# **Demand Side** Management Plan 2016/17

## SUPPLEMENTAL REPORT: 15 yr (2016 to 2031)











September 2016 Available in accessible formats upon request \*Manitoba Hydro is a licensee of the Trademark and Official Mark.

## **EXECUTIVE SUMMARY**

Manitoba Hydro's 2016 Demand Side Management Plan (Supplemental Report) outlines the Corporation's demand side management program over the next 15 years, with some programs formally approved and placeholders used for those opportunities requiring further review and analysis. This plan is intended to be a balanced approach to pursue DSM opportunities taking into account regulatory direction to pursue mandated load targets and the Corporation's mandate to pursue the most economic resource plan, while recognizing Manitoba Hydro's current financial situation. This plan builds upon and is consistent with the one year 2016/17 Demand Side Management Plan which was prepared in consultation with the Minister responsible for Manitoba Hydro. The longer term 15 year plan was developed to accommodate the Corporation's business planning requirements, including the development of an integrated resource plan. In addition and more importantly, Manitoba Hydro's Demand Side Management Plan involves taking a long term strategic approach; focusing on the transformation of markets and optimization of demand side management activities. The one year plan is simply the activity within the immediate future; however it is integral to the longer term strategy and plan.

This report outlines the 15 year forecast of energy and demand savings, investments and cost effectiveness metrics to the benchmark year of 2030/31 which will be targeted through electricity and natural gas Power Smart Programs. The plan sets out to realize electricity savings of 1,232 MW and 4,506 GW.h, natural gas savings of 130 million cubic metres before interactive effects and combined global greenhouse gas emission reductions of 3.3 million tonnes by 2030/31. This activity represents 15.4% of the estimated electric load forecast offsetting 59% of projected load growth during this period and 8.1% of the estimated natural gas volume forecast by 2030/31, further reducing natural gas consumption in Manitoba.

As a result of some electric DSM programming, there is an increase in natural gas consumption for space heating purposes - interactive effects. The interactive effects result from the need to replace lost heat from the more efficient use of electricity. Including 15.8 million cubic meters in natural gas consumption due to interactive effects, the plan is expected to result in net natural gas savings of 115 million cubic metres which represents 7.1% of the estimated volume forecast by 2030/31.

Manitoba Hydro's current 15 year DSM plan involves an investment of approximately \$2.6 billion (utility investment of \$1.4 billion and customer investment of an estimated \$1.2 billion, excluding cost impacts of changes to codes and standards). Of the \$1.4 billion utility investment, \$1.2 billion of the costs are funded through the Corporation's Power Smart electricity budget, \$164 million from the Power Smart natural gas budget, \$4 million from the Affordable Energy Fund and \$24 million from the Furnace Replacement budget for targeting furnace replacement.

Changes made to the electricity and natural gas components of the plan include adjustments to existing and future programs to reflect updated information. Moreover, this plan includes categories that present higher risk of deliverability than traditional energy efficiency efforts. Future opportunities associated with emerging technologies assume and are dependent up technology developments and anticipated cost reductions. As such, this category of energy savings inherently involves a higher risk than most other DSM programs. Other categories which

will present a higher risk of DSM deliverability include Conservation Rates, Fuel Choice and Load Displacement. Conservation Rates require additional approval levels in the regulatory arena; the Fuel Choice initiative must consider the Province of Manitoba's Clean Energy Strategy; and the Load Displacement Program requires the participation of a few customers, who are often influenced by a number of factors such as capital prioritization between projects, changes in the economy, etc.

Combined with energy savings achieved to date, total electrical savings of 1,860 MW and 7,355 GW.h and total natural gas savings of 258 million cubic metres before interactive effects will be realized by 2030/31. These combined energy savings are expected to result in an overall reduction of greenhouse gas emissions of 5.4 million tonnes by 2030/31. This activity represents 24.9% of the estimated electric load forecast and 16.0% of the estimated natural gas volume forecast by 2030/31. Including natural gas consumption due to interactive effects, total natural gas savings of 227 million cubic metres will be realized, representing 14.1% of the estimated natural gas volume forecast by 2030/31.

Including investments to date, it is expected that by 2030/31, the cumulative utility investment of achieving the energy savings will have been \$2.1 billion (excluding cost impacts of changes to codes and standards). Of the \$2.1 billion cumulative utility investment, \$1.7 billion of the costs are funded through the Corporation's Power Smart electricity budget, \$297 million from the Power Smart natural gas budget, \$35 million from the Affordable Energy Fund, \$37 million from the Furnace Replacement budget for targeting furnace replacement.

By reducing electricity and natural gas consumption through innovative products, participating customers can expect to save \$343 million in 2030/31 and \$2.6 billion cumulatively by 2030/31. When combined with bill reductions to date, Power Smart programs are expected to save participating customers \$ 472 million in 2030/31 and over \$ 5.9 billion cumulatively by 2030/31.

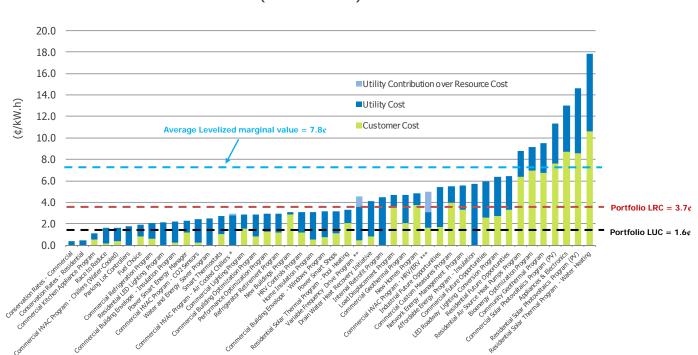
The overall Societal Cost (SC) and Total Resource Cost (TRC) metrics for the combined electric and natural gas Power Smart portfolio are 2.5 and 2.3, respectively. The electric Power Smart portfolio has an overall TRC of 2.5, Rate Impact Measure (RIM) of 1.1, levelized resource cost of 3.7 cents per kilowatt-hour and levelized utility cost of 1.6 cents per kilowatt-hour. The natural gas Power Smart portfolio has an overall TRC of 0.8, RIM of 0.5, levelized resource cost of 34.1 cents per cubic metre and levelized utility cost of 17.2 cents per cubic metre. Excluding the Affordable Energy Program, the natural gas Power Smart portfolio has an overall levelized utility cost of 12.3 cents per cubic metre.

