.

For electricity, changes that account for 69% of total energy savings have been enacted, 21% have been announced and 10% are planned.

For natural gas, changes that account for 58% of total energy savings have been enacted, 8% have been announced and 34% are planned.

Status of Changes to Codes and Standards (2025/26)						
Code Category	Components	Energy	Natural Gas	Level of Government	Expected Effective Date	
		Annual GW.h (2025/26)	Annual Millions m3 (2025/26)		Enacted	Announced
Residential Construction	Building Code - Insulation	14.3	1.2	MB	2008	
Residential Construction	Building Code - Various measures	44.7	7.8	MB	2010	
Residential Construction	Building Code - Various measures	32.4	2.7	MB		2016
Residential Lighting	General Service Lamps	218.8	0.0	Federal		2014
Residential Appliances	Various appliances	452.6	3.1	Federal		
Other Residential Equipment	Electric Hot Water Tank	44.4	0.0	Federal	2004	
Other Residential Equipment	Central Air Conditioning	83.5	0.0	Federal	2006	
Other Residential Equipment	Residential Furnace	0.0	1.0	Federal / MB	2009	
Commercial New Construction	Building Code	63.5	3.9	MB		2013
Commercial Lighting	Fluorescent Lighting	4.8	0.0	Federal	1996	
Commercial Lighting	Exit Signs	0.5	0.0	Federal	2004	
Commercial Lighting	Fluorescent lamp ballasts (New)	15.3	0.0	Federal	2006	
Commercial Lighting	Fluorescent lamp ballasts (Reno)	57.0	0.0	Federal	2010	
Commercial Appliances	Electric Steamers	2.6	0.0	MB		2018
Commercial Appliances	Natural Gas Fryers	0.0	1.2	MB		2018
Commercial Appliances	Natural Gas Steamers	0.0	0.1	MB		2018
Other Commercial Equipment	Commercial Furnace	0.0	0.6	Federal / MB	2009	
Other Commercial Equipment	Commercial Boilers	0.0	1.6	Federal / MB		2015
Other Commercial Equipment	Hot Water Tanks	0.0	0.4	Federal / MB		2016
Total (GW.h)		1034.3			717.0	98.5
					69%	10%
Total (million m3)			23.6		13.7	8.0
					58%	34%

5.3 Code, Standard & Regulation Descriptions

The following section describes each of the codes and standards listed in the Summary Table noted in Section 5.2.

Residential Construction

Building Code

Manitoba Building Code, amendment (PROVINCIAL)

Regulation 4/2008

Registered: January 11, 2008

Effective date: October 1, 2008

Manitoba Hydro has been offering the Power Smart New Home program to customers across the province since 2004. The New Home program promoted and offered incentives to customers for the installation of energy efficient technologies and building practices within the New Home construction industry. Manitoba Hydro worked closely with industry stakeholders like the Manitoba Home Builders' Association and the provincial government when developing requirements for the program. Specifically, the Power Smart New Home program has required and been promoting a minimum requirement for R20 insulation in the foundation walls of new homes since 2004.

Changes to Table 9.25.5.2. (Minimum Thermal Resistance for the Building Envelope) of the Manitoba Building Code (Regulation 127/2006) came into effect on October 1, 2008. The changes related to the minimum requirement for insulation R-value for the interior and exterior foundation walls of new homes. The code change increased the minimum required insulation value from R12 to R20.

Building Code

Manitoba Building Code, amendment (PROVINCIAL)

Regulation 142/2010

Registered: October 4, 2010

Effective date: December 1, 2010

Leading the industry since 2004, Manitoba Hydro has promoted energy efficient technologies and building practices within the residential new construction segment through delivery of the Power Smart New Home Program. When developing program requirements, Manitoba Hydro worked closely with industry stakeholders like the Manitoba Home Builders Association and the provincial government.

Through the delivery of the Power Smart Gold Home offering, Manitoba Hydro planned to aid the advancement of future building code by promoting and offering incentives to customers to build their home with Power Smart recommended technologies and construction practices. For example, since 2004, the program promoted and required the use of heat recovery ventilators (HRV), high efficient furnaces, electronic ignition for natural gas fireplaces, R50 attic insulation, and many other building envelope improvements.

Effective December 1st, 2010, Manitoba implemented changes to the building and plumbing codes that increased energy and water efficiencies. These changes were the result of extensive consultations by the Office of the Fire Commissioner involving new homebuilders, contractors and technical experts. The new efficiencies incorporated into new construction and homes undergoing extensive renovations included:

- specifying minimum energy-efficiency requirements for windows,
- eliminating the pilot light in gas fireplaces,
- increasing the required level of attic insulation to R50,
- requiring a minimum 94 per cent fuel-efficiency rating for furnaces,
- specifying a mid-efficient heat-recovery ventilator, and
- introducing energy-modeling software that will allow builders to model alternatives to the code requirements.
- Requiring a maximum flow rate for primary showerheads to 1.75 GPM

Through its close working relations with key industry stakeholders and the Power Smart New Home Program offering, Manitoba Hydro succeeded in advancing these changes to the Manitoba Building code. In fact, a majority of the technologies adopted by the Manitoba Building Code for the December 1, 2010 update were part of the aforementioned Power Smart Gold Home standard requirements. Without the program providing information, education, training, and incentives for these technologies and building practices, the industry would have been less likely to adopt these technologies and transform the market. The program created demand for these technologies, provided builders an opportunity to gain experience using them, and provided trades and contractors training opportunities to advance their expertise and knowledge of the technologies.

Building Code

Manitoba Building Code, amendment (PROVINCIAL)
Regulation (Proposed)
Effective date: 2016

Manitoba Hydro is currently assessing the Power Smart New Home program. The program will promote and offer incentives to customers for the installation of energy efficient technologies and building practices within the New Home construction industry. Manitoba Hydro will work closely with industry stakeholders with the aim to build market acceptance of Power Smart New Home technologies for ease of adoption in the Manitoba Building Code in 2015.

In the area of Residential Construction, Manitoba Hydro estimates that the actual and planned code amendments will realize electric savings of 36.4 MW and 91.3 GW.h and natural gas savings of 11.7 million cubic meters by 2025/26.

Residential Lighting

General Service Lamps

National Resources Canada (FEDERAL)

Amendment 10 to Energy Efficiency Regulations

Published: December 24, 2008 (Canada Gazette Part II)

Effective date(s): January 1st, 2012 - 75 to 100 watt equivalent lamps

December 31st, 2012 - 40 to 60 watt equivalent lamps

The Government of Canada announced in Amendment 10 to the Energy Efficiency Regulations, published on December 24, 2008, that they would introduce Minimum Energy Performance Standards (MEPS) for general service lamps in 2012. The consequent Regulations came into force in December 2008 and applied to 100 and 75 W bulbs manufactured on or after January 1, 2012, and to 60 and 40 W bulbs manufactured on or after December 31, 2012. The Regulations prohibit the importation and interprovincial shipment of non-compliant products. The Regulations provide for a number of alternatives to inefficient bulbs. Where no alternatives exist, exemptions are made.

Proposed Extended Effective Date

Currently, a delay in the date for compliance with Canada's efficiency standards for general service lighting for 100/75/60/ 40 W light bulbs (general service lamps) is required in order to strengthen communication activities, to allow for technology innovations and to consider the concerns expressed about the availability of compliant technologies and perceived health and mercury issues, including safe disposal for compact fluorescent lamps (CFLs).

The proposed amendment would delay the completion dates for general service lighting currently prescribed in the Energy Efficiency Regulations (the Regulations) by two years to January 1, 2014, for 100/75 W bulbs and to December 31, 2014, for 60/40 W bulbs.

The Residential Lighting program will continue to interact with the groups/agencies involved with regulating Canada's Minimum Energy Performance Standards (MEPS) for general service lighting forecasted. Manitoba Hydro will continue to actively participate on the Strategic Lighting Initiatives Committee (SLIC) and the Canadian Lighting Industry Committee (CLIC).

In the area of Residential Lighting, Manitoba Hydro estimates that the regulation will realize electric savings of 37.0 MW and 218.8 GW.h by 2025/26.

Residential Appliances

Manitoba Hydro is a key player on the Canadian Standards Association's Strategic Steering Committee on Performance, Energy Efficiency and Renewables (SCOPEER). This committee is responsible for changes to provincial and national performance standards and legislation which have resulted in the improvement of energy utilization of numerous appliances such as dishwashers, clothes washers & dryers, refrigerators and freezers, and ranges/stoves/cooktops.

In the area of Residential Appliances, Manitoba Hydro estimates that changes will realize electric savings of 64.7 MW and 452.6 GW.h and natural gas savings of 3.1 million cubic meters by 2025/26.

Other Residential Equipment

Hot Water Tank Standby Losses

National Resources Canada (FEDERAL)

Amendment 8 to Energy Efficiency Regulations

Test Standard: CAN/CSA-C191-00

Published: September 22, 2004 (Canada Gazette Part II)

Effective date(s): July 1, 2004

Standby heat loss is the heat lost and energy wasted by heating water and storing it in a tank such as the case with traditional tank hot water heaters. That is, heat leaches from the tank to the surrounding air, causing the heater to heat up the water again. Storage water heater models with heavily insulated tanks can significantly reduce heat loss.

In 2004, the CSA published a standard (C191-00) which specified requirements related to delivery, minimum standby performance, heater element ratings, and marking of electric storage tank water heaters. With respect to electric water heaters, the changes raised the minimum efficiency, through a 26W reduction in allowable standby loss across tank sizes, which resulted in annual energy savings of approximately 217 kW.h per tank. For standards, standby heat loss savings are based on the water heated for use by dishwashers and clothes washers.

Central Air Conditioning

National Resources Canada (FEDERAL)

Amendment 9 to Energy Efficiency Regulations

Test Standard: CAN/CSA-C656-05

Published: November 15, 2006 (Canada Gazette Part II)

Effective date(s): November 15, 2006

In November 2006, the CSA published a standard (C656-05) which specified mandatory MEPS applied to permanently installed 'air-source' air-conditioner and heat pumps. Equipment types include air conditioners and heat pumps that are single package and split system, single and three-phase, with rated capacity of less than 19 kW (65,000 Btu/h). For air conditioners, a minimum SEER rating of 13 was mandated.

Manitoba Hydro provides a fixed interest finance plan that may be used for renovations including central air, mid-efficient natural gas/electric furnaces and water heaters, direct vent natural gas fireplaces, security lights and fixtures under the Energy Finance Plan. Pre 2005, a minimum SEER rating of 10 for Air Conditioners was required for eligibility for financing under the plan. In order to comply with the forthcoming national standard, Manitoba Hydro raised the minimum SEER to 13 for eligibility of financing in October, 2005; approximately one year earlier.

Residential High Efficiency Furnace

National Resources Canada (FEDERAL)

Amendment 10 to Energy Efficiency Regulations

Published: December 24, 2008 (Canada Gazette Part II)

Effective date: December 31, 2009

On December 12, 2008 the Federal Government amended the Energy Act to require increased efficiency requirements for replacement gas (natural gas and propane) furnaces and boilers. Effective December 31, 2009 replacement furnaces up to 225 000 Btu/h sold in Canada are required to have a minimum AFUE of 90%.

Manitoba Hydro played a material role in the amendment of the Federal Energy Act. Manitoba Hydro staff assisted the Federal Government by providing technical and market data regarding the heating market in Manitoba and comments to the proposed Amendment during the consultation process. Power Smart Programs such as the Residential Loan and the High Efficiency Furnace and Boiler Rebate influenced the Manitoba market to the point that 80% of all equipment installed in 2009 was high efficiency products, thus making the Amendment acceptable to the industry and to consumers.

The Energy Act (PROVINCIAL)

Regulation 181/2009

Published: November 12, 2009

Effective date: December 30, 2009

On November 12, 2009 the Manitoba Government passed a regulation under the Energy Act to require increased efficiency requirements for replacement gas (natural gas and propane) furnaces and boilers. Effective December 30, 2009 replacement furnaces up to 225 000 Btu/h sold in Manitoba are required to have a minimum AFUE of 92%.

Manitoba Hydro played a major role in the development of the Provincial Regulation. Manitoba Hydro staff assisted the Province by providing technical and market data regarding the heating market, hosting an industry consultation with contractors and other interested parties, preparing a formal market impact study, and providing general guidance to regulatory staff. Power Smart Programs such as the Residential Loan and the High Efficiency Furnace and Boiler Rebate influenced the market to the point that 80% of all equipment installed in 2009 was high efficiency products, thus making regulation acceptable to the industry.

In the area of Other Residential Equipment, Manitoba Hydro estimates changes will realize electric savings of 5.2 MW and 127.9 GW.h and natural gas savings of 1.0 million cubic meters by 2025/26.

Commercial New Construction

Building Code

In 2011, it is anticipated that energy efficiency amendments to the Manitoba building code will be implemented. These amendments are intended to prepare the way for possible adoption of the upcoming National Energy Code (NEC). The NEC is expected to be released for adoption in 2012 and it would require all new commercial buildings meet a minimum efficiency of 25% above MNEC. At this time, the Commercial New Construction Program requirements will be changed requiring eligible buildings to meet a minimum efficiency of 40% above MNEC. Savings between 2013 and 2017 represent the difference between 25% and 40%. Code & Regulation savings have been attributed to the New Commercial Construction Program.

The national commitment to update the 1997 NECB was initiated in Manitoba by the Energy Code Advisory Committee (ECAC) which was led by Manitoba Hydro. Manitoba Hydro has also chaired the national Building Energy Code Collaborative (BECC) which was formed in response to the recommendations provided by ECAC. As a result of the work done by BECC, formal support was provided by jurisdictions across Canada to undertake the work to update the 1997 NECB and a national working group was formed to conduct the detailed work for updating the code.

Manitoba Hydro staff have contributed to the national process and had Customer Engineering Services staff formally attend regular code development meetings to ensure Manitoba Hydro objectives were met. Manitoba Hydro staff were also members of the Manitoba Building Standards Board Sub-Committee on Energy and Water Efficiency which was responsible for recommending that the Province adopt the 2011 NECB and for creating additional recommendations specific to Manitoba that would be incorporated as amendments.

In the area of Commercial New Construction, Manitoba Hydro estimates changes will realize electric savings of 12.2 MW and 63.5 GW.h and natural gas savings of 3.9 million cubic meters by 2025/26.