Manitoba Hydro continues to pursue all cost effective opportunities in its efforts to assist customers with managing their energy bills while balancing the Corporation's efforts to be aligned with the Government's climate change objectives. For electric savings, DSM opportunities are measured against Manitoba Hydro's marginal value of energy which has an average levelized value of 7.8 cents per kilowatt-hour. By taking this approach, Manitoba Hydro's overall electric DSM efforts will result in customers (in aggregate) having lower costs for meeting their electricity needs. Although the average levelized average resource and utility costs of the Manitoba Hydro's electric Demand Side Management Plan are 3.7 cents per kilowatt-hour and 1.6 cents per kilowatt-hour respectively, new programs and opportunities generally involve higher costs.

With natural gas DSM, Manitoba Hydro benchmarks the levelized resource cost against the alternative option of customers not pursuing DSM opportunities and instead purchasing natural gas from neighbouring regions. This alternative levelized value is currently 21.8 cents per cubic metre. With Manitoba Hydro's natural gas DSM plans involving an average levelized resource cost of 34.1 cents per cubic metre, it is recognized that customers' costs are higher by taking such an approach with natural gas conservation efforts. This approach effectively values carbon at \$64.1 per tonne (i.e. the difference between the alternative cost of purchasing gas and Manitoba Hydro's levelized cost of natural gas DSM).

## **Electric DSM Levelized Costs**

The following chart depicts the levelized costs of Manitoba Hydro's electric DSM portfolio.



Levelized Cost (Electric DSM)

\* NOTE: Manitoba Hydro pays incentives to free riders but does not include the savings or the associated incremental product costs related to free riders. Due to high levels of free ridership, the utility cost is higher than the total resource cost of the program. The light blue bar represents the utility investment beyond the resource cost.

Total cost:	2.9 cents
Utility contribution over resource cost:	0.1 cents
Total resource cost:	2.8 cents
Customer contribution to resource cost:	0.0 cents
Utility contribution to resource cost:	2.8 cents

\*\* NOTE: Manitoba Hydro pays incentives to free riders but does not include the savings or the associated incremental product costs related to free riders. Due to high levels of free ridership, the utility cost is higher than the total resource cost of the program. The light blue bar represents the utility investment beyond the resource cost.

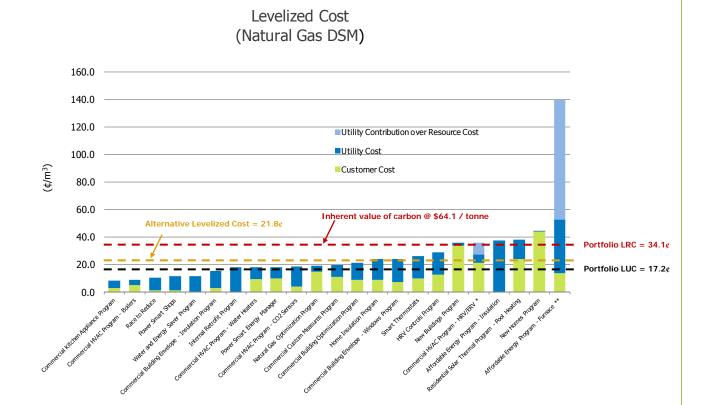
Total cost:	4.6 cents
Utility contribution over resource cost:	1.0 cents
Total resource cost:	3.6 cents
Customer contribution to resource cost:	0.4 cents
Utility contribution to resource cost:	3.1 cents

\*\*\* NOTE: Manitoba Hydro pays incentives to free riders but does not include the savings or the associated incremental product costs related to free riders. Due to high levels of free ridership, the utility cost is higher than the total resource cost of the program. The light blue bar represents the utility investment beyond the resource cost.

Utility contribution to resource cost:	1.5 cents
Customer contribution to resource cost:	1.6 cents
Total resource cost:	3.1 cents
Utility contribution over resource cost:	1.9 cents
Total cost:	5.0 cents

## Natural Gas DSM Levelized Costs

The following chart depicts the levelized costs of Manitoba Hydro's natural gas DSM portfolio.



\* NOTE: Manitoba Hydro pays incentives to free riders but does not include the savings or the associated incremental product costs related to free riders. Due to high levels of free ridership, the utility cost is higher than the total resource cost of the program. The light blue bar represents the utility investment beyond the resource cost.

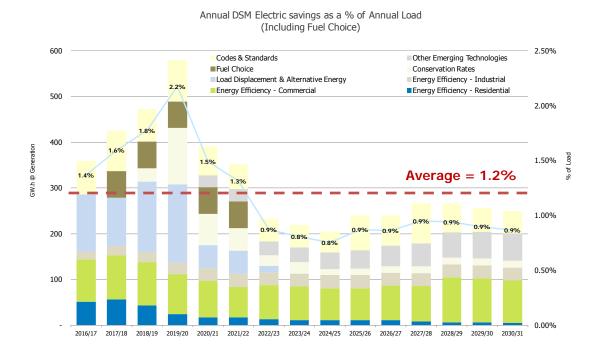
Utility contribution to resource cost:	6.0 cents
Customer contribution to resource cost:	21.3 cents
Total resource cost:	27.3 cents
Utility contribution over resource cost:	9.0 cents
Total cost:	36.3 cents

\*\* NOTE: Since Manitoba Hydro pays the full cost of installing a high efficiency furnace instead of only the incremental cost, the utility cost is higher than the total resource cost of the program. The light blue bar represents the utility investment beyond the resource cost.

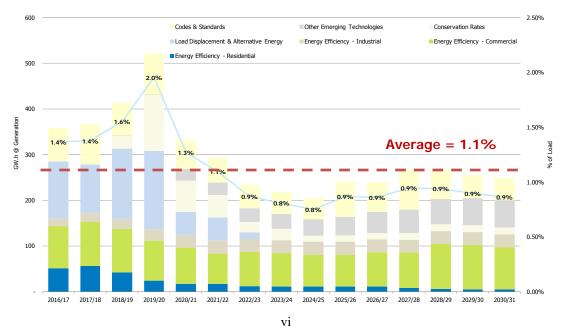
Utility contribution to resource cost:	39.0 cents
Customer contribution to resource cost:	13.9 cents
Total resource cost:	52.9 cents
Utility contribution over resource cost:	87.5 cents
Total cost:	140.4 cents

## Annual Electric DSM Savings as a % of Annual Load

The following charts depict Manitoba Hydro's annual electric DSM efforts in relation to annual electric load growth.

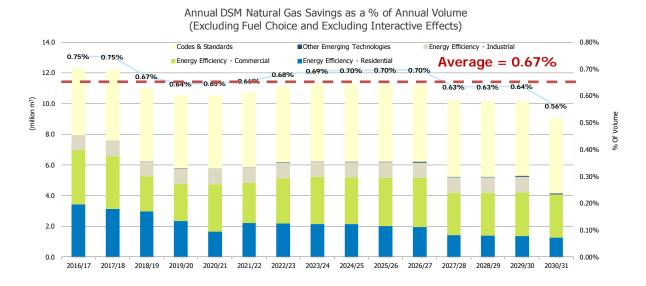


Annual DSM Electric savings as a % of Annual Load (Excluding Fuel Choice)

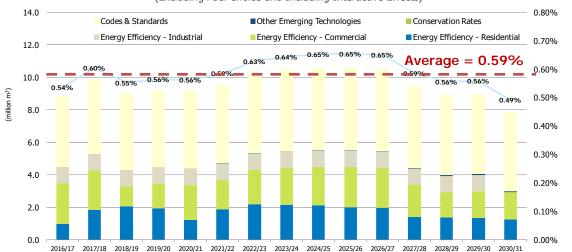


## Annual Natural Gas DSM Savings as a % of Annual Volume

The following charts depict Manitoba Hydro's annual natural gas DSM efforts in relation to annual natural gas volume growth.



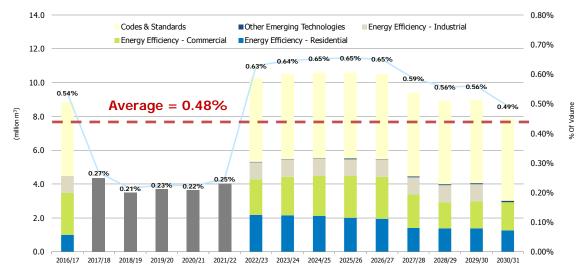
Note: The above graph reflects a percentage of volume calculation that excludes the natural gas consumption of both Manitoba Hydro Power Stations and Special Contracts in the volume forecast.



% Of Volume

Annual DSM Natural Gas Savings as a % of Annual Volume (Excluding Fuel Choice and Including Interactive Effects)

Note: The above graph reflects a percentage of volume calculation that excludes the natural gas consumption of both Manitoba Hydro Power Stations and Special Contracts in the volume forecast.

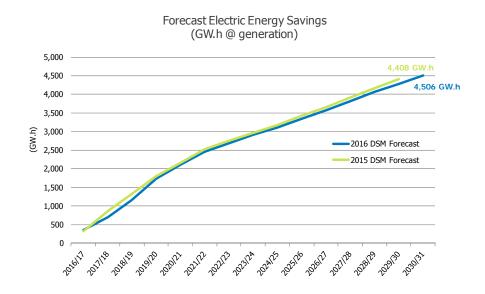


#### Annual DSM Natural Gas Savings as a % of Annual Volume (Including Fuel Choice and Interactive Effects)

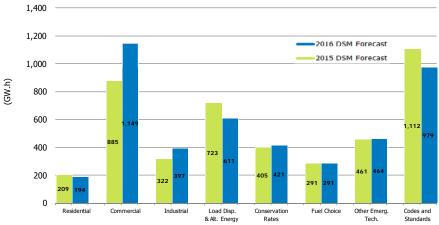
Note: The above graph reflects a percentage of volume calculation that excludes the natural gas consumption of both Manitoba Hydro Power Stations and Special Contracts in the volume forecast. Changes from the 2015 Power Smart Plan (Supplemental Report 15 yr)

#### Electric DSM

Overall, energy savings are expected to increase by 2.2% from the 2015 DSM forecast. The planned electric energy savings in this plan are approximately 98 GW.h higher than previously forecast in the 2015 Power Smart Plan due to revisions to forecast program savings based on current market information and the inclusion of an additional year at the end of the forecasting period. (Refer to section 1.6 Comparison to 2015 DSM Forecast for detail).

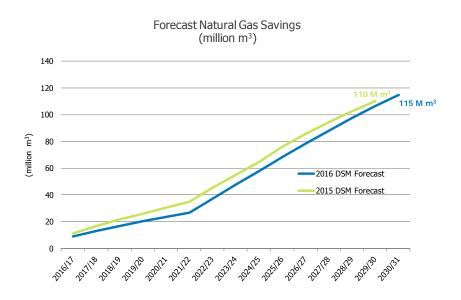


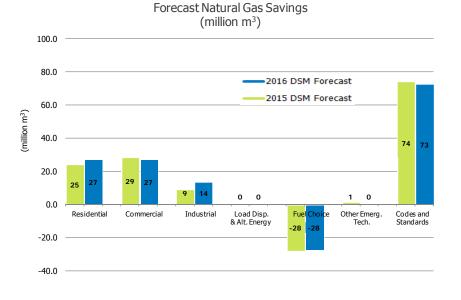




## Natural Gas DSM

Overall, natural gas savings are expected to increase by 4.0% from the 2015 DSM forecast. The natural gas savings expected to be achieved through this plan are 4.4 million cubic metres higher than previously forecast in the 2015 Power Smart Plan due to revisions to forecast program savings based on current market information and the inclusion of an additional year at the end of the forecasting period. (Refer to section 1.6 Comparison to 2015 DSM Forecast for detail).