Commercial Lighting

Since 1992, Manitoba Hydro has been actively promoting energy efficient lighting technologies for commercial applications. Activities involved in developing lighting standards include:

- In collaboration with other utilities, identify necessary research
- Work with Canadian Electrical Association
- Liaise with manufacturers to encourage the development and improvement of energy efficient lighting
- Product testing
- Liaise with National Research Council
- Participation on the CSA Standards Setting Committee
- Participation on the Canadian Lighting Industry Collaborative

T12 Fluorescent Lighting

National Resources Canada (FEDERAL)

Amendment to Energy Efficiency Regulations

Effective date: 1996

Manitoba Hydro's involvement in the area of Commercial Lighting supported the Federal Government's efforts to implement efficiency standards for T12 fluorescent lighting systems in April 1996 under the National Energy Efficiency Act. Under these new regulations, standard fluorescent T12 lamps are now non-complying and only reduced energy and high performance versions can be manufactured and sold in Canada (e.g. the previous standard 40-watt T12 lamp is now replaced with a new 34-watt T12 lamp).

Exit Signs

National Resources Canada (FEDERAL)

Amendment 8 to Energy Efficiency Regulations

Test Standard: CAN/CSA-C860-01

Published: September 22, 2004 (Canada Gazette Part II)

Effective date: November 1, 2004

In September of 2004, Natural Resources Canada's (NRCan's) Office of Energy Efficiency (OEE) amended Canada's Energy Efficiency Regulations (the Regulations) in order to strengthen the minimum energy performance standard for internally lighted exit signs with the publication of Amendment 8 in Canada Gazette Part II. This standard contains voluntary minimum performance standards of 22 watts for signs 120 V or less, and 27 watts for signs greater than 120 V. These levels were harmonized with the National Building Code of Canada. The standard also addresses the visibility performance of the exit sign. To meet these standards, typically requires that LED technology be employed. In the area of LED lighting, the program supported these minimum efficiency levels for new exit signs with signs set at a level that only LED exit signs could meet.

Fluorescent lamp ballasts

National Resources Canada (FEDERAL)

Amendment 9 to Energy Efficiency Regulations

Test Standard: CAN/CSA-C654-M91

Published: November 15, 2006 (Canada Gazette Part II)

Effective date(s): November 15th, 2006 (New Construction Market)

April 1st, 2010 (Renovation Market)

In November of 2006, Natural Resources Canada's (NRCan's) Office of Energy Efficiency (OEE) amended Canada's Energy Efficiency Regulations (the Regulations) in order to strengthen the minimum energy performance standard for florescent lamp ballasts with the publication of Amendment 9 in Canada Gazette Part II. Manitoba Hydro's lighting initiative helped support this Federal code change that required fluorescent lamp ballasts meet a prescribed minimum energy performance standard in the new construction market in 2006 and the renovation market in 2010.

In the area of Commercial Lighting, Manitoba Hydro estimates that the regulations will realize electric savings of 25.5 MW and 77.6 GW.h by 2025/26.

Commercial Appliances

Manitoba Hydro is supporting Energy Star commercial kitchen appliances be regulated by the Manitoba Energy Act. The Commercial Kitchen Appliance Program will continue to expedite market adoption of Energy Star steam cookers and fryers in all commercial buildings from its pre-program average of 3% to an estimated 56% by April 2018.

Manitoba Hydro's influence towards the Energy Star performance standard allows Manitoba Hydro to claim 1430 m³ of natural gas savings on all gas fryers, 3937 m³ of natural gas on all gas steamers and 7444 kWh of electricity savings and 2.5 KW demand on all electric steamers installed in commercial buildings until 2021.

In the area of Commercial Appliances, Manitoba Hydro estimates changes will realize electric savings of 0.9 MW and 2.6 GW.h and natural gas savings of 1.4 million cubic meters by 2025/26.

Other Commercial Equipment

Commercial High Efficiency Furnace

National Resources Canada (FEDERAL)

Amendment 10 to Energy Efficiency Regulations

Published: December 24, 2008 (Canada Gazette Part II)

Effective date: December 31, 2009

On December 12, 2008 the Federal Government amended the Energy Act to require increased efficiency requirements for replacement gas (natural gas and propane) furnaces and boilers. Effective December 31, 2009 replacement furnaces up to 225 000 Btu/h sold in Canada are required to have a minimum AFUE of 90%.

Manitoba Hydro played a material role in the amendment of Canada's Energy Efficiency Act. Manitoba Hydro staff assisted the Federal Government by providing technical and market data regarding the furnace market in Manitoba and comments to the proposed Amendment during the consultation process. Power Smart programs such as the Power Smart Residential Loan, the Residential High Efficiency Furnace and Boiler Rebate, and the Commercial HVAC Program - High Efficiency Furnace incentive all influenced market adoption; increasing market penetration of high efficiency furnaces in Manitoba commercial buildings from the pre-program average of 30% to 75% at program termination. Manitoba Hydro's involvement has expedited market transformation and thus facilitated the adoption of the federal efficiency regulation.

The Energy Act (PROVINCIAL)

Regulation 181/2009

Published: November 12, 2009

Effective date: December 30, 2009

On November 12, 2009 the Manitoba Government passed a regulation under the Energy Act to require increased efficiency requirements for replacement gas (natural gas and propane) furnaces and boilers. Effective December 30, 2009 replacement furnaces up to 225 000 Btu/h sold in Manitoba are required to have a minimum AFUE of 92%,

Manitoba Hydro played a material role in the development of the provincial efficiency regulation. Manitoba Hydro staff assisted the Manitoba Government by providing technical and market data, hosting an industry consultation with contractors and other interested parties, preparing a formal market impact study, and providing general guidance to regulatory staff. Power Smart programs such as the Residential Loan, the Residential High Efficiency Furnace and Boiler Rebate, and the Commercial HVAC Program - High Efficiency Furnace incentive all helped to expedite market adoption of high efficiency furnaces in Manitoba commercial buildings from the pre-program average of 30% to 75% at program termination. Manitoba Hydro's active involvement had expedited market transformation, and thus facilitated the adoption of the provincial efficiency regulation.

Commercial Boilers

National Resources Canada (FEDERAL)

Bulletin published: August 2010

Test Standard: HI BTS 2000, Rev 06.07 Method to Determine Efficiency of Commercial Space Heating Boilers

Proposed Effective date(s): March, 2015 (90% Min Efficiency Rating - New Construction Market)

March, 2015 (85% Min Efficiency Rating - Existing Buildings Market)

In August of 2010, Natural Resources Canada's (NRCan's) Office of Energy Efficiency (OEE) Natural Resources Canada (NRCan) proposed to amend Canada's *Energy Efficiency Regulations* (the Regulations) to require dealers to comply with minimum energy performance standards (MEPS) for commercial gas and oil-fired boilers, imported or shipped inter-provincially, for sale or lease in Canada. NRCan proposes that commercial packaged boilers meet minimum efficiency ratings of 90% for the New Construction market and 85% for the Replacement Market, effective March, 2015.

Manitoba Hydro proposes that the Provincial Government enact regulations under The Energy Act, requiring a minimum performance level for all natural gas boilers sold to new Manitoba buildings. By April 1 2013, Manitoba Hydro proposes that all commercial boilers be condensing, with a minimum efficiency rating of 90%. This regulation is equivalent to the proposed federal regulation, but will be enacted two years earlier.

Manitoba Hydro will play a material role in the development of a provincial efficiency regulation for commercial natural gas boilers. Manitoba Hydro staff will assist the Manitoba Government by providing technical and market data, hosting an industry consultation with contractors and other interested parties, preparing a formal market impact study, and providing general guidance to regulatory staff. The Commercial HVAC Program will continue to expedite market adoption of high efficiency boilers in all commercial buildings from its pre-program average of 30% to an estimated 72% by April 2013, thus facilitating the adoption of a provincial performance standard two years earlier than the rest of Canada.

Manitoba Hydro proposes that the Provincial Government enact regulations under The Energy Act, requiring a minimum performance level for all natural gas boilers sold to existing Manitoba buildings. By March 2015, Manitoba Hydro proposes that all commercial boilers be condensing, with a minimum efficiency rating of 90%. This is approximately 5% higher than the proposed federal regulation requiring all boilers sold to be at least 85% efficient (near-condensing).

Manitoba Hydro will play a material role in the development of a provincial efficiency regulation for commercial natural gas boilers. Manitoba Hydro staff will assist the Manitoba Government by providing technical and market data, hosting an industry consultation with contractors and other interested parties, preparing a formal market impact study, and providing general guidance to regulatory staff. The Commercial HVAC Program will continue to expedite market adoption of high efficiency boilers in all commercial buildings from its pre-program average of 30% to an estimated 75% by March 2015, thus facilitating the adoption of a higher performance standard in Manitoba.

Commercial Hot Water Tanks

National Resources Canada (FEDERAL)

Bulletin published: June 2010

Test Standard: CAN/CSA-P.3-04 "Testing Method for Measuring Energy Consumption and Determining Efficiencies of Gas-Fired Storage Water Heaters."

Proposed Effective date(s): January 1, 2016

The Office of Energy Efficiency (OEE) of Natural Resources Canada (NRCan) is proposing to amend Canada's Energy Efficiency Regulations (the Regulations) under which dealers in Canada would be required to comply with higher efficiency requirements for gas and oil water heaters and new reporting requirements for electric water heaters. For the first time in Canada, commercial water heaters and tankless water heaters will have minimum efficiency requirements. These proposed revisions would apply to water heaters that are imported or shipped across provincial boundaries for sale or lease in Canada and would require all tank natural gas water heaters sold in Canada to be condensing efficiency (minimum 90% thermal efficiency) by 2016.

The Commercial Water Heater Program will work with the provincial government to pass a regulation under The Energy Act, imposing a minimum performance level of 90% thermal efficiency (TE) for all commercial natural gas water heaters, including tankless water heaters, offered for sale or for lease in Manitoba.

Based on past experience with provincial codes, Manitoba Hydro staff will assist the Manitoba Government by providing technical and market data, hosting an industry consultation with contractors and other interested parties, preparing a formal market impact study, and providing general guidance to regulatory staff. The Commercial Water Heater Program will also help to expedite market adoption of high efficiency water heaters in Manitoba commercial buildings through rebates and education. Manitoba Hydro's active involvement will expedite market transformation, and thus facilitate the adoption of the provincial efficiency regulation.

In the area of Other Commercial Equipment, Manitoba Hydro estimates changes will realize natural gas savings of 2.5 million cubic meters by 2025/26.

At an Industrial level, Manitoba Hydro currently undertakes codes and standards development work with the following organizations:

- Natural Resources Canada (NRCAN)
- Province of Manitoba
- Canadian Standards Association (CSA), including BC Hydro, Hydro Quebec, Ontario Power Authority, Ontario Ministry of Energy, etc)
- Centre for Energy Advancement through Technological Innovation (CEATI)
- US Department of Energy (DOE)
- Institute of Electronic and Electrical Engineers (IEEE)
- International Electrotechnical Commission (IEC)
- American Council for an Energy-Efficient Economy (ACEEE)
- Electric Power Research Institute (EPRI)
- Energy Solutions Center (ESC)
- American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
- Canadian Gas Association (CGA)

This work pertains primarily to industrial and commercial equipment that incorporates or applies to electric motors, variable speed drives, air compressors, compressed air systems, fans, pumps, transformers, power quality systems, battery charges, uninterruptible power supplies, lighting systems, refrigeration, heating, ventilation and air conditioning systems, and building envelope incorporating both natural gas and electric supply.

Areas of involvement include, test methods for determination of energy efficiency, performance standards, application guides for efficiency test methods and performance standards and repair standards (to maintain efficiency).

6 Other Internal Demand Side Management Funding

6.1 Affordable Energy Fund

The Affordable Energy Fund is an internal fund established as a result of the Winter Heating Cost Control Act. The purpose of the Fund is to provide support for programs and services that achieve specific objectives outlined under the Act including encouraging energy efficiency and conservation through programs and services for rural and northern Manitobans, low income customers and seniors and encouraging the use of alternative energy sources such as renewable energy.

Affordable Energy Fund - Budget

Manitoba Hydro established the Affordable Energy Fund following the passing of the Winter Heating Cost Control Act on November 20, 2006 in the Manitoba Legislature. The Affordable Energy Fund supports Manitoba Hydro's sustainable development initiatives.

The following projects and associated funding levels have been approved for support by the Affordable Energy Fund:

Affordable Energy Fund Budget (Millions)

	Total Budget
Lower Income Program	19.0
Geothermal Support	6.0
Community Support and Outreach	0.8
Oil and Propane Heated Homes	0.3
Special Projects	0.0
Residential ecoEnergy Audits	0.5
Oil and Propane Furnace Replacement	0.2
Solar Water Heaters	0.3
Residential Loan	1.8
Oil and Propane Heated Homes - Additional funding	0.3
Unallocated	0.3
Community Energy Development	
ecoEnergy Program Funding	1.0
Energy & Resource Fund	0.8
Manitoba Electric Bus	1.0
FortWhyte EcoVillage	0.1
Unallocated	5.2
TOTALS	\$37.4

As of March 31st, 2011 approximately \$9.5 million of the Affordable Energy Fund had been spent, leaving the remaining \$27.9 to be allocated over the 2011/12 to 2025/26 horizon.

	Total Budget	Expenditures to Date	Remaining Total Budget
Lower Income Program	19.0	5.7	13.3
Geothermal Support	6.0	1.2	4.8
Community Support and Outreach	0.8	0.3	0.5
Oil and Propane Heated Homes	0.3	0.2	0.0
Special Projects			
Residential ecoEnergy Audits	0.5	0.5	0.0
Oil and Propane Furnace Replacement	0.2	0.1	0.1
Solar Water Heaters	0.3	0.3	0.0
Residential Loan	1.8	0.4	1.3
Oil and Propane Heated Homes - Additional funding	0.3	0.0	0.3
Unallocated	0.3	0.0	0.3
Community Energy Development			
ecoEnergy Program Funding	1.0	0.0	1.0
Energy & Resource Fund	0.8	0.8	0.0
Manitoba Electric Bus	1.0	0.0	1.0
FortWhyte EcoVillage	0.1	0.0	0.1
Unallocated	5.2	0.0	5.2
TOTALS	\$37.4	\$9.5	\$27.9

Note: Figures may not add due to rounding

The following table identifies the programs and associated funding levels that the Affordable Energy Fund will support over the Power Smart Planning horizon.