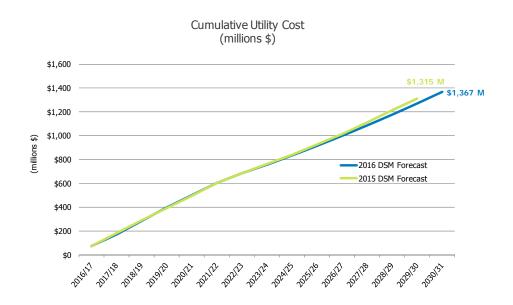


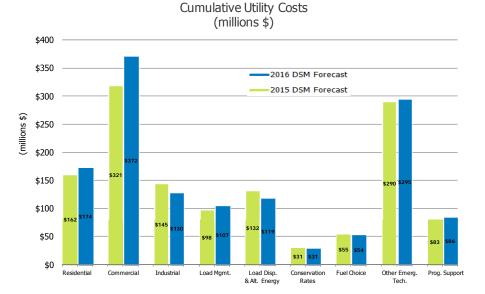




## Utility Costs

Overall, utility costs are expected to increase by 4.0% from the 2015 DSM forecast. The planned utility cost forecast in this plan is approximately \$52 million higher than previously forecast in the 2015 Power Smart Plan due to revisions to planned program expenditures and the inclusion of one additional year at the end of the forecasting period. (Refer to section 1.6 Comparison to 2015 DSM Forecast for detail).





xi

EXECUTIVE SUMMARYI
1 THE 2016 DEMAND SIDE MANAGEMENT PLAN. 1
1.1 Introduction1
1.2 DSM Market Transformation Strategy
1.3 Power Smart Programs7
1.4 Risk Analysis8
1.4.1 DSM Risks 8
1.4.2 Past DSM Performance11
1.4.3 Risk Management13
1.5 Economic Assumptions16
1.6 Comparison to 2015 DSM Forecast
2 DEMAND SIDE MANAGEMENT 21
2 DEMAND SIDE MANAGEMENT212.1 DSM Targets21
2.1 DSM Targets21
<b>2.1 DSM Targets21</b> 2.1.1 Electric and Natural Gas DSM Savings21
2.1 DSM Targets212.1.1 Electric and Natural Gas DSM Savings212.1.2 Other Fuel Savings27
2.1 DSM Targets212.1.1 Electric and Natural Gas DSM Savings212.1.2 Other Fuel Savings272.1.3 Energy Efficient Codes, Standards & Regulation Savings28
2.1 DSM Targets212.1.1 Electric and Natural Gas DSM Savings212.1.2 Other Fuel Savings272.1.3 Energy Efficient Codes, Standards & Regulation Savings282.2 DSM Investment46
2.1 DSM Targets212.1.1 Electric and Natural Gas DSM Savings212.1.2 Other Fuel Savings272.1.3 Energy Efficient Codes, Standards & Regulation Savings282.2 DSM Investment462.2.1 Total Investment46
2.1 DSM Targets212.1.1 Electric and Natural Gas DSM Savings212.1.2 Other Fuel Savings272.1.3 Energy Efficient Codes, Standards & Regulation Savings282.2 DSM Investment462.2.1 Total Investment462.2.2 Utility Investment47
2.1 DSM Targets212.1.1 Electric and Natural Gas DSM Savings212.1.2 Other Fuel Savings272.1.3 Energy Efficient Codes, Standards & Regulation Savings282.2 DSM Investment462.2.1 Total Investment462.2.2 Utility Investment472.3 DSM Metrics and other related measurements53

#### APPENDIX A - 2016 Demand Side Management Plan - Electric

Appendix A.1 - Annual Capacity Savings (MW)

Appendix A.2 - Annual Energy Savings (GW.h)

#### Appendix A.3 - Annual Utility Costs

- Appendix A.4 Annual Program Administration Costs
- Appendix A.5 Annual Program Incentive Costs

### APPENDIX B - Historical Savings & Costs - Electric

Appendix B.1 - Annual Capacity Savings (MW)

Appendix B.2 - Annual Energy Savings (GW.h)

Appendix B.3 - Annual Utility Costs

Appendix B.4 - Annual Program Administration Costs

Appendix B.5 - Annual Program Incentive Costs

## APPENDIX C - 2016 Demand Side Management Plan - Natural Gas

Appendix C.1 - Annual Energy Savings (million m<sup>3</sup>)

Appendix C.2 - Annual Utility Costs

Appendix C.3 - Annual Program Administration Costs

Appendix C.4 - Annual Program Incentive Costs

## APPENDIX D - Historical Savings & Costs – Natural Gas

Appendix D.1 - Annual Energy Savings (million m<sup>3</sup>)

Appendix D.2 - Annual Utility Costs

Appendix D.3 - Annual Program Administration Costs

Appendix D.4 - Annual Program Incentive Costs

## APPENDIX E - Program Evaluation Criteria

Appendix E.1 - Nature of Electricity and Natural Gas Markets

Appendix E.2 - Program Categories

Appendix E.3 - Economic Effectiveness Metrics

Appendix E.4 - Other DSM Program Assumptions

## 1 THE 2016 DEMAND SIDE MANAGEMENT PLAN

## **1.1 Introduction**

Manitoba Hydro's 2016 Demand Side Management Plan outlines the Corporation's demand side management program over the next 15 years, with some programs formally approved and placeholders used for those programs requiring further review and analysis. The Plan was developed through an intensive planning process which builds on the Corporation's experience and continuous involvement in demand side management since 1989. This plan builds upon and is consistent with the 2016/17 Demand Side Management Plan which was prepared in consultation with the Minister responsible for Manitoba in accordance with the Energy Savings Act. The 15 year plan is required to accommodate the Corporation's overall longer term business planning requirements, including developing an integrated resource plan.

Manitoba Hydro's DSM plan is an input to the development of the Corporation's Integrated Power Resource Plan. To support this process, the Corporation prepares a 15 year forecast which is reviewed and updated annually to reflect current market information and trends. This supplemental report outlines the 15 year forecast underpinning the approved 2016/17 Demand Side Management Plan and includes the long term forecasts of energy and demand savings, budgets and cost effectiveness metrics.

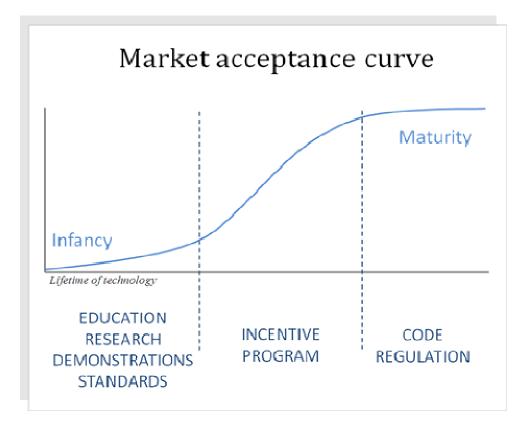
## The following table outlines the forecasted achievements over the next 15 years:

Programs	Capacity Savings (MW)	Energy Savings (GW.h)	Natural Gas Savings (million m <sup>3</sup> )	Utili Investme (millions :
New Homes Program	8.3	18.3	7.8	\$3
Home Insulation Program	14.6	29.3	6.4	\$27
Water and Energy Saver Program	2.4	13.2	1.6	\$5
Affordable Energy Program	9.7	25.2	6.9	\$93
Refrigerator Retirement Program	0.9	8.7	-	\$8
Drain Water Heat Recovery Initiative	0.0	0.2	-	\$0
Residential LED Lighting Program	4.9	15.4	-	\$7
Community Geothermal Program	25.0	50.0	-	\$22
Appliances	0.1	0.4	0.0	\$0
HRV Controls	1.8	4.5	0.7	\$2
Power Bars	0.0	0.0	-	\$0
Smart Thermostats	0.1	0.2	0.1	\$0
Plug-in Timers	0.0	0.1	-	\$0
Community Energy Plan	-	-	-	\$1
Power Smart Residential Loan	2.7	5.3	5.7	\$0
Power Smart PAYS Financing	1.7	3.4		\$0
Residential Earth Power Loan	6.6	20.1	0.3	\$0
Residential Programs	78.9	194.5	29.3	\$173
	,	.,	2710	4170
Commercial Lighting Program	152.5	623.2	-	\$123
LED Roadway Lighting Conversion Program	7.2	48.5	-	\$44
Commercial Building Envelope - Windows Program	8.2	25.2	4.5	\$23
Commercial Building Envelope - Insulation Program	14.9	33.8	12.6	\$40
Commercial Geothermal Program	18.7	37.4	-	\$16
Commercial HVAC Program - Boilers	- 10.7		3.1	\$1
Commercial HVAC Program - Chillers (Water-Cooled)		0.9		ې \$(
Commercial HVAC Program - CO2 Sensors	2.7	4.4	1.0	<u>ېر</u> \$4
Commercial HVAC Program - HRVs	19.7	40.3	6.4	\$3
Commercial HVAC Program - Air Cooled Chillers	-	24.5	-	\$1
Commercial HVAC Program - Water Heaters	-	-	2.1	\$2
Commercial Custom Measures Program	8.0	35.1	2.2	\$12
Commercial Building Optimization Program	3.2	15.8	3.7	\$9
New Buildings Program	41.3	139.0	3.8	\$13
Commercial Refrigeration Program	8.7	71.2	-	\$13
Commercial Kitchen Appliance Program	0.2	1.3	0.3	\$0
Network Energy Management Program	0.0	0.3	-	\$0
nternal Retrofit Program	3.4	17.5	0.1	\$10
Power Smart Energy Manager	3.5	15.5	1.3	\$3
Power Smart Shops	3.8	12.5	0.1	\$3
Race to Reduce	-	-	-	\$(
Parking Lot Controller	-	2.6	-	\$(
Power Smart for Business PAYS Financing	-	-	0.3	\$(
ommercial Programs	296.4	1,148.9	41.4	\$371
Performance Optimization Program	50.0	397.0	-	\$12
Natural Gas Optimization Program	-	-	14.0	\$
ndustrial Programs	50.0	397.0	14.0	\$130
nergy Efficiency Subtotal	425.2	1,740.3	84.7	\$67
untailable Date Dreaman	159.5			¢10
Curtailable Rate Program Dad Management	159.5	-	-	\$10 \$10
bad Management	137.5	-	-	\$100
Bioenergy Optimization Program	51.1	106.4	-	\$3
Customer Sited Load Displacement	66.0	504.1	-	\$8
oad Displacement & Alternative Energy	117.1	610.6	-	\$119
baa bisplacement a meenative Energy		010.0		<b></b>
Conservation Rates - Residential	19.6	163.5	-	\$1
Conservation Rates - Commercial	30.9	257.1	-	\$1
			_	
onservation Rates	50.6	420.6	-	\$30
Fuel Choice	145.6	291.3	-27.7	\$5
uel Choice				
	145.6	291.3	-27.7	\$53
Residential Air Source Heat Pumps Program	-	7.4		*
Residential Air Source Heat Pumps Program	- 19.0	<u> </u>	-	\$
Residential Future Opportunities				\$5
Residential Solar Photovoltaics Program (PV)	3.2	35.3	-	\$3
Residential Solar Thermal Program - Water Heating	0.0	0.2	-	\$
Residential Solar Thermal Program - Pool Heating	-	2.6	0.5	\$
Commercial Future Opportunities	19.0	91.7	-	\$5
Commercial Solar Photovoltaics Program (PV)	14.7	138.7	-	\$8
Commercial Variable Speed and Frequency Drives	0.1	4.7	-	\$
industrial Future Opportunities	19.0	91.7		\$5
ther Emerging Technologies	75.2	464.1	0.5	\$29!
npacts	973.2	3,526.8	57.5	\$1,280
				,=5.
Codes, Standards & Regulations (at generation)	259.1	979.2	72.9	
Interactive Effects	-	-	-15.8	
Program Support	-	-	-	\$8
				40
emand Side Management Plan - 2016/17 - 2030/31	1,232	4,506	115	\$1,3

## **1.2 DSM Market Transformation Strategy**

Manitoba Hydro's DSM strategy is to pursue all cost effective energy efficiency opportunities and continually monitor the market to identify emerging trends and opportunities which may become viable and cost effective DSM initiatives within the planning horizon with the end goal of creating a sustainable market change where the energy efficient technology or practice ("EE measure") becomes the market standard.