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Lower Income Program	4.1	4.1	4.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3
Geothermal Support	0.2	0.9	0.9	0.9	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	4.8
Community Support and Outreach	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Oil and Propane Heated Homes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Special Projects																
Residential ecoEnergy Audits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil and Propane Furnace Replacement	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Solar Water Heaters	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Residential Loan	0.4	0.4	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
Oil and Propane Heated Homes - Additional funding	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Unallocated	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Community Energy Development																
ecoEnergy Program Funding	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Energy & Resource Fund	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manitoba Electric Bus	0.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
FortWhyte EcoVillage	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Unallocated	0.0	2.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
Annual Budget	6.9	8.7	8.2	2.1	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	27.9
Cumulative Budget, 2011 - 2025	\$6.9	\$15.5	\$23.8	\$25.8	\$26.4	\$26.7	\$27.0	\$27.2	\$27.3	\$27.5	\$27.7	\$27.8	\$27.8	\$27.9	\$27.9	\$27.9

Note: Annual interest accruals are not included in the above forecast.

Low Income Program

The Affordable Energy Fund supports the Lower Income Energy Efficiency Program by targeting low-income Manitobans, including Aboriginals and seniors.

Geothermal Support

The Affordable Energy Fund provides funding to support the application of geothermal technology. A portion of the fund is being used to subsidize the interest rate for Residential Earth Power Loan program participants from 6.5 to 4.9 percent for the first five years of the loan term.

Community Support and Outreach

The Affordable Energy Fund provides funding for additional resources for the purpose of encouraging rural and northern customers to participate in Power Smart initiatives.

Oil and Propane-Heated Homes

The Affordable Energy Fund provides incentives to allow customers with wood, oil or propane heating to participate in Power Smart programs. The estimated savings of the other fuel types resulting from the installation of insulation in customer homes are provided in the next section of this report. (Note: Additional funding provided through the special projects category)

Special Projects

Residential Energy Assessment Service (ecoENERGY Audits)

The Affordable Energy Fund contributes the incremental costs associated with providing Manitoba Hydro's In-home Energy Assessment service under the Federal ecoENERGY Retrofit program to rural and northern Manitobans.

Oil & Propane Furnace Replacement

Manitoba Hydro extended the eligibility for the Power Smart Furnace Replacement Program to those customers upgrading an oil or propane furnace to a high efficiency electric or natural gas furnace.

Residential Solar Water Heating Program

Manitoba Hydro is partnering with Natural Resources Canada to deliver a residential solar water heating initiative in Manitoba. This initiative supports the application of solar domestic hot water pre-heating systems and the development of the local solar industry.

Power Smart Residential Loan

The Affordable Energy Fund provides funding to reduce the interest rate for the Power Smart Residential Loan from a cost recovery rate of 5.5% to a rate of 4.9%.

Oil and Propane-Heated Homes – Additional Funding

This initiative provides further funding to extend the eligibility of Power Smart programs to include homes currently heated by a source other than electricity and natural gas. As this additional funding is coming from a separate Affordable Energy Fund category than the original funding, it is tracked separately.

Community Energy Development

ecoENERGY Program Funding – Additional Funding

Manitoba Hydro allocated additional funding to support the cost of offering audits in Manitoba, involving a \$100 subsidy for each audit plus the incremental cost of offering audits in rural and northern Manitoba.

Manitoba Electric Bus

The Manitoba Electric Bus Project is a joint initiative among the Province of Manitoba, Manitoba Hydro, Red River College, New Flyer Industries and Mitsubishi Heavy Industries. The objective of the project is to develop a commercially viable all-electric bus design with near-zero emissions for use in urban transit systems.

FortWhyte EcoVillage

Manitoba Hydro will support the research and design of a world-class ecovillage on land belonging to FortWhyte Alive.

Affordable Energy Fund - Other Fuel Savings

Through funding from the Affordable Energy Fund, residential customers using heating sources other than natural gas and electricity are eligible to participate in the Home Insulation and Oil & Propane Furnace Replacement programs. The following table provides the oil and propane fuel savings estimated to be achieved through this funding.

It is estimated that savings of 469,600 litres of fuel oil and 134,700 litres of propane will be achieved from 2011/12 to 2025/26.

Affordable Energy Fund Other Fuel Savings
2011/12 - 2025/26
(000s, litres)

	2011/12	2012/13	2013/14 - 2025/26
Fuel Oil Savings			
Home Insulation Program	12.4	0.0	0.0
Oil & Propane Furnace Replacement	46.0	46.0	365.2
Annual Fuel Oil Savings	58.4	46.0	365.2
Cumulative Fuel Oil Savings, 2011-2025	58.4	104.4	469.6
Propane Savings			
Home Insulation Program	7.1	0.0	0.0
Oil & Propane Furnace Replacement	12.9	12.9	102.0
Annual Propane Savings	19.9	12.9	102.0
Cumulative Propane Savings, 2011-2025	19.9	32.8	134.7

6.2 Lower Income Natural Gas Furnace Replacement

The Lower Income Natural Gas Furnace Replacement budget is an internal allocation established as a result of Public Utility Board Order 99/07. The purpose of the allocation is to establish and administer a Furnace Replacement Program for low income customers.

Lower Income Natural Gas Furnace Replacement - Budget

The following table outlines the planned expenditures totalling \$11.6 million over the next six years.

Lower Income Natural Gas Furnace Replacement Budget
(Millions, 2011\$)

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	Total
Lower Income Program							
Annual Budget Furnace Replacement	2.3	2.3	2.3	1.8	1.5	1.3	11.6
Cumulative Budget, 2011-2025	\$2.3	\$4.7	\$7.0	\$8.8	\$10.3	\$11.6	\$11.6

7 Total Internal Demand Side Management Budget

The Total Internal Demand Side Management Budget includes the following internal sources:

- Electric Power Smart Utility Budget - \$388 million (as outlined in Section 2.2)
- Natural Gas Power Smart Utility Budget- \$133 million (as outlined in Section 3.2)
- Affordable Energy Fund Budget - \$28 million (as outlined in Section 6.1)
- Lower Income Furnace Replacement Budget - \$11 million (as outlined in Section 6.2)

The following table outlines the total projected DSM budget including all internal sources of funding to 2025/26. A total investment of \$560 million is planned for the period of 2011/12 to 2025/26.

	Total DSM Budget 2011/12 - 2025/26 (Millions, 2011 \$)															
	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Electric DSM																
Electric Power Smart	32.5	34.4	34.7	31.8	32.1	28.7	24.5	23.9	21.5	21.3	21.2	21.2	21.1	21.9	17.1	387.8
Affordable Energy Fund	3.1	5.0	4.7	1.1	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	15.9
Annual Electric Budget	\$35.6	\$39.4	\$39.4	\$32.9	\$32.6	\$28.9	\$24.7	\$24.1	\$21.7	\$21.4	\$21.3	\$21.3	\$21.2	\$22.0	\$17.1	\$403.7
Natural Gas DSM																
Natural Gas Power Smart	13.5	14.3	13.5	12.7	11.7	11.0	8.0	7.0	6.6	6.0	6.0	6.0	5.4	5.4	5.4	132.6
Affordable Energy Fund	3.6	3.6	3.5	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.7
Lower Income Furnace Replacement Budget	2.3	2.3	2.3	1.8	1.5	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6
Annual Natural Gas Budget	\$19.4	\$20.2	\$19.3	\$15.4	\$13.3	\$12.3	\$8.0	\$7.0	\$6.6	\$6.0	\$6.0	\$6.0	\$5.4	\$5.4	\$5.4	\$155.9
Oil and Propane DSM																
Affordable Energy Fund	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Annual Oil and Propane Budget	\$0.1	\$0.1	\$0.1	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.4
Manitoba Hydro Annual Budget	\$55.2	\$59.7	\$58.8	\$48.4	\$45.9	\$41.3	\$32.8	\$31.1	\$28.2	\$27.4	\$27.3	\$27.3	\$26.6	\$27.4	\$22.5	
Cumulative Budget 2011-2025	\$55.2	\$114.9	\$173.7	\$222.1	\$268.0	\$309.2	\$342.0	\$373.1	\$401.4	\$428.8	\$456.1	\$483.4	\$510.0	\$537.4	\$559.9	\$559.9

8 Other External Demand Side Management Funding

Manitoba Hydro's Power Smart programs are supported by funding from external organizations as outlined in the following table.

The Lower Income Energy Efficient Program includes partnership funding from the Provincial Government. This external funding is expected to total \$10.9 million over the period of 2011/12 to 2025/26. Manitoba Hydro will continue to encourage energy efficiency and conservation to lower income Manitobans throughout the 15-year planning horizon. Program staff will review programming and spending prior to 2014/15 and determine what opportunities and funding sources are available beyond that date. A placeholder for the projected funds required to support these continued efforts is conveyed in the table below as *Unidentified funding sources*.

External funding is provided by the Federal Government through Natural Resources Canada to support Bioenergy Optimization demo projects. This funding is expected to total \$1.2 million over the period of 2011/12 to 2025/26. Energy savings associated with the aforementioned demo projects have not been included in the 2011 Power Smart Plan.

EXTERNAL FUNDING BUDGET

2011/12 - 2025/26

(Millions, 2011 \$)

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17- 2025/26	Cumulative, 2011-2025
External Funding							
Lower Income Energy Efficient Program	2.3	2.3	2.1	1.7	1.3	1.3	10.9
Bioenergy Optimization Program	1.0	0.2	0.0	0.0	0.0	0.0	1.2
Unidentified Funding Sources	0.0	0.0	0.0	2.2	2.7	2.3	7.2
Total External Funding	\$3.2	\$2.4	\$2.1	\$3.9	\$3.9	\$3.6	\$19.3
Cumulative Budget, 2011-2025	\$3.2	\$5.7	\$7.8	\$11.7	\$15.7	\$19.3	\$19.3

APPENDIX A - 2011 Power Smart Plan Electric

Appendix A.1 - Winter Capacity Savings (MW)

Appendix A.2 - Summer Capacity Savings (MW)

Appendix A.3 - Annual Energy Savings (GW.h)

Appendix A.4 - Annual Total Resource Cost

Appendix A.5 - Annual Program Budgets (Utility Cost)

Appendix A.6 - Annual Program Administration Budgets

Appendix A.7 - Incentives

APPENDIX B - Historical MW/GW.h Savings & Costs by Program (Savings to Date)

- Appendix B.1 - Winter Capacity Savings (MW)
- Appendix B.2 - Summer Capacity Savings (MW)
- Appendix B.3 - Annual Energy Savings (GW.h)
- Appendix B.4 - Annual Total Resource Cost
- Appendix B.5 - Annual Program Budgets (Utility Cost)
- Appendix B.6 - Annual Program Administration Budgets
- Appendix B.7 - Incentives

Total Resource Costs
Savings To Date
(1989/90 - 2010/11)
(000's in 2011\$)

Table with columns for years (1989/90 to 2009/10), Interim Estimate (2010/11), Cumulative Total (2010/11), and Cumulative Total (2025/26). Rows are categorized by program type: Residential Incentive Based, Discontinued/Completed Programs, Commercial Incentive Based, Discontinued/Completed Programs, Industrial Incentive Based, Discontinued/Completed Programs, LOAD MANAGEMENT, CUSTOMER SELF-GENERATION, and Total Resource Costs.

NOTE:
Figures may not add due to rounding.

APPENDIX C - 2011 Power Smart Plan Natural Gas

Appendix C.1 - Annual Energy Savings (m3)

Appendix C.2 - Annual Total Resource Cost

Appendix C.3 - Annual Program Budgets (Utility Cost)