To accomplish this in a manner that ensures permanent market transformation to the EE measure is achieved, a long term and comprehensive approach is used that involves different market intervention strategies at the various stages of the EE measure's adoption into the market. These strategies are researched and designed using a collaborative approach considering the input and expertise of the entire delivery channel for the EE measure including designers, suppliers, retailers and target customers.



## Infancy

When an EE measure is first introduced to the market, it is typically received with skepticism on the part of installers, facility owners and consumers. The market is also often characterized by limited availability of the product, higher costs and, in many cases, unverified or untested energy performance claims. These conditions make it difficult to develop and increase market acceptance for the product. Lack of informed suppliers or experienced installers is also an issue with some EE measures, as many industry participants prefer to retain their own "tried and true" supply chain and installation methods.

It is of utmost importance in this phase that these barriers are addressed otherwise the EE measure will face difficulty with achieving market penetration and may fail to enter the growth stage.

Market Intervention Strategies:

Research and Development including possible demonstrations project showcasing the EE technology are important to demonstrate the performance claims for the measure and possibly to even highlight areas where the EE measure can be improved. For technologies related to space and water heating in particular, local field demonstration experience can be critical to increasing acceptance, due to Manitoba's climate differences from typical laboratory or field testing. Demonstrations also have additional benefits through the ability to become showcases for the purpose of education and a future basis for communications that incorporate "real world" experiences that installers and customers can identify with operational performance.

If the energy performance of the EE technology is already known or has been verified through research and demonstration, communication strategies focusing on education to the market are critical to building awareness of the EE measure and its benefits.

Policy relating to energy efficiency is a very powerful strategy for EE measures in the infancy stages as it encourages government stakeholders to become leaders with energy efficiency and be the early adopters of the new technology. Early adopters are critical to the successful launch of new EE measures as they help to build the base industry infrastructure by creating initial demand.

## Growth

Once the barriers of the Infancy stage have been identified and a strategy to address the barriers has been successfully implemented for the EE measure, market penetration begins to rise, whether voluntarily or through a policy strategy. In the early stages of growth, there needs to be a balanced approach to creating demand for the measure while ensuring that the market has developed qualified and knowledgeable providers in order to meet the emerging demand. EE measures in early growth can face irreparable damage if the early majority adopters lose confidence in the measure due to performance that does not meet expectations.

At this stage, the product efficiency performance is established with energy benefits to the customer quantified and the non-energy benefits have been identified. However, there will still be a lack of knowledge in the market as to the optimum methods of realizing these benefits.

During later periods of the growth stage, installers and suppliers become more plentiful, there may be customers with years of successfully implementing the EE measure, and there is increased awareness of the existence of the product.

Through the majority of the growth phase, a first cost premium typically remains associated with the EE measure.

Power Smart can have a significant impact on the rate at which a product is adopted in the market regardless of the form of the program or support offered due to the immense trust that industry and consumers have in Manitoba Hydro's expertise in matters pertaining to energy efficiency.

## Market Intervention Strategies:

The strategies that are employed during this phase are dependent upon the characteristics of the market the technology is directed toward, the magnitude and significance of the additional cost to the market, and the breadth of accommodation that must be made in order to effectively utilize the technology. Strategies can vary drastically not only by market segment but also by specific technology. 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.

Marketing and communication strategies focus on comprehensive messaging that includes both the efficiency benefits and the non-energy benefits that have been attributed to the measure, and that have a perceived value to the intended target market, in order to maximize the market adoption.

With first cost still a barrier, many programs will utilize financial tools such as incentives and/or financing to encourage customer adoption of the measure. The specific tool used or the extent to which the program covers the incremental cost of the measure will vary by technology and by target market and, once again, involves consultation with the channel participants to determine the optimal contribution by Power Smart.

Equally as important to the more visible customer directed strategies are capacity building initiatives. These strategies can be especially important for those EE measures that rely on professional consultants or installers for implementation and include training, education, and certification of groups such as homebuilders, equipment installers, engineers, architects, retailers, and distributors.

In assessing options for pursing a Power Smart program to support an EE measure, Manitoba Hydro uses a number of metrics as guidelines to assess the opportunities. These metrics assist in determining whether to pursue an opportunity, how an opportunity will be pursued, the effectiveness of program design options and the relative investment sharing between ratepayers and participating customers.

## Maturity

At the maturity phase of the EE measure's life cycle, the measure's use has become the preferred installation for the majority of the installers and customers in the market. At this stage, volumes have increased to the point that prices are reduced to the same level as the technology that is being replaced, or the price of the technology is in alignment with the value perceived by the customer. With these conditions, program participants often are qualified as "free riders"; in other words, they would have adopted the measure even in the absence of a program so the incentive they received was not responsible for achieving their energy savings.

Market Intervention Strategies:

During this phase, Manitoba Hydro's strategy involves pursuing the remaining opportunities through the adoption of codes and regulations. A code or a regulation ensures permanent market transformation for the specific energy efficiency opportunity since a potential always exists that the market could revert back to the non-efficient option once Power Smart has reduced or eliminated its program support.

Manitoba Hydro is heavily engaged in both Federal level and Provincial level committees that work to establish ongoing updates to minimum energy performance standards for technologies and to determine the appropriateness of their adoption into a code or a regulation. The assessment of the most appropriate exit strategy for a technology is strategized as early as at the infancy phase of the adoption life cycle of the EE measure where possible.

## **1.3 Power Smart Programs**

The following table provides program durations and cumulative participation for incentive based and financial loan programs over the 15 year planning horizon. For program descriptions, please refer to the current approved DSM plan (2016/17 Demand Side Management Plan). For programs not approved but where placeholders are used, detail program descriptions are not available at this time.

Programs	Program Category	Electric	Natural Gas	Program Launch Date	Participation Definition	Cumulative Participation by 2030/31
Residential						
New Homes Program	Incentive Based	√	√	Apr-2016	No. of houses	38,856
Home Insulation Program	Incentive Based	v	v √	May-2004	No. of houses	60,440
Water and Energy Saver Program	Incentive Based	v √	v	Sep-2010	No. of houses	231,427
Affordable Energy Program	Incentive Based	v		Dec-2007	No. of retrofits	58,238
Refrigerator Retirement Program	Incentive Based	v √		Jun-2011	No. of appliances	82,737
Drain Water Heat Recovery Initiative	Incentive Based	v √		Dec-2014	No. of houses	251
Residential LED Lighting Program	Incentive Based			Oct-2014	No. of bulbs	2,106,479
Community Geothermal Program	Incentive Based			Jun-2013	No. of systems	3,549
Appliances	Incentive Based	v √	V	Sep-2016	No. of appliances	2,800
HRV Controls	Incentive Based			Apr-2016	No. of controllers	18,102
Power Bars	Incentive Based	, √		Sep-2016	No. of power bars	200
Smart Thermostats	Incentive Based	√	√	Apr-2016	No. of thermostats	17,350
Plug-in Timers	Incentive Based	√		Sep-2016	No. of timers	17,600
Community Energy Plan	Incentive Based		√	Apr-2016	-	0
Power Smart Residential Loan	Financial Loan			Feb-2001	No. of loans	157,198
Power Smart PAYS Financing	Financial Loan			Nov-2012	No. of loans	5,561
Residential Earth Power Loan	Financial Loan		·····	Apr-2002	No. of loans	1,276
Residendal Latur Fower Loan	Tinanciar Edan	V	V	Api-2002	No. of loans	1,270
Commercial	In continue D	,		A== 1000	No. of and it	20 50 4
Commercial Lighting Program	Incentive Based	√		Apr-1992	No. of projects	29,594
LED Roadway Lighting Conversion Program	Incentive Based	√	,	Feb-2013	No. of conversions	151,804
Commercial Building Envelope - Windows Program	Incentive Based	√	√	Dec-1995	No. of projects	3,960
Commercial Building Envelope - Insulation Program	Incentive Based		√	Dec-1995	No. of projects	5,680
Commercial Geothermal Program	Incentive Based	√		Dec-1995	No. of buildings	555
Commercial HVAC Program - Boilers	Incentive Based		√	Sep-2003	No. of boilers	1,930
Commercial HVAC Program - Chillers (Water-Cooled)	Incentive Based	√		Sep-2003	No. of chillers	106
Commercial HVAC Program - CO2 Sensors	Incentive Based	√	√	Apr-2009	No. of sensors	2,787
Commercial HVAC Program - HRVs	Incentive Based	√	√	Apr-2016	No. of units	631
Commercial HVAC Program - Air Cooled Chillers	Incentive Based	√		Apr-2017	No. of units	498
Commercial HVAC Program - Water Heaters	Incentive Based		√	Apr-2015	No. of water heaters	991
Commercial Custom Measures Program	Incentive Based	√	√	Dec-1995	No. of projects	443
Commercial Building Optimization Program	Incentive Based	√	√	Apr-2006	No. of buildings	139
New Buildings Program	Incentive Based	√	√	Apr-2009	No. of buildings	2,003
Commercial Refrigeration Program	Incentive Based	√		Apr-2006	No. of locations	7,547
Commercial Kitchen Appliance Program	Incentive Based	√	√	Jan-2008	No. of appliances	2,775
Network Energy Management Program	Incentive Based	√		May-2008	No. of licenses	9,346
Internal Retrofit Program	Incentive Based	√	√	Jul-1995	No. of projects	2,168
Power Smart Energy Manager	Incentive Based	√	√	Apr-2000	No. of projects	48
Power Smart Shops	Incentive Based	√	√	Feb-2009	No. of projects	5,638
Race to Reduce	Marketing Promotion	√	√	Aug-2016	No. of buildings	58
Parking Lot Controller	Incentive Based	√		Jun-2016	No. of controllers	1,131
Power Smart for Business PAYS Financing	Financial Loan	√	√	Sep-2013	No. of loans	553
Industrial						
Performance Optimization Program	Incentive Based	√		Jun-1993	No. of projects	3,086
Natural Gas Optimization Program	Incentive Based	v	√	Sep-2006	No. of projects	255
Natural Gas Optimization Program	Incentive based		v	3ep-2006	No. or projects	233
Load Management						
Curtailable Rate Program	Incentive Based	√		Jun-1993	No. of customers	100
Load Displacement & Alternative Energy						
Bioenergy Optimization Program	Incentive Based	√	√	Mar-2006	No. of projects	229
Customer Sited Load Displacement	Incentive Based	√		Apr-2014	No. of customers	15
Conservation Rates						
Conservation Rates - Residential	Rate Based	√		2017/18	Rate Based	-
Conservation Rates - Commercial	Rate Based	√		2017/18	Rate Based	-
Duel Obeles						
Fuel Choice	Incentive Based	√		2017/18	No. of installations	15,720
Fuel Choice	Incentive Based	V		2017/18	No. of installations	15,720
Fuel Choice Other Emerging Technologies						
Fuel Choice Other Emerging Technologies Residential Air Source Heat Pumps Program	Incentive Based	√		2021/22	No. of Heat Pumps	1,225
Fuel Choice Other Emerging Technologies Residential Air Source Heat Pumps Program Residential Future Opportunities	Incentive Based Incentive Based	√ √		2021/22 2020/21	No. of Heat Pumps Various	1,225 Various
Fuel Choice Other Emerging Technologies Residential Air Source Heat Pumps Program Residential Future Opportunities Residential Solar Photovoltaics Program (PV)	Incentive Based Incentive Based Incentive Based	√ √ √		2021/22 2020/21 2020/21	No. of Heat Pumps Various No. of Systems	1,225 Various 11,740
Fuel Choice Other Emerging Technologies Residential Air Source Heat Pumps Program Residential Future Opportunities Residential Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Water Heating	Incentive Based Incentive Based Incentive Based Incentive Based	√ √ √ √		2021/22 2020/21 2020/21 2017/18	No. of Heat Pumps Various No. of Systems No. of systems	1,225 Various 11,740 102
Fuel Choice Other Emerging Technologies Residential Air Source Heat Pumps Program Residential Future Opportunities Residential Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Noal Heating Residential Program Pool Heating	Incentive Based Incentive Based Incentive Based Incentive Based		√	2021/22 2020/21 2020/21 2017/18 2017/18	No. of Heat Pumps Various No. of Systems No. of systems No. of systems	1,225 Various 11,740 102 891
Fuel Choice Other Emerging Technologies Residential Air Source Heat Pumps Program Residential Future Opportunities Residential Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Pool Heating Commercial Future Opportunities	Incentive Based Incentive Based Incentive Based Incentive Based Incentive Based		√	2021/22 2020/21 2020/21 2017/18 2017/18 2020/21	No. of Heat Pumps Various No. of Systems No. of systems No. of systems Various	1,225 Various 11,740 102 891 Various
Fuel Choice Other Emerging Technologies Residential Air Source Heat Pumps Program Residential Future Opportunities Residential Solar Themal Program (PV) Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Pool Heating Commercial Future Opportunities Commercial Solar Photovolatics Program (PV)	Incentive Based Incentive Based Incentive Based Incentive Based Incentive Based Incentive Based		√	2021/22 2020/21 2020/21 2017/18 2017/18 2020/21 2020/21	No. of Heat Pumps Various No. of Systems No. of systems No. of systems Various No. of Systems	1,225 Various 11,740 102 891 Various 1,848
Other Emerging Technologies Residential Air Source Heat Pumps Program Residential Future Opportunities Residential Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Pool Heating Commercial Future Opportunities	Incentive Based Incentive Based Incentive Based Incentive Based Incentive Based		√	2021/22 2020/21 2020/21 2017/18 2017/18 2020/21	No. of Heat Pumps Various No. of Systems No. of systems No. of systems Various	15,720 1,225 Various 11,740 102 891 Various 1,848 490 Various