Appendix C.4 - Annual Program Administration Budgets

Appendix C.5 - Incentives

**Annual Energy Savings (m3)
2011 PS Plan
in '000,000**

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	
RESIDENTIAL																
Incentive Based																
New Home Program	0.03	0.07	0.12	0.18	0.26	0.85	1.38	1.93	2.47	3.02	3.02	3.02	3.02	3.02	3.02	
Home Insulation Program	1.25	2.46	3.64	4.78	5.89	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	6.97	
Water and Energy Saver Program	0.46	0.92	1.40	1.88	1.88	1.88	1.88	1.88	1.92	1.96	1.96	1.96	1.96	1.96	1.96	
Lower Income Energy Efficiency Program	1.20	2.39	3.58	4.54	5.29	5.37	4.83	4.29	3.88	3.56	3.22	3.15	3.08	3.02	2.96	
Subtotal	2.94	5.84	8.74	11.38	13.33	15.07	15.07	15.07	15.25	15.52	15.18	15.11	15.03	14.97	14.92	17%
Customer Service Initiatives																
Power Smart Residential Loan Program	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	
ecoEnergy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Residential Earth Power Program	0.07	0.15	0.25	0.36	0.49	0.64	0.81	1.01	1.22	1.43	1.66	1.90	2.15	2.41	2.69	
Subtotal	0.57	1.15	1.75	2.36	2.99	3.64	4.31	5.01	5.72	6.43	7.16	7.90	8.65	9.41	10.19	12%
COMMERCIAL																
Commercial Custom Measures Program	0.06	0.13	0.21	0.30	0.38	0.47	0.55	0.64	0.72	0.81	0.89	0.98	1.06	1.15	1.23	
Commercial Windows Program	0.44	0.89	1.33	1.71	2.08	2.46	2.76	3.06	3.37	3.67	3.98	4.28	4.59	4.89	5.19	
Commercial Insulation Program	2.09	4.18	6.26	7.96	9.66	11.35	12.92	14.48	16.05	17.23	18.40	19.57	20.36	21.14	21.93	
Commercial New Construction Program	0.27	0.70	1.53	2.44	3.41	4.46	5.53	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	
Commercial Building Optimization Program	0.21	0.49	0.80	1.11	1.42	1.84	2.22	2.60	2.98	3.43	3.68	3.92	4.23	4.58	4.92	
Commercial Kitchen Appliance Program	0.04	0.07	0.12	0.18	0.26	0.34	0.43	0.77	1.11	1.45	1.78	1.78	1.77	1.75	1.73	
Commercial Clothes Washers Program	0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.07	0.06	0.06	
CO2 Sensors	0.07	0.15	0.24	0.36	0.49	0.63	0.80	1.00	1.03	1.06	1.12	1.19	1.26	1.34	1.42	
Commercial Water Heater Program	0.02	0.10	0.21	0.36	0.54	0.75	0.95	1.01	1.07	1.13	1.19	1.25	1.28	1.21	1.10	
Commercial Boiler Program	0.91	1.54	2.33	3.09	3.25	3.40	3.54	3.67	3.80	3.92	4.04	4.15	4.25	4.33	4.41	
Subtotal	4.12	8.26	13.07	17.53	21.52	25.74	29.74	33.94	36.83	39.399	41.78	43.83	45.50	47.09	48.64	57%
Market Effects																
Commercial Rinse & Save Program	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	
Subtotal	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0%
INDUSTRIAL																
Industrial Natural Gas Optimization Program	1.60	3.20	4.40	5.60	6.80	7.60	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	
Industrial Subtotal	1.60	3.20	4.40	5.60	6.80	7.60	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	10%
CONSERVATION SUBTOTAL	9.23	18.46	27.97	36.89	44.65	52.06	57.53	62.42	66.20	69.76	72.52	75.23	77.58	79.88	82.14	96%
CUSTOMER SELF-GENERATION																
BioEnergy Optimization Program	0.05	1.77	1.77	2.05	3.77	3.77	3.82	3.82	3.82	3.82	3.82	3.82	3.82	3.82	3.82	
CUSTOMER SELF-GENERATION SUBTOTAL	0.05	1.77	1.77	2.05	3.77	3.77	3.82	3.82	3.82	3.82	3.82	3.82	3.82	3.82	3.82	4%
Program Impacts	9	20	30	39	48	56	61	66	70	74	76	79	81	84	86	100%
Interactive Effects	-0.71	-1.62	-2.51	-2.59	-2.67	-2.72	-2.72	-2.77	-2.81	-2.84	-2.78	-2.71	-2.26	-1.40	-0.62	
Subtotal after Interactive Effects	9	19	27	36	46	53	59	63	67	71	74	76	79	82	85	
Codes, Standards & Regulations	1.35	3.86	6.36	8.85	11.33	11.69	12.01	12.29	12.54	12.75	12.95	13.15	13.34	13.53	13.72	
Power Smart 2011 to 2025 Impacts	10	22	34	45	57	65	71	76	80	83	87	89	92	96	99	
Total Savings To Date																
Incentive -Based Programs	29.42	29.42	29.41	29.21	29.20	29.20	29.20	29.08	28.94	28.67	28.64	28.36	26.19	25.23	20.65	
CSI Program Impacts	18.48	18.42	18.28	18.15	18.15	18.15	18.15	18.15	18.15	18.15	18.15	18.10	18.00	17.65	17.36	
Discontinued Programs	15.95	15.95	15.95	15.95	15.95	15.12	14.82	13.84	13.57	13.49	13.49	13.49	13.49	13.49	13.49	
Interactive Effects	-8.66	-7.97	-6.04	-2.89	-2.88	-2.88	-2.89	-2.02	-2.00	-2.08	-2.11	-2.18	-2.27	-1.77	-0.94	
Codes and Standards	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	
Savings To Date Total	58.71	59.33	61.12	63.93	63.93	63.10	62.80	62.56	62.17	61.75	61.69	61.28	58.92	58.11	54.07	
Total m3	69	82	95	109	121	128	133	138	142	145	148	151	151	154	153	

NOTE: Figures may not add due to rounding.

**Annual Total Resource Cost
2011 PS Plan
(000's in 2011 \$)**

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	Cumulative Total	
RESIDENTIAL																	
Incentive Based																	
New Home Program	\$169	\$462	\$514	\$566	\$619	\$5,165	\$4,819	\$4,852	\$4,876	\$4,948	\$0	\$0	\$0	\$0	\$0	\$26,991	
Home Insulation Program	\$4,552	\$4,433	\$4,319	\$4,208	\$4,101	\$3,989	\$120	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$25,723	
Water and Energy Saver Program	\$682	\$644	\$637	\$628	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,591	
Lower Income Energy Efficiency Program	\$4,655	\$4,655	\$4,596	\$3,660	\$2,907	\$2,494	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$22,967	
Subtotal	\$10,058	\$10,195	\$10,066	\$9,063	\$7,627	\$11,648	\$4,940	\$4,852	\$4,876	\$4,948	\$0	\$0	\$0	\$0	\$0	\$78,272	40%
Customer Service Initiatives																	
Power Smart Residential Loan Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
ecoEnergy	\$376	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$376	
Residential Earth Power Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Subtotal	\$376	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$376	0%
COMMERCIAL																	
Commercial Custom Measures Program	\$228	\$228	\$282	\$282	\$282	\$282	\$282	\$282	\$282	\$282	\$282	\$282	\$282	\$282	\$282	\$4,119	
Commercial Windows Program	\$580	\$580	\$580	\$512	\$512	\$512	\$444	\$444	\$445	\$445	\$445	\$445	\$444	\$444	\$444	\$7,278	
Commercial Insulation Program	\$4,634	\$4,634	\$4,634	\$3,803	\$3,804	\$3,804	\$3,526	\$3,526	\$2,694	\$2,694	\$2,694	\$1,863	\$1,863	\$1,863	\$1,863	\$49,557	
Commercial New Construction Program	\$265	\$341	\$369	\$459	\$534	\$639	\$654	\$714	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,973	
Commercial Building Optimization Program	\$389	\$469	\$509	\$509	\$509	\$630	\$590	\$590	\$590	\$670	\$670	\$750	\$812	\$836	\$823	\$9,344	
Commercial Kitchen Appliance Program	\$98	\$105	\$123	\$153	\$186	\$218	\$226	\$841	\$839	\$831	\$827	\$0	\$0	\$0	\$0	\$4,448	
CO2 Sensors	\$103	\$113	\$123	\$135	\$149	\$164	\$181	\$200	\$24	\$25	\$112	\$126	\$141	\$158	\$178	\$1,930	
Commercial Water Heater Program	\$107	\$216	\$278	\$335	\$405	\$457	\$419	\$82	\$82	\$81	\$80	\$79	\$79	\$0	\$0	\$2,701	
Commercial Boiler Program	\$1,286	\$954	\$1,148	\$1,124	\$618	\$591	\$564	\$539	\$513	\$486	\$459	\$432	\$392	\$352	\$312	\$9,770	
Subtotal	\$7,690	\$7,641	\$8,045	\$7,312	\$6,998	\$7,296	\$6,884	\$7,217	\$6,299	\$5,514	\$5,569	\$4,807	\$4,012	\$3,935	\$3,901	\$93,121	48%
Market Effects																	
Commercial Rinse & Save Program	\$2	\$2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5	
Subtotal	\$2	\$2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5	0%
INDUSTRIAL																	
Industrial Natural Gas Optimization Program	\$3,803	\$3,803	\$2,923	\$2,923	\$2,923	\$2,043	\$2,043	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$20,458	
Subtotal	\$3,803	\$3,803	\$2,923	\$2,923	\$2,923	\$2,043	\$2,043	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$20,458	11%
CONSERVATION SUBTOTAL	\$21,929	\$21,641	\$21,033	\$19,298	\$17,547	\$20,987	\$13,866	\$12,069	\$11,175	\$10,462	\$5,569	\$4,807	\$4,012	\$3,935	\$3,901	\$192,232	99%
CUSTOMER SELF-GENERATION																	
BioEnergy Optimization Program	\$90	\$982	\$30	\$312	\$953	\$13	\$61	\$12	\$14	\$0	\$0	\$0	\$0	\$0	\$0	\$2,467	
CUSTOMER SELF-GENERATION SUBTOTAL	\$90	\$982	\$30	\$312	\$953	\$13	\$61	\$12	\$14	\$0	\$0	\$0	\$0	\$0	\$0	\$2,467	1%
Subtotal of Programs	\$22,019	\$22,623	\$21,063	\$19,610	\$18,501	\$21,000	\$13,928	\$12,081	\$11,189	\$10,462	\$5,569	\$4,807	\$4,012	\$3,935	\$3,901	\$194,699	100%
Incremental Support Activity	\$1,054	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$13,567	
Contingency	\$0	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$14,000	
Incremental Total Resource Costs	\$23,073	\$24,517	\$22,957	\$21,504	\$20,394	\$22,894	\$15,822	\$13,974	\$13,082	\$12,356	\$7,463	\$6,701	\$5,906	\$5,828	\$5,795	\$222,266	
Customer Service and Standards Support	\$1,277	\$1,265	\$1,260	\$1,245	\$1,233	\$1,231	\$1,230	\$1,177	\$1,175	\$1,164	\$1,161	\$1,161	\$1,160	\$1,160	\$1,159	\$18,059	
Total Resource Costs (2011 to 2025)	\$24,350	\$25,782	\$24,217	\$22,748	\$21,627	\$24,125	\$17,052	\$15,151	\$14,258	\$13,519	\$8,624	\$7,862	\$7,066	\$6,988	\$6,955	\$240,325	
Committed To Date																	
Activity cumulative to 2009/10	\$83,610	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$83,610	
Current Year Estimate 2010/11	\$40,156	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$40,156	
Total Committed to Date	\$123,766	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$123,766	
TOTAL RESOURCE COSTS (1989 to 2025)	\$123,766	\$24,350	\$25,782	\$24,217	\$22,748	\$21,627	\$24,125	\$17,052	\$15,151	\$14,258	\$13,519	\$8,624	\$7,862	\$7,066	\$6,988	\$364,091	

NOTE: Figures may not add due to rounding.

Annual Program Budgets (Utility Costs)
2011 PS Plan
(000's in 2011 \$)

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	Cumulative Total
RESIDENTIAL																
Incentive Based																
New Home Program	\$54	\$96	\$107	\$118	\$128	\$121	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$624
Home Insulation Program	\$2,665	\$2,600	\$2,538	\$2,478	\$2,419	\$2,356	\$120	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,175
Water and Energy Saver Program	\$682	\$644	\$637	\$628	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,591
Lower Income Energy Efficiency Program	\$692	\$692	\$686	\$532	\$447	\$399	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,449
Subtotal	\$4,092	\$4,033	\$3,967	\$3,756	\$2,994	\$2,876	\$120	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$21,839 25%
Customer Service Initiatives																
Power Smart Residential Loan Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ecoEnergy	\$376	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$376
Residential Earth Power Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$376	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$376 0%
COMMERCIAL																
Commercial Custom Measures Program	\$92	\$92	\$99	\$99	\$99	\$99	\$99	\$99	\$99	\$99	\$105	\$105	\$105	\$105	\$105	\$1,501
Commercial Windows Program	\$503	\$503	\$503	\$447	\$447	\$447	\$391	\$391	\$392	\$392	\$392	\$392	\$391	\$391	\$391	\$6,377
Commercial Insulation Program	\$3,373	\$3,373	\$3,373	\$2,777	\$2,778	\$2,778	\$2,580	\$2,580	\$2,580	\$1,984	\$1,984	\$1,984	\$1,388	\$1,388	\$1,388	\$36,308
Commercial New Construction Program	\$210	\$248	\$239	\$269	\$304	\$339	\$354	\$374	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,335
Commercial Building Optimization Program	\$273	\$314	\$335	\$335	\$335	\$398	\$398	\$398	\$398	\$440	\$440	\$481	\$485	\$489	\$477	\$5,996
Commercial Kitchen Appliance Program	\$74	\$79	\$91	\$102	\$113	\$131	\$142	\$2	\$2	\$2	\$2	\$0	\$0	\$0	\$0	\$742
CO2 Sensors	\$63	\$64	\$66	\$68	\$70	\$73	\$76	\$81	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$562
Commercial Water Heater Program	\$73	\$91	\$97	\$106	\$120	\$132	\$123	\$2	\$2	\$2	\$2	\$2	\$2	\$0	\$0	\$756
Commercial Boiler Program	\$1,040	\$804	\$816	\$768	\$3	\$3	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$3,445
Subtotal	\$5,702	\$5,570	\$5,619	\$4,971	\$4,270	\$4,400	\$4,164	\$3,927	\$3,474	\$2,920	\$2,926	\$2,966	\$2,373	\$2,375	\$2,363	\$58,019 67%
Market Effects																
Commercial Rinse & Save Program	\$2	\$2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5
Subtotal	\$2	\$2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5 0%
INDUSTRIAL																
Industrial Natural Gas Optimization Program	\$923	\$923	\$763	\$763	\$763	\$603	\$603	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,338
Subtotal	\$923	\$923	\$763	\$763	\$763	\$603	\$603	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,338 6%
CONSERVATION SUBTOTAL	\$11,096	\$10,528	\$10,348	\$9,489	\$8,027	\$7,878	\$4,886	\$3,927	\$3,474	\$2,920	\$2,926	\$2,966	\$2,373	\$2,375	\$2,363	\$85,577 98%
CUSTOMER SELF-GENERATION																
BioEnergy Optimization Program	\$55	\$572	\$30	\$96	\$543	\$13	\$27	\$12	\$14	\$0	\$0	\$0	\$0	\$0	\$0	\$1,359
CUSTOMER SELF-GENERATION SUBTOTAL	\$55	\$572	\$30	\$96	\$543	\$13	\$27	\$12	\$14	\$0	\$0	\$0	\$0	\$0	\$0	\$1,359 2%
Subtotal of Programs	\$11,151	\$11,100	\$10,378	\$9,585	\$8,570	\$7,891	\$4,913	\$3,939	\$3,487	\$2,920	\$2,926	\$2,966	\$2,373	\$2,375	\$2,363	\$86,936 100%
Incremental Support Activity	\$1,054	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$13,567
Contingency	\$0	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$14,000
Utility Costs (2011 to 2025)	\$1,054	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$27,567
Customer Service and Standards Support	\$1,277	\$1,265	\$1,260	\$1,245	\$1,233	\$1,231	\$1,230	\$1,177	\$1,175	\$1,164	\$1,161	\$1,161	\$1,160	\$1,160	\$1,159	\$18,059
Total Utility Costs (2011 to 2025)	\$13,482	\$14,259	\$13,532	\$12,724	\$11,696	\$11,016	\$8,037	\$7,009	\$6,556	\$5,977	\$5,981	\$6,020	\$5,427	\$5,429	\$5,416	\$132,562
Committed To Date																
Activity cumulative to 2009/10	\$49,480	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$49,480
Current Year Estimate 2010/11	\$12,570	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$12,570
Total Committed to Date	\$62,051	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$62,051
TOTAL UTILITY COSTS (1989 to 2025)	\$62,051	\$13,482	\$14,259	\$13,532	\$12,724	\$11,696	\$11,016	\$8,037	\$7,009	\$6,556	\$5,977	\$5,981	\$6,020	\$5,427	\$5,429	\$194,613

NOTE: Figures may not add due to rounding.