## Program Duration and Cumulative Participation (2016/17 - 2030/31)

\*Participation recurs annually

## 1.4 Risk Analysis

Demand Side Management (DSM) involves risk in both deliverability and cost. Deliverability risk is the risk that the DSM plan does not deliver the projected electric capacity and energy savings within the specified time frame. Cost risk is related to DSM program costs, including incentives and administration, and the associated risk of revenue loss or cost recovery due to reduced levels of energy consumption.

The cost risk of DSM to the utility customer is an important consideration in understanding the risk of both deliverability and cost for Manitoba Hydro. Most DSM measures require a significant investment by the customer (generally greater than 50 percent of total costs) with the customer's willingness and capability to invest their portion of the capital and operating expense being heavily dependent on alternative uses of capital, the reliability of energy savings and the added value of non-energy benefits related to comfort, convenience, safety, productivity and other non-energy benefit streams. As such, these risks to the customer are an important aspect of assessing the risk to Manitoba Hydro.

This section summarizes these risks, outlines Manitoba Hydro's past performance in achieving DSM targets, assesses the appropriate level of risk and describes how these risks will be managed.

## 1.4.1 DSM Risks

### **Power Smart Programs**

Participation rate - DSM programs rely on customers to participate, with the level of participation impacting the electricity and natural gas savings achieved. The timing and degree of participation by customers (residential, commercial and industrial) can be greatly influenced by a number of factors including their knowledge and understanding of the measure's relevance to their needs and energy consumption, product maturity, market support, alternative uses of capital, available non-energy benefits, and external factors such as the economy and spending priorities. Capital prioritization among customers is heavily influenced by the relevance of the measure to their business priorities. In addition, periods of economic decline may reduce customer participation rates, even in instances when energy efficiency projects have high returns, due to capital rationing, balance sheet status, funding priorities and other considerations.

Energy savings per participant - Energy savings per participant could be higher or lower than forecast. While variations in energy savings among customers for a particular measure is always anticipated, it is reasonable to expect that the range of variations for a particular measure can be accounted with reasonable precision if adequate technical and market information is available.

Program cost - Non-incentive and incentive costs could be higher or lower than forecast. Measure costs and related incentive costs for Manitoba Hydro may vary over the life of a program to account for increasing measure maturity and growing market acceptance. It is generally accepted that initial entry into the market requires greater levels of engagement by the utility, including higher incentive costs, to overcome barriers associated with market knowledge and understanding, hesitance to accept new technologies and higher initial costs. A lower level of initial measure maturity results in higher upfront costs to the utility, which generally decline as the measure matures and market acceptance improves. Market maturity is influenced by materials development, product refinement, manufacturing growth, and growth within the sales and distribution network that provides for availability and after-sales support demanded by customers. Forecasting the pace of market maturity can be challenging, influencing program costs over the life of a program, but Manitoba Hydro works closely with industry to advance market maturity and to remain aware of potential changes in the market.

While costs incurred by utilities for DSM are generally recovered through rates and avoided costs for the deferral of more costly generation, transmission and distribution assets, revenue loss from widespread market acceptance of DSM measures such as distributed generation are also accompanied by the additional costs of integrating renewable resources with highly variable outputs. Recovery of these costs is currently an active topic among utilities in California where distributed generation is approaching 5 percent of total generation resources. This is not a near-term risk for Manitoba Hydro