**Annual Program Administration Budgets
2011 PS Plan
(000's in 2011 \$)**

APPENDIX C.4

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	Cumulative Total	
RESIDENTIAL																	
Incentive Based																	
New Home Program	\$11	\$16	\$18	\$20	\$22	\$14	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$101	
Home Insulation Program	\$528	\$522	\$519	\$516	\$513	\$504	\$120	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,222	
Water and Energy Saver Program	\$492	\$458	\$453	\$447	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,850	
Lower Income Energy Efficiency Program	\$182	\$182	\$182	\$130	\$130	\$130	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$935	
Subtotal	\$1,213	\$1,178	\$1,172	\$1,113	\$664	\$648	\$120	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,109	31%
Customer Service Initiatives																	
Power Smart Residential Loan Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
ecoEnergy	\$376	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$376	
Residential Earth Power Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Subtotal	\$376	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$376	2%
COMMERCIAL																	
Commercial Custom Measures Program	\$67	\$67	\$67	\$67	\$67	\$67	\$67	\$67	\$67	\$67	\$67	\$67	\$67	\$67	\$67	\$1,004	
Commercial Windows Program	\$148	\$148	\$148	\$148	\$148	\$148	\$148	\$148	\$149	\$149	\$149	\$149	\$148	\$148	\$148	\$2,226	
Commercial Insulation Program	\$198	\$198	\$198	\$198	\$199	\$199	\$199	\$199	\$199	\$198	\$198	\$198	\$198	\$198	\$198	\$2,975	
Commercial New Construction Program	\$144	\$144	\$144	\$144	\$144	\$144	\$144	\$144	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,149	
Commercial Building Optimization Program	\$148	\$148	\$148	\$148	\$148	\$148	\$148	\$148	\$148	\$148	\$148	\$148	\$89	\$73	\$60	\$1,995	
Commercial Kitchen Appliance Program	\$34	\$34	\$34	\$34	\$34	\$34	\$34	\$2	\$2	\$2	\$2	\$0	\$0	\$0	\$0	\$250	
CO2 Sensors	\$46	\$44	\$42	\$41	\$39	\$38	\$36	\$34	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$321	
Commercial Water Heater Program	\$64	\$63	\$56	\$51	\$48	\$44	\$43	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$0	\$381	
Commercial Boiler Program	\$268	\$241	\$214	\$187	\$3	\$3	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$928	
Subtotal	\$1,117	\$1,087	\$1,051	\$1,018	\$831	\$825	\$821	\$746	\$568	\$567	\$567	\$565	\$505	\$487	\$475	\$11,229	56%
Market Effects																	
Commercial Rinse & Save Program	\$2	\$2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5	
Subtotal	\$2	\$2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5	0%
INDUSTRIAL																	
Industrial Natural Gas Optimization Program	\$283	\$283	\$283	\$283	\$283	\$283	\$283	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,978	
Subtotal	\$283	\$283	\$283	\$283	\$283	\$283	\$283	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,978	10%
CONSERVATION SUBTOTAL	\$2,991	\$2,550	\$2,506	\$2,414	\$1,778	\$1,756	\$1,223	\$746	\$568	\$567	\$567	\$565	\$505	\$487	\$475	\$19,697	99%
CUSTOMER SELF-GENERATION																	
BioEnergy Optimization Program	\$40	\$56	\$30	\$12	\$26	\$13	\$11	\$12	\$14	\$0	\$0	\$0	\$0	\$0	\$0	\$213	
CUSTOMER SELF-GENERATION SUBTOTAL	\$40	\$56	\$30	\$12	\$26	\$13	\$11	\$12	\$14	\$0	\$0	\$0	\$0	\$0	\$0	\$213	1%
Subtotal Of Programs	\$3,031	\$2,606	\$2,536	\$2,426	\$1,804	\$1,769	\$1,235	\$757	\$582	\$567	\$567	\$565	\$505	\$487	\$475	\$19,910	100%
Incremental Support Activity	\$1,054	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$894	\$13,567	
Contingency	\$0	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$14,000	
Incremental Total Administration Costs	\$1,054	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$1,894	\$27,567	
Customer Service and Standards Support	\$1,277	\$1,265	\$1,260	\$1,245	\$1,233	\$1,231	\$1,230	\$1,177	\$1,175	\$1,164	\$1,161	\$1,161	\$1,160	\$1,160	\$1,159	\$18,059	
Total Administration Costs (2011 to 2025)	\$5,362	\$5,765	\$5,690	\$5,565	\$4,931	\$4,893	\$4,359	\$3,828	\$3,651	\$3,625	\$3,622	\$3,619	\$3,559	\$3,540	\$3,528	\$65,536	
Committed To Date																	
Activity cumulative to 2009/10	\$22,659	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$22,659	
Current Year Estimate 2010/11	\$5,035	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,035	
Total Committed to Date	\$27,694	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$27,694	
TOTAL ADMINISTRATION COSTS (1989 to 2025)	\$27,694	\$5,362	\$5,765	\$5,690	\$5,565	\$4,931	\$4,893	\$4,359	\$3,828	\$3,651	\$3,625	\$3,622	\$3,619	\$3,559	\$3,540	\$93,230	

**Annual Program Incentives
2011 PS Plan
(000's in 2011 \$)**

APPENDIX C.5

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	Cumulative Total	
RESIDENTIAL																	
Incentive Based																	
New Home Program	\$42	\$80	\$89	\$98	\$107	\$107	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$523	
Home Insulation Program	\$2,137	\$2,077	\$2,019	\$1,961	\$1,906	\$1,852	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$11,952	
Water and Energy Saver Program	\$190	\$187	\$184	\$181	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$741	
Lower Income Energy Efficiency Program	\$510	\$510	\$504	\$403	\$317	\$270	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,513	
Subtotal	\$2,879	\$2,855	\$2,795	\$2,643	\$2,330	\$2,228	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,730	23%
Customer Service Initiatives																	
Power Smart Residential Loan Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
ecoEnergy	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Residential Earth Power Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0%
COMMERCIAL																	
Commercial Custom Measures Program	\$25	\$25	\$32	\$32	\$32	\$32	\$32	\$32	\$32	\$32	\$38	\$38	\$38	\$38	\$38	\$496	
Commercial Windows Program	\$355	\$355	\$355	\$299	\$299	\$299	\$243	\$243	\$243	\$243	\$243	\$243	\$243	\$243	\$243	\$4,151	
Commercial Insulation Program	\$3,175	\$3,175	\$3,175	\$2,579	\$2,579	\$2,579	\$2,381	\$2,381	\$2,381	\$1,786	\$1,786	\$1,786	\$1,190	\$1,190	\$1,190	\$33,332	
Commercial New Construction Program	\$66	\$105	\$95	\$125	\$160	\$195	\$210	\$230	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,186	
Commercial Building Optimization Program	\$125	\$167	\$188	\$188	\$188	\$250	\$250	\$250	\$250	\$292	\$292	\$333	\$396	\$417	\$417	\$4,001	
Commercial Kitchen Appliance Program	\$40	\$45	\$56	\$68	\$79	\$96	\$108	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$491	
CO2 Sensors	\$17	\$20	\$23	\$27	\$31	\$35	\$40	\$46	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$241	
Commercial Water Heater Program	\$9	\$29	\$42	\$55	\$72	\$88	\$80	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$374	
Commercial Boiler Program	\$773	\$563	\$602	\$580	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,517	
Subtotal	\$4,586	\$4,483	\$4,567	\$3,953	\$3,439	\$3,575	\$3,343	\$3,182	\$2,906	\$2,353	\$2,359	\$2,401	\$1,868	\$1,888	\$1,888	\$46,790	70%
Market Effects																	
Commercial Rinse & Save Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0%
INDUSTRIAL																	
Industrial Natural Gas Optimization Program	\$640	\$640	\$480	\$480	\$480	\$320	\$320	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,360	
Subtotal	\$640	\$640	\$480	\$480	\$480	\$320	\$320	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,360	5%
CONSERVATION SUBTOTAL	\$8,105	\$7,978	\$7,842	\$7,076	\$6,249	\$6,123	\$3,663	\$3,182	\$2,906	\$2,353	\$2,359	\$2,401	\$1,868	\$1,888	\$1,888	\$65,880	98%
CUSTOMER SELF-GENERATION																	
BioEnergy Optimization Program	\$15	\$516	\$0	\$84	\$516	\$0	\$15	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,146	
CUSTOMER SELF-GENERATION SUBTOTAL	\$15	\$516	\$0	\$84	\$516	\$0	\$15	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,146	2%
Subtotal Of Programs	\$8,120	\$8,494	\$7,842	\$7,159	\$6,765	\$6,123	\$3,678	\$3,182	\$2,906	\$2,353	\$2,359	\$2,401	\$1,868	\$1,888	\$1,888	\$67,026	100%
Committed To Date																	
Activity cumulative to 2009/10	\$27,941	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$27,941	
Current Year Estimate 2010/11	\$7,329	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,329	
Total Committed to Date	\$35,270	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$35,270	
TOTAL INCENTIVES (1989 to 2025)	\$35,270	\$8,120	\$8,494	\$7,842	\$7,159	\$6,765	\$6,123	\$3,678	\$3,182	\$2,906	\$2,353	\$2,359	\$2,401	\$1,868	\$1,888	\$102,296	

NOTE: Figures may not add due to rounding.

APPENDIX D - Historical Million m3 Savings & Costs by Program (Savings to Date)

- Appendix D.1 - Annual Energy Savings (m3)
- Appendix D.2 - Annual Total Resource Cost
- Appendix D.3 - Annual Program Budgets (Utility Cost)
- Appendix D.4 - Annual Program Administration Budgets
- Appendix D.5 - Incentives

**Energy Savings (millions m3)
Savings To Date (2001/02 - 2010/11)**

APPENDIX D.1

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Interim Estimate 2010/11	Benchmark 2025/26
Residential											
H2O NRG Saver	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00
Solar Water Heaters	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Home Insulation	0.00	0.00	0.00	0.00	0.30	2.15	3.85	5.58	7.59	9.02	9.02
New Homes	0.00	0.00	0.00	0.03	0.08	0.15	0.23	0.34	0.41	0.51	0.51
Low Income	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.69	1.74	1.41
CFL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fridge Recycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EE Light Fix	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.03	0.39	2.30	4.10	5.98	8.69	12.05	10.95
Discontinued/Completed Programs											
Residential Thermostats	0.00	0.00	0.00	0.00	0.00	0.11	0.17	0.17	0.17	0.17	0.17
Residential Furnace	0.00	0.00	0.00	0.00	0.61	2.60	4.04	5.77	6.93	7.12	7.12
Residential Appliances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SLED	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.61	2.72	4.21	5.94	7.09	7.28	7.28
Commercial											
PSEM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commercial Insulation	0.00	0.00	0.00	0.00	0.00	0.29	1.05	2.15	3.24	5.55	5.55
Commercial Windows	0.00	0.00	0.00	0.00	0.00	0.03	0.11	0.23	0.50	0.79	0.79
CBOP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.24	0.38	0.00
Commercial Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.16	0.16
Commercial Boiler	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.99
City of Wpg PSA	0.00	0.05	0.13	0.17	0.56	0.67	0.67	0.67	0.71	0.71	0.15
New Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.24
Commercial Kitchen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.07	0.04
Commercial Lighting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commercial Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Commercial Refrigeration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Network Energy Manager	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PS Shops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.00
Commercial Hot Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO2 Sensors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Subtotal	0.00	0.05	0.13	0.17	0.56	0.99	1.84	3.19	4.82	8.97	7.92
Discontinued/Completed Programs											
Commercial Spray Valves	0.00	0.00	0.00	0.00	0.00	0.83	1.12	2.11	2.37	2.45	0.00
Commercial Furnaces	0.00	0.00	0.00	0.00	0.00	0.42	2.52	4.81	6.20	6.21	6.21
Subtotal	0.00	0.00	0.00	0.00	0.00	1.25	3.65	6.92	8.57	8.67	6.21
Industrial											
Industrial Gas Optimization Program	0.00	0.00	0.00	0.00	0.00	0.00	1.69	3.85	4.94	8.40	1.78
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	1.69	3.85	4.94	8.40	1.78
Self Generation											
BioEnergy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Incentive Based Subtotal	0.00	0.05	0.13	0.20	1.56	7.26	15.48	25.88	34.12	45.37	34.13
Customer Service Initiatives											
Conservation Subtotal	1.23	2.38	4.25	7.67	11.26	13.20	15.28	16.40	18.28	18.47	17.36
Interactive Effects	0.00	0.00	0.00	-1.20	-2.57	-3.01	-3.81	-5.87	-8.55	-9.09	-0.94
Codes and Standards	0.35	0.71	1.12	1.55	1.97	2.37	2.73	2.97	3.52	3.52	3.52
m3 Impacts (Millions)	1.58	3.14	5.50	8.23	12.21	19.81	29.69	39.37	47.36	58.27	54.07

NOTE:
Figures may not add due to rounding.

**Total Resource Costs
Savings To Date (2001/02 - 2010/11)
(000's in 2011 \$)**

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Interim Estimate 2010/11	Cumulative Total 2010/11	Cumulative Total 2025/26
Residential												
H2O NRG Saver	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$42	\$753	\$795	\$795
Solar Water Heaters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Home Insulation	\$0	\$0	\$0	\$0	\$827	\$4,511	\$3,869	\$4,948	\$6,290	\$3,581	\$24,026	\$24,026
New Homes	\$0	\$13	\$79	\$179	\$122	\$278	\$440	\$255	\$718	\$380	\$2,463	\$2,463
Low Income	\$0	\$0	\$0	\$0	\$83	\$0	\$171	\$282	\$1,750	\$550	\$2,836	\$2,836
CFL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fridge Recycle	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
EE Light Fix	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$13	\$79	\$179	\$1,032	\$4,788	\$4,480	\$5,485	\$8,800	\$5,264	\$30,119	\$30,119
Discontinued/Completed Programs												
Residential Thermostats	\$0	\$0	\$0	\$0	\$0	\$240	\$154	\$19	\$1	\$0	\$413	\$413
Residential Furnace	\$0	\$0	\$0	\$0	\$2,173	\$6,522	\$4,874	\$5,556	\$3,746	\$0	\$22,870	\$22,870
Residential Appliances	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2	\$2	\$2
SLED	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$2,173	\$6,762	\$5,028	\$5,575	\$3,746	\$2	\$23,286	\$23,286
Commercial												
PSEM	\$0	\$0	\$0	\$0	\$0	\$0	\$124	\$96	\$73	\$68	\$361	\$361
Commercial Insulation	\$0	\$0	\$0	\$0	\$0	\$595	\$1,414	\$1,393	\$2,492	\$22,074	\$27,967	\$27,967
Commercial Windows	\$0	\$0	\$0	\$0	\$0	\$135	\$352	\$367	\$851	\$944	\$2,649	\$2,649
CBOP	\$0	\$0	\$0	\$0	\$80	\$241	\$165	\$120	\$219	\$175	\$1,001	\$1,001
Commercial Custom	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$402	\$300	\$702	\$702
Commercial Boiler	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,261	\$1,261	\$1,261
City of Wpg PSA	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
New Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$149	\$112	\$531	\$791	\$791
Commercial Kitchen	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$27	\$45	\$88	\$160	\$160
Commercial Lighting	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Commercial Washers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Commercial Refrigeration	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Network Energy Manager	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PS Shops	\$0	\$0	\$0	\$0	\$0	\$0	\$1	\$16	\$83	\$107	\$207	\$207
Commercial Hot Water	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$23	\$0	\$23	\$23
CO2 Sensors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$62	\$62	\$62
Subtotal	\$0	\$0	\$0	\$0	\$80	\$971	\$2,056	\$2,169	\$4,300	\$25,610	\$35,186	\$35,186
Discontinued/Completed Programs												
Commercial Spray Valves	\$0	\$0	\$0	\$0	\$0	\$134	\$58	\$127	\$28	\$2	\$348	\$348
Commercial Furnaces	\$0	\$0	\$0	\$0	\$110	\$979	\$2,581	\$3,078	\$1,975	\$17	\$8,741	\$8,741
Subtotal	\$0	\$0	\$0	\$0	\$110	\$1,113	\$2,638	\$3,205	\$2,003	\$20	\$9,089	\$9,089
Industrial												
Industrial Gas Optimization Program	\$0	\$0	\$0	\$0	\$108	\$39	\$1,957	\$2,421	\$2,346	\$6,552	\$13,422	\$13,422
Subtotal	\$0	\$0	\$0	\$0	\$108	\$39	\$1,957	\$2,421	\$2,346	\$6,552	\$13,422	\$13,422
Self Generation												
BioEnergy	\$0	\$0	\$0	\$0	\$0	\$0	\$14	\$8	\$0	\$0	\$22	\$22
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$14	\$8	\$0	\$0	\$22	\$22
Incentive Based Subtotal	\$0	\$13	\$79	\$179	\$3,502	\$13,672	\$16,173	\$18,862	\$21,195	\$37,449	\$111,124	\$111,124
Customer Service Initiatives												
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$606	\$606	\$606
Conservation Subtotal	\$0	\$13	\$79	\$179	\$3,502	\$13,672	\$16,173	\$18,862	\$21,195	\$38,055	\$111,730	\$111,730
Support Costs												
Contingency Costs	\$208	\$231	\$249	\$549	\$1,280	\$1,696	\$1,665	\$2,009	\$2,048	\$2,100	\$12,036	\$12,036
Subtotal	\$208	\$231	\$249	\$549	\$1,280	\$1,696	\$1,665	\$2,009	\$2,048	\$2,100	\$12,036	\$12,036
Incremental Total Resource Costs	\$208	\$244	\$328	\$728	\$4,783	\$15,369	\$17,837	\$20,871	\$23,243	\$40,156	\$123,766	\$123,766

NOTE:
Figures may not add due to rounding.

**Annual Program Budgets (Utility Cost)
Savings To Date (2001/02 - 2010/11)
(000's in 2011 \$)**

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Interim Estimate 2010/11	Cumulative Total 2010/11	Cumulative Total 2025/26
Residential												
H2O NRG Saver	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$42	\$789	\$831	\$831
Solar Water Heaters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Home Insulation	\$0	\$0	\$0	\$0	\$398	\$1,939	\$3,107	\$2,868	\$3,049	\$2,685	\$14,046	\$14,046
New Homes	\$0	\$13	\$79	\$97	\$65	\$98	\$144	\$0	\$90	\$190	\$776	\$776
Low Income	\$0	\$0	\$0	\$0	\$83	\$0	\$171	\$214	\$763	\$550	\$1,781	\$1,781
CFL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fridge Recycle	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
EE Light Fix	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$13	\$79	\$97	\$545	\$2,037	\$3,422	\$3,081	\$3,944	\$4,216	\$17,435	\$17,435
Discontinued/Completed Programs												
Residential Furnace	\$0	\$0	\$0	\$0	\$614	\$1,390	\$2,213	\$3,300	\$1,585	\$0	\$9,102	\$9,102
Residential Thermostats	\$0	\$0	\$0	\$0	\$0	\$203	\$137	\$40	\$1	\$0	\$380	\$380
Residential Appliances	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2	\$2	\$2
SLED	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$614	\$1,593	\$2,349	\$3,340	\$1,586	\$2	\$9,485	\$9,485
Commercial												
PSEM	\$0	\$0	\$0	\$0	\$0	\$0	\$124	\$98	\$73	\$68	\$364	\$364
Commercial Insulation	\$0	\$0	\$0	\$0	\$0	\$442	\$861	\$1,053	\$1,286	\$2,038	\$5,680	\$5,680
Commercial Windows	\$0	\$0	\$0	\$0	\$0	\$135	\$293	\$482	\$807	\$1,013	\$2,730	\$2,730
CBOP	\$0	\$0	\$0	\$0	\$80	\$241	\$165	\$164	\$242	\$204	\$1,096	\$1,096
Commercial Custom	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$145	\$87	\$231	\$231
Commercial Boiler	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$855	\$855	\$855
City of Wpg PSA	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
New Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$149	\$112	\$399	\$659	\$659
Commercial Kitchen	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$17	\$57	\$65	\$138	\$138
Commercial Lighting	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Commercial Washers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Commercial Refrigeration	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Network Energy Manager	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PS Shops	\$0	\$0	\$0	\$0	\$0	\$0	\$1	\$16	\$83	\$105	\$205	\$205
Commercial Hot Water	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$23	\$0	\$23	\$23
CO2 Sensors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$46	\$46	\$46
Subtotal	\$0	\$0	\$0	\$0	\$80	\$818	\$1,444	\$1,978	\$2,828	\$4,880	\$12,027	\$12,027
Discontinued/Completed Programs												
Commercial Spray Valves	\$0	\$0	\$0	\$0	\$0	\$135	\$58	\$127	\$28	\$22	\$369	\$369
Commercial Furnaces	\$0	\$0	\$0	\$0	\$110	\$638	\$1,728	\$1,438	\$1,159	\$4	\$5,077	\$5,077
Subtotal	\$0	\$0	\$0	\$0	\$110	\$772	\$1,785	\$1,565	\$1,187	\$27	\$5,447	\$5,447
Industrial												
Industrial Gas Optimization Program	\$0	\$0	\$0	\$0	\$108	\$39	\$302	\$348	\$618	\$791	\$2,205	\$2,205
Subtotal	\$0	\$0	\$0	\$0	\$108	\$39	\$302	\$348	\$618	\$791	\$2,205	\$2,205
Self Generation												
BioEnergy	\$0	\$0	\$0	\$0	\$0	\$0	\$14	\$8	\$0	\$0	\$22	\$22
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$14	\$8	\$0	\$0	\$22	\$22
Incentive Based Subtotal	\$0	\$13	\$79	\$97	\$1,457	\$5,259	\$9,317	\$10,320	\$10,164	\$9,915	\$46,621	\$46,621
Customer Service Initiatives												
Conservation Subtotal	\$703	\$412	\$351	\$353	\$5	\$845	\$483	-\$224	-\$91	\$555	\$3,394	\$3,394
Support Costs	\$208	\$231	\$249	\$549	\$1,280	\$1,696	\$1,665	\$2,009	\$2,048	\$2,100	\$12,036	\$12,036
Contingency Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Utility Costs	\$912	\$656	\$679	\$999	\$2,743	\$7,801	\$11,465	\$12,105	\$12,121	\$12,570	\$62,051	\$62,051

NOTE:
Figures may not add due to rounding.

**Annual Program Administration Budgets
Savings To Date (2001/02 - 2010/11)
(000's in 2011 \$)**

APPENDIX D.4

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Interim Estimate 2010/11	Cumulative Total 2010/11	Cumulative Total 2025/26
Residential												
H2O NRG Saver	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$42	\$99	\$140	\$140
Solar Water Heaters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Home Insulation	\$0	\$0	\$0	\$0	\$181	\$555	\$797	\$621	\$488	\$540	\$3,182	\$3,182
New Homes	\$0	\$13	\$79	\$79	\$22	\$33	\$52	\$0	\$16	\$103	\$395	\$395
Low Income	\$0	\$0	\$0	\$0	\$83	\$0	\$147	\$135	\$190	\$319	\$873	\$873
CFL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fridge Recycle	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
EE Light Fix	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$13	\$79	\$79	\$285	\$587	\$996	\$756	\$735	\$1,060	\$4,591	\$4,591
Discontinued/Completed Programs												
Residential Furnace	\$0	\$0	\$0	\$0	\$277	\$304	\$469	\$371	\$202	\$0	\$1,623	\$1,623
Residential Thermostats	\$0	\$0	\$0	\$0	\$0	\$116	\$99	\$19	\$1	\$0	\$234	\$234
Residential Appliances	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2	\$2	\$2
SLED	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$277	\$420	\$567	\$389	\$203	\$2	\$1,859	\$1,859
Commercial												
PSEM	\$0	\$0	\$0	\$0	\$0	\$0	\$124	\$96	\$73	\$68	\$361	\$361
Commercial Insulation	\$0	\$0	\$0	\$0	\$0	\$78	\$79	\$180	\$182	\$207	\$727	\$727
Commercial Windows	\$0	\$0	\$0	\$0	\$0	\$86	\$89	\$127	\$145	\$167	\$615	\$615
CBOP	\$0	\$0	\$0	\$0	\$80	\$241	\$165	\$120	\$160	\$121	\$888	\$888
Commercial Custom	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$59	\$61	\$120	\$120
Commercial Boiler	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$223	\$223	\$223
City of Wpg PSA	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
New Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$149	\$112	\$170	\$431	\$431
Commercial Kitchen	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$8	\$24	\$29	\$62	\$62
Commercial Lighting	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Commercial Washers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Commercial Refrigeration	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Network Energy Manager	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PS Shops	\$0	\$0	\$0	\$0	\$0	\$0	\$1	\$16	\$82	\$100	\$200	\$200
Commercial Hot Water	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$23	\$0	\$23	\$23
CO2 Sensors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$34	\$34	\$34
Subtotal	\$0	\$0	\$0	\$0	\$80	\$405	\$458	\$697	\$861	\$1,182	\$3,683	\$3,683
Discontinued/Completed Programs												
Commercial Spray Valves	\$0	\$0	\$0	\$0	\$0	\$55	\$32	\$27	\$18	\$2	\$134	\$134
Commercial Furnaces	\$0	\$0	\$0	\$0	\$110	\$298	\$310	\$261	\$359	\$0	\$1,339	\$1,339
Subtotal	\$0	\$0	\$0	\$0	\$110	\$353	\$342	\$288	\$377	\$2	\$1,473	\$1,473
Industrial												
Industrial Gas Optimization Program	\$0	\$0	\$0	\$0	\$108	\$39	\$96	\$91	\$171	\$132	\$637	\$637
Subtotal	\$0	\$0	\$0	\$0	\$108	\$39	\$96	\$91	\$171	\$132	\$637	\$637
Self Generation												
BioEnergy	\$0	\$0	\$0	\$0	\$0	\$0	\$14	\$8	\$0	\$0	\$22	\$22
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$14	\$8	\$0	\$0	\$22	\$22
Incentive Based Subtotal	\$0	\$13	\$79	\$79	\$860	\$1,805	\$2,473	\$2,229	\$2,347	\$2,380	\$12,264	\$12,264
Customer Service Initiatives	\$703	\$412	\$351	\$353	\$5	\$845	\$483	-\$224	-\$91	\$555	\$3,394	\$3,394
Conservation Subtotal	\$703	\$425	\$430	\$433	\$865	\$2,650	\$2,957	\$2,005	\$2,255	\$2,935	\$15,658	\$15,658
Support Costs	\$208	\$231	\$249	\$549	\$1,280	\$1,696	\$1,665	\$2,009	\$2,048	\$2,100	\$12,036	\$12,036
Contingency Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Administration Costs	\$912	\$656	\$679	\$982	\$2,146	\$4,346	\$4,621	\$4,014	\$4,304	\$5,035	\$27,694	\$27,694

NOTE:
Figures may not add due to rounding.

**Annual Program Incentive Budgets
Savings To Date (2001/02 - 2010/11)
(000's in 2011 \$)**

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Interim Estimate 2010/11	Cumulative Total 2010/11	Cumulative Total 2025/26
Residential												
H2O NRG Saver	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$485	\$485	\$485
Solar Water Heaters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Home Insulation	\$0	\$0	\$0	\$0	\$217	\$1,384	\$2,310	\$2,246	\$2,561	\$2,145	\$10,864	\$10,864
New Homes	\$0	\$0	\$0	\$18	\$43	\$66	\$93	\$0	\$74	\$88	\$381	\$381
Low Income	\$0	\$0	\$0	\$0	\$0	\$0	\$24	\$354	\$1,418	\$231	\$2,027	\$2,027
CFL	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fridge Recycle	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
EE Light Fix	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$18	\$260	\$1,450	\$2,427	\$2,601	\$4,053	\$2,949	\$13,758	\$13,758
Discontinued/Completed Programs												
Residential Furnace	\$0	\$0	\$0	\$0	\$337	\$1,085	\$1,744	\$2,930	\$1,383	\$0	\$7,480	\$7,480
Residential Thermostats	\$0	\$0	\$0	\$0	\$0	\$87	\$38	\$21	\$0	\$0	\$146	\$146
Residential Appliances	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SLED	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$337	\$1,173	\$1,782	\$2,951	\$1,383	\$0	\$7,626	\$7,626
Commercial												
PSEM	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2	\$0	\$0	\$2	\$2
Commercial Insulation	\$0	\$0	\$0	\$0	\$0	\$363	\$782	\$873	\$1,105	\$1,830	\$4,953	\$4,953
Commercial Windows	\$0	\$0	\$0	\$0	\$0	\$49	\$204	\$355	\$661	\$846	\$2,115	\$2,115
CBOP	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$44	\$82	\$83	\$209	\$209
Commercial Custom	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$85	\$25	\$111	\$111
Commercial Boiler	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$632	\$632	\$632
City of Wpg PSA	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
New Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$229	\$229	\$229
Commercial Kitchen	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$8	\$33	\$36	\$76	\$76
Commercial Lighting	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Commercial Washers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Commercial Refrigeration	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Network Energy Manager	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PS Shops	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1	\$5	\$6	\$6
CO2 Sensors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$13	\$13	\$13
Subtotal	\$0	\$0	\$0	\$0	\$0	\$413	\$985	\$1,282	\$1,967	\$3,698	\$8,344	\$8,344
Discontinued/Completed Programs												
Commercial Spray Valves	\$0	\$0	\$0	\$0	\$0	\$80	\$25	\$100	\$10	\$20	\$235	\$235
Commercial Furnaces	\$0	\$0	\$0	\$0	\$0	\$340	\$1,418	\$1,176	\$800	\$4	\$3,739	\$3,739
Subtotal	\$0	\$0	\$0	\$0	\$0	\$419	\$1,444	\$1,277	\$810	\$24	\$3,974	\$3,974
Industrial												
Industrial Gas Optimization Program	\$0	\$0	\$0	\$0	\$0	\$0	\$206	\$257	\$447	\$658	\$1,568	\$1,568
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$206	\$257	\$447	\$658	\$1,568	\$1,568
Self Generation												
BioEnergy	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Incentive Based Subtotal	\$0	\$0	\$0	\$18	\$597	\$3,455	\$6,844	\$8,367	\$8,661	\$7,329	\$35,270	\$35,270
Customer Service Initiatives												
Conservation Subtotal	\$0	\$0	\$0	\$18	\$597	\$3,455	\$6,844	\$8,367	\$8,661	\$7,329	\$35,270	\$35,270
Total Incentives	\$0	\$0	\$0	\$18	\$597	\$3,455	\$6,844	\$8,367	\$8,661	\$7,329	\$35,270	\$35,270

NOTE:
Figures may not add due to rounding.

APPENDIX E - Comparison to 2010 Power Smart Plan

Appendix E - Comparison to 2010 Power Smart Plan

Electric DSM Target and Utility Cost Comparison

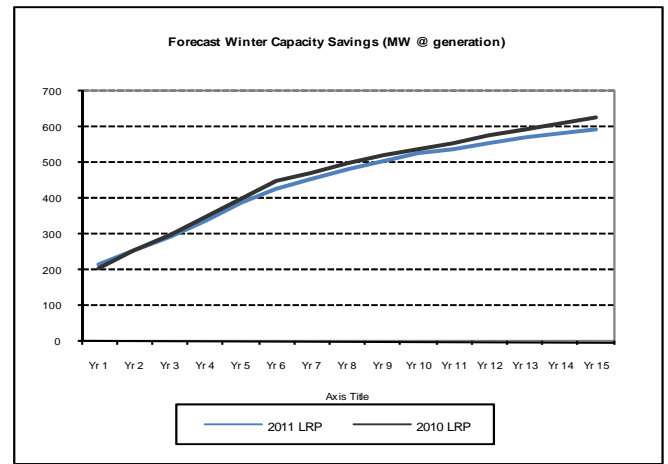
The following tables and graphs outline changes in electric savings expected to be achieved through the 2011 Power Smart Plan relative to the targets outlined in the 2010 Power Smart Plan.

Electric DSM Targets - Differences

Overall, winter capacity and electric energy savings are expected to decrease from the 2010 Plan. The differences in estimated electrical energy savings reflect adjustments to existing and future programs based on updated market information and revisions made in the area of energy efficient codes and standards as represented by the following tables and graphs.

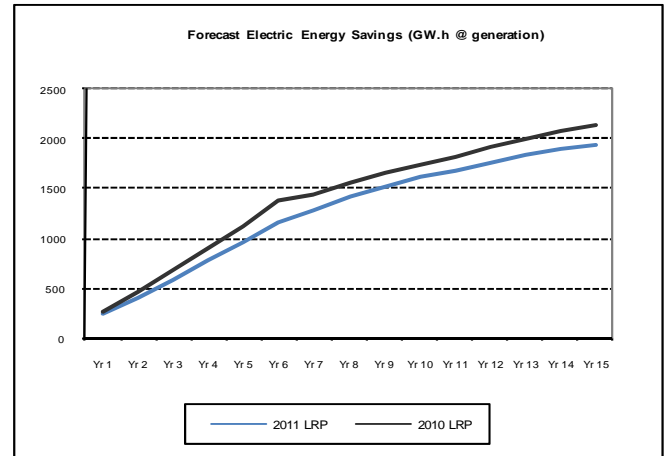
Forecast Winter Capacity Savings
(MW @ Generation)

	2011 Plan 2011-2025	2010 Plan 2010-2024	Difference
Residential	49	46	2
Commercial	137	155	-18
Industrial	71	71	0
Load Management	173	161	12
Self-Generation	10	11	0
Codes & Standards	157	183	-26
Customer Service, Support & Contingency	n/a	n/a	n/a
Total	597	626	-29



Forecast Energy Savings Savings
(GW.h @ Generation)

	2011 Plan 2011-2025	2010 Plan 2010-2024	Difference
Residential	125	163	-39
Commercial	549	600	-51
Industrial	252	252	0
Load Management	n/a	n/a	n/a
Self-Generation	83	86	-3
Codes & Standards	936	1032	-97
Customer Service, Support & Contingency	n/a	n/a	n/a
Total	1,944	2,133	-189



Notable changes:

Fridge Recycling Program (Decrease)

Capacity change: -1 MW

Energy change: -12 GW.h

Anticipated savings expected to be achieved from the Fridge Recycling program are expected to decrease from the 2010 Plan as a result of a delay in launch date and shorten program duration.

Residential Earth Power Program (Decrease)

Capacity change: -1 MW

Energy change: -15 GW.h

Due to declines in both the anticipated number of loans number of loans and the average energy savings achieved per loan, anticipated savings are expected to decrease from the 2010 Plan.

Commercial Lighting Program (Decrease)

Capacity change: -28 MW

Energy change: -79 GW.h

Anticipated savings to be achieved from the Commercial Lighting program are expected to decrease from the 2010 Plan. For 2011, the average sale per participant was adjusted to reflect market changes resulting in an overall decrease in savings per application. In addition, as of April 1st, 2011, savings from lighting sales for "new construction" projects, formerly claimed by the program, have been reallocated to the Commercial New Construction Program.

Commercial HVAC Program – Chillers (Decrease)

Capacity change: 0 MW

Energy change: -16 GW.h

In 2010, the program forecasted energy savings from a provincial efficiency regulation, which had an expected implementation date of March 31, 2018. Energy savings from the proposed 2017/18 provincial regulations were expected to be claimed until the benchmark year. National Resources Canada recently proposed federal efficiency regulations on all water-cooled chillers sold in Canada. The impact of these regulations is unknown, but could potentially eliminate the opportunity to impose more stringent provincial regulations. As a result, the 2011 plan was adjusted accordingly with energy savings now ending in 2017/18.

Commercial Earth Power Program (Increase)

Capacity change: +5 MW

Energy change: +14 GW.h

Due to increases in both the program duration and the average energy savings achieved per project, anticipated savings are expected to increase from the 2010 Plan.

Curtable Rates Program (Increase)

Capacity change: +12 MW

Energy change: 0 GW.h

Anticipated capacity savings due to load management increased as a result of changes to the Curtable Rate program in the 2011 Plan. In 2010, due to timing delays, the forecast did not include impacts from 1 major customer. These impacts have since been incorporated in 2011 resulting in an increase of 12 MW due to the increase in participant load.

Codes & Standards (Decrease)

Capacity change: -26 MW

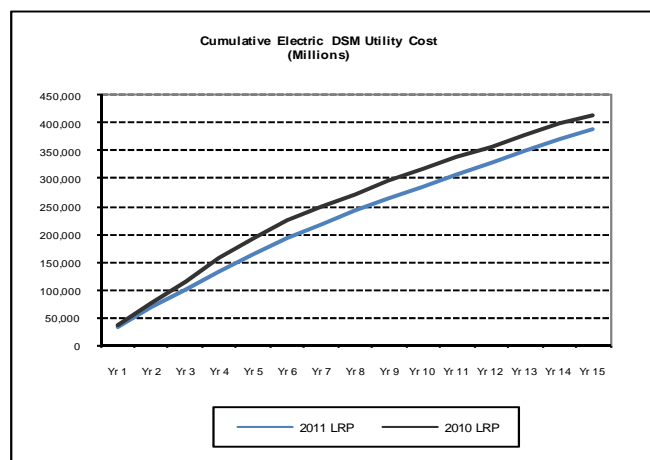
Energy change: -97 GW.h

Anticipated savings in the area of Codes and Standards are expected to decrease from the 2010 Plan. The differences are attributable to the categories of residential construction, hot water tanks and commercial lighting based on (1) updated market information and (2) revisions made to methodology and code savings assumptions.

Electric DSM Utility Costs - Differences

The difference in electric utility cost is mainly the result of decreased spending in the residential and commercial sectors.

	Electric DSM Utility Costs (millions)		Difference
	2011 Plan 2011-2025	2010 Plan 2010-2024	
Residential	\$20.7	\$31.7	-\$11.0
Commercial	\$116.0	\$140.3	-\$24.3
Industrial	\$58.5	\$62.8	-\$4.2
Load Management	\$89.3	\$81.7	\$7.6
Self-Generation	\$23.0	\$25.2	-\$2.2
Support, Codes & Standards, Contingency	\$80.3	\$72.6	\$7.7
Total	\$387.8	\$414.2	-\$26.3



Notable changes:

Residential CFL Program (Decrease)

\$\$ Change: \$ -3 M

In 2011, the Residential CFL program is no longer offered.

Fridge Recycling Program (Decrease)

\$\$ Change: \$ -4 M

Due to a shortened program duration in 2011 (ie. 4 years in 2010 to 2.5 years in 2011), the program will incur less costs paid to a 3rd party service provider specializing in appliance removal and recycling.

Commercial Lighting Program (Decrease)

\$\$ Change: \$ -10 M

For 2011, the "average sale" per participant was adjusted to reflect market changes with an overall decrease in incentives paid per application.

Commercial Insulation Program (Increase)

\$\$ Change: \$ +4 M

For 2011, customer participation was increased, based on historic program sales trends. Along with an advertising campaign plus contractor presentations, a continued trend in increased participation is forecasted, resulting in higher incentive costs.

Internal Retrofit Program (Decrease)

\$\$ Change: \$ -17 M

For 2010, the program forecasted approximately \$10 million dollars over 5 years for external consulting services. In 2011, the program has been designed to seek other cost-effective opportunities for service.

Curtable Rates Program (Increase)

\$\$ Change: \$ +8 M

Anticipated capacity savings due to load management increased as a result of changes to the Curtable Rate program in the 2011 Plan. In 2010, due to timing delays, the forecast did not

include impacts from 1 major customer. These impacts have since been incorporated in 2011, resulting in an increase in related incentives.

Support, Codes & Standards, Contingency (Increase)

\$\$ Change: \$ +8 M

The change in spending is due to an increase in spending in the Performance Optimization Program for Basic Customer Information along with an increase in contingency dollars for future programming.

Natural Gas DSM Target and Utility Cost Comparison

The following tables and graphs outline changes in natural gas savings expected to be achieved through the 2011 Power Smart Plan relative to the targets outlined in the 2010 Power Smart Plan.

Natural Gas DSM Targets - Differences

Overall, natural gas savings are expected to decrease slightly from the 2010 Plan at the benchmark year. The differences in estimated natural gas savings reflect adjustments to existing and future programs based on updated market information and revisions made in the area of energy efficient codes and standards as represented by the following graphs. Most notably, revisions made to the Commercial HVAC – Boiler Program coupled with revisions to the Code & Standards savings in the categories of residential construction and appliances results in a net decrease in natural gas planned savings.

Notable changes:

Commercial HVAC – Boilers (Decrease)

Natural Gas Change: -19 million m3

In 2011, the per unit energy savings realized from condensing boilers in both the new and renovation markets was reduced based on historic trend analysis.

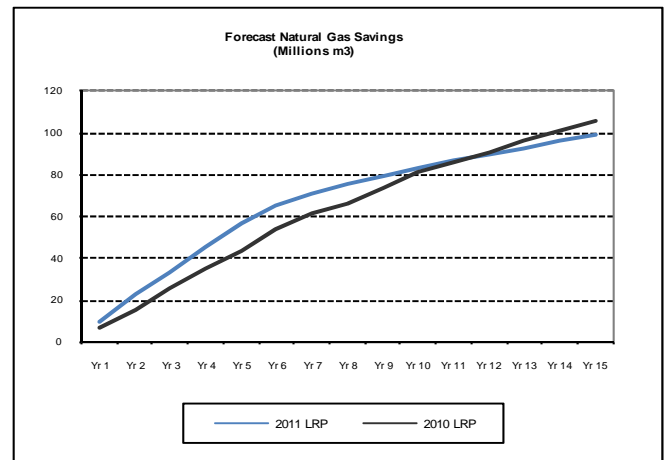
Codes & Standards (Decrease)

Natural Gas Change: +12 million m3

Anticipated capacity savings in the area of Codes and Standards are expected to increase from the 2010 Plan. The differences are attributable to the categories of residential construction, residential clothes washers and dishwashers based on (1) updated market information and (2) revisions made to methodology and code savings assumptions.

Forecast Natural Gas Savings
(million m3)

	2011 Plan 2011-2025	2010 Plan 2010-2024	Difference
Residential	25	29	-4
Commercial	48	62	-14
Industrial	8	10	-2
Load Management	n/a	n/a	n/a
Self-Generation	4	4	0
Codes & Standards	14	2	12
Customer Service, Support & Contingency	n/a	n/a	n/a
Total	99	106	(7)



Natural Gas DSM Utility Costs - Differences

Overall, the difference in natural gas utility cost is mainly the result of increased spending in the commercial sector. Most notably, revisions made to the Commercial Insulation Program and Commercial HVAC – Boiler Program results in a net increase in natural gas utility costs.

Notable changes:

Commercial Insulation (Increase)

\$\$ Change: \$ +10 M

For 2011, customer participation was increased, based on historic program sales trends. Along with an advertising campaign plus contractor presentations, a continued trend in increased participation is forecasted, resulting in higher incentive costs.

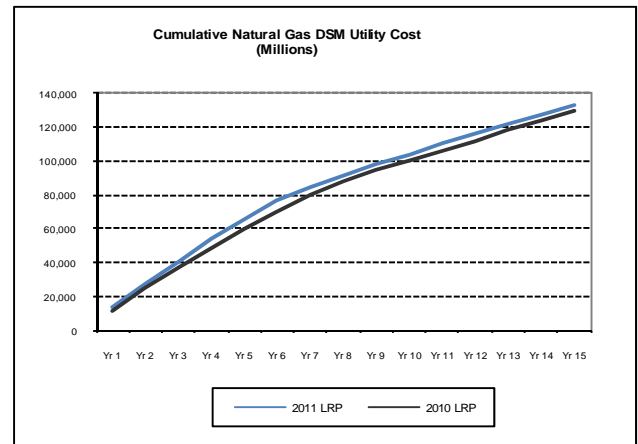
Commercial HVAC – Boiler Program (Decrease)

\$\$ Change: \$ -4 M

In 2010, rebates were scheduled to end in 2017/18, when a provincial regulation was expected to take affect requiring all boilers to have a minimum efficiency of 90%. NRCan recently proposed new boiler efficiency regulations, requiring all boilers sold in Canada to be 85% efficient by March 2, 2015. In 2011, provincial regulations are expected to take place three years earlier than the 2010/11 plan and will impose a minimum efficiency of 90% (5% above the proposed federal regulations), resulting in a shorten program duration and incentive payouts.

Natural Gas DSM Utility Costs
(millions)

	2011 Plan 2011-2025	2010 Plan 2010-2024	Difference
Residential	\$22.2	\$23.3	-\$1.1
Commercial	\$58.0	\$53.9	\$4.1
Industrial	\$5.3	\$6.2	-\$0.9
Load Management	n/a	n/a	n/a
Self-Generation	\$1.4	\$1.5	-\$0.2
Support, Codes & Standards, Contingency	\$45.6	\$44.6	\$1.0
Total	\$132.6	\$129.6	\$3.0



APPENDIX F - Program Evaluation Criteria

Appendix F - Program Evaluation Criteria

Manitoba Hydro's Power Smart programs take into account the underlying differences in the electricity and natural gas industries and the nature of the programs evaluated. Power Smart programs are assessed annually to ensure the individual programs as well as the overall portfolio of programs are cost-effective and meeting intended market transformation objectives and targets.

Nature of Electricity and Natural Gas Markets

The nature of the electricity and natural gas markets are similar, however unique differences exist and need to be considered in Manitoba Hydro's Power Smart initiative.

For electricity, lower consumption in Manitoba and lower utility revenue is offset by higher revenues realized by selling the conserved energy in the export market. Lower electricity consumption also defers the need to invest in new transmission facilities that would be required to meet future domestic demand. Load management and certain types of demand response initiatives are also unique elements of electricity markets (e.g. short term price volatility creates opportunities for cost-effective load management and demand response initiatives). The combined effect results in an economic case for Manitoba Hydro to aggressively pursue electricity DSM in Manitoba.

With natural gas, lower consumption in Manitoba is offset by lower natural gas purchases from Alberta. In general, this is a one-to-one relationship as Manitoba Hydro passes the cost of primary natural gas and transportation through to its customers with no mark up on the commodity. Load management opportunities are generally not available in the natural gas market as these operational issues are handled through natural gas storage facilities.

Program Categories

a) Customer Service Programs

Customer service programs are those programs offered as part of the overall Power Smart initiative that represent the customer service levels that would be expected of a utility. Customer service programs and services are assessed by the aggregate value realized by both the Corporation's customers and the Corporation. These assessments are undertaken on an on going basis and require a qualitative evaluation of the benefits. Service levels are then adjusted accordingly.

b) Cost-Recovery Programs

Cost-recovery programs are those programs where the cost associated with the program is recovered from participating customers through fees or charges (e.g. interest rates). The cost-effectiveness of these programs is assessed annually with fees or charges adjusted accordingly.

c) Financial Loan Programs

Financial Loan Programs assists participating customers in the installation and/or upgrade of energy efficient measures by offering low interest financing opportunities.

e) Incentive Based Programs

Incentive based programs are those programs where Power Smart uses a financial incentive to encourage customer participation. Assessments provide feedback on the success and cost-effectiveness of individual programs and the Power Smart portfolio. The results of these assessments drive program design and strategy modifications.

f) Energy Efficient Codes & Standards

In many markets, the most effective and permanent form of market transformation for energy efficient technologies and practices is the adoption of energy efficient codes and standards as it ensures that customers do not revert to less efficient technologies/practices once the incentives and/or promotional activities are discontinued. Consequently, the process of achieving these changes is complex and lengthy as it involves many stakeholders, varying environmental and market conditions and market acceptance.

Manitoba Hydro's strategy to affect change in codes and standards involves being an aggressive and active participant and in many cases, a driving force on a number of provincial and national energy efficiency codes and standards committees (e.g. Manitoba Hydro representatives often chair committees). The focus of Manitoba Hydro's efforts on these committees is towards developing new energy efficient technologies, developing energy efficient codes and standards and facilitating market acceptance of new technologies and building design practices.

Economic Effectiveness Ratios

Manitoba Hydro uses a number of cost effective tests to assess energy efficient opportunities, including whether to pursue an opportunity, how aggressively an opportunity will be pursued, effectiveness of program design options and the relative investment from ratepayers and participants. In addition to quantitative assessments, Manitoba Hydro also considers various qualitative factors including equity (i.e. reasonable participation by various ratepayer sectors such as lower income) and overall contribution towards having a balanced energy conservation strategy and plan.

Quantitative assessments include using the following cost effective tests:

- Marginal Resource Cost (MRC) test;
- Total Resource Cost (TRC) test;
- Societal Cost Test (SC) test;
- Rate Impact Cost (RIM) test;
- Levelized Utility Cost (LUC); and
- Simple Customer Payback calculation.

a) Marginal Resource Cost Test

The Marginal Resource Cost (MRC) test is used as a preliminary and high level screen to assess the benefits associated with an energy efficient opportunity. This benefit/cost ratio is a simple assessment to determine whether the benefits that are associated with an energy efficient opportunity are greater than the costs. This assessment is undertaken irrespective of who realizes the benefits and who pays the costs. In addition, the assessment excludes any program administration costs (e.g. program planning, design, marketing, implementation and evaluation).

In general, if an opportunity offers greater benefits relative to costs, then a program for pursuing the opportunity should be considered, however Manitoba Hydro will also consider supporting certain programs where the benefits are less than the costs. In the latter case, the rationale driving the support will be driven by other qualitative factors such as supporting emerging technologies (e.g. solar panels). The Marginal Resource Cost test is defined as follows:

$$\text{MRC} = \frac{\text{PV (Marginal Benefits)}}{\text{PV (Incremental Product Costs)}}$$

Where:

- For electricity, the Marginal Benefits includes the revenue realized by Manitoba Hydro from conserved electricity being sold in the export market, the avoided cost of new infrastructure (e.g. electric transmission facilities) and measurable non-energy benefits (e.g. water savings);
- For natural gas, the Marginal Benefits includes Manitoba Hydro's avoided cost of purchasing natural gas, avoided transportation costs, the value of reduced greenhouse gas emissions (GHGs) and measurable non-energy benefits (e.g. water savings);
- Incremental Product Costs includes the total incremental cost associated with implementing an energy efficient opportunity. It is the difference in costs between the energy efficient technology and the standard technology that would have been installed in the absence of the program.

b) Total Resource Cost Test

The Total Resource Cost (TRC) test is a detailed assessment to determine whether the benefits that are associated with an energy efficiency program are greater than the costs. This assessment is undertaken irrespective of who realizes the benefits and who pays the costs with any economic transfers between the Corporation and the participating customer being excluded.

In general, if program offers greater benefits relative to costs, then a program for pursuing the opportunity should be considered, however Manitoba Hydro will also consider supporting certain programs where the benefits are less than the costs. In the latter case, the rationale driving the support will be driven by other qualitative factors such as supporting emerging technologies (e.g. solar panels) or targeting low participation market sectors (e.g. lower income). The Total Resource Cost test is defined as follows:

$$\text{TRC} = \frac{\text{PV (Marginal Benefits)}}{\text{PV (Total Program Admin Costs + Incremental Product Costs)}}$$

Where:

- For electricity, the Marginal Benefits includes the revenue realized by Manitoba Hydro from conserved electricity being sold in the export market, the avoided cost of new infrastructure (e.g. electric transmission facilities) and measurable non-energy benefits (e.g. water savings);
- For natural gas, the Marginal Benefits includes Manitoba Hydro's avoided cost of purchasing natural gas, avoided transportation costs, the value of reduced greenhouse gas emissions (GHGs) and measurable non-energy benefits (e.g. water savings);
- Total Program Admin Costs includes the administrative costs involved in program planning, design, marketing, implementation and evaluation. It includes all costs associated with offering the Power Smart program, except for customer incentive costs;
- Incremental Product Costs includes the total incremental cost associated with implementing an energy efficient opportunity. It is the difference in costs between the energy efficient technology and the standard technology that would have been installed in the absence of the program.

c) Societal Cost Test

The Societal Cost Test (SC) measures the net economic benefit as measured by the TRC, plus additional indirect benefits such as:

- Avoided environmental or societal externalities (e.g. reduced health care costs, increase productivity, employment) and
- "Non-priced" benefits enjoyed by participants (improved comfort, improved health)

$$\text{SC} = \text{TRC} + \text{Additional Indirect Benefits}$$

d) Rate Impact Measure Test

The Rate Impact Measure (RIM) test is used to provide an indication of the long term impact of an energy efficient program on energy rates. The test is a benefit/cost ratio that represents the economic impact of a program from the ratepayer's perspective. All program related savings and costs incurred by the utility, including revenue loss and incentive payments, are taken into account in this assessment. The Rate Impact Measure test is defined as follows:

$$\text{RIM} = \frac{\text{PV (Utility Marginal Benefits)}}{\text{PV (Revenue Loss + Utility Program Admin Costs + Incentives)}}$$

Where:

- For electricity, the Utility Marginal Benefits includes the revenue realized by Manitoba Hydro from conserved electricity being sold in the export market and the avoided cost of new infrastructure (e.g. electric transmission facilities);
- For natural gas, the Utility Marginal Benefits includes Manitoba Hydro's avoided cost of purchasing natural gas, avoided transportation costs and the value of reduced greenhouse gas emissions (GHGs);
- Revenue Loss includes Manitoba Hydro's lost revenue associated with the participants' reduced energy consumption (i.e. customer energy bill reductions);
- Utility Program Admin Costs includes administrative costs incurred by Manitoba Hydro for staff involved in program planning, design, marketing, implementation and evaluation. It includes all costs associated with offering the Power Smart program, except for customer incentive costs;
- Incentives include the funds transferred from Manitoba Hydro to the participant associated with implementing the Power Smart measure.

e) Levelized Utility Cost

The Levelized Utility Cost (LUC) is used to provide an economic cost value for the energy saved through an energy efficiency program. The LUC provides the total cost of the conserved energy on a per unit basis levelized over a fixed time period. The cost value allows for a comparison to other supply options and other DSM programs occurring over different timeframes. The Levelized Utility Cost is defined as follows:

$$\text{LUC} = \frac{\text{PV (Utility Program Admin Costs + Incentives)}}{\text{PV (Energy)}}$$

Where:

- Utility Program Admin Costs includes administrative costs incurred by Manitoba Hydro for staff involved in program planning, design, marketing, implementation and evaluation. It includes all costs associated with offering the Power Smart program, except for customer incentive costs;
- Incentives includes the funds transferred from Manitoba Hydro to the participant associated with implementing the Power Smart measure;
- Energy includes the annual energy savings.

f) Customer Payback Calculation

The Customer Payback calculation provides the simple payback of implementing an energy efficient opportunity for customers. This value outlines the amount of time required before the customer recovers the incremental product cost. The value is useful in determining customer participation rates for energy efficient opportunities. The Customer Payback is defined as follows:

$$\text{Customer Payback} = \frac{\text{Participant Costs - Incentives}}{\text{Annual Bill Reductions}}$$

Where:

- Participant Costs includes the participant's total incremental cost associated with implementing the energy efficient opportunity, which is the difference in costs between the energy efficient technology and the standard technology that would have been installed in the absence of the program.
- Incentives includes funds provided by Manitoba Hydro and external parties to the participant associated with implementing the energy efficient opportunity;
- Annual Bill Reductions include the dollar reductions in the customer's electricity, natural gas, and water bills.

Other DSM Program Assumptions

Market Transformation

Market transformation is a strategic intervention to achieve a lasting, significant share of energy efficient products and services in targeted markets. Manitoba Hydro's Power Smart strategy focuses on creating a sustainable market change where energy efficient technologies and practices become the market standard.

However, market transformation is difficult to measure. Manitoba Hydro has made significant progress in developing specific methodologies for measuring its impacts. Wherever possible, Manitoba Hydro has attempted to obtain sales/technology specific data to calculate a program's true effect. Difficulties arise in 1) obtaining sales data for areas outside of Manitoba for comparison purposes and in 2) obtaining sales information for Manitoba that fall outside of Power Smart program participation. In some instances, qualitative information is used to determine a program's impact on the market. Manitoba Hydro plans to continue work to further quantify and report on the influence of market transformation within the Manitoba marketplace.

For the 2011 Long Range Plan, the DSM programs that have assumed a future level of market transformation have been noted.

Participant Reinvestment

Participant reinvestment is a marketing assumption which measures the program's influence on a participant's decision to repurchasing the energy efficient technology once the initial product life of the energy efficient technology has ended.

For the 2011 Long Range Plan, the DSM programs that have assumed a future level of participant reinvestment have been noted.

Interactive Effects

Interactive effects are related to the impacts of implementing certain electric efficiency opportunities. As a consequence of implementing a more efficient technology, less heat is often produced. The interactive effect refers to the offsetting need to supplement heat as a result of implementing the energy efficient technology. For example, a CFL emits less heat than a traditional incandescent light bulb; therefore it will take more natural gas to heat the area after the CFL is installed. With the creation of natural gas DSM, electric DSM programs are required to quantify increases in natural gas usage due to interactive effects.

For the 2011 Long Range Plan, electric DSM programs with natural gas interactive effects have been noted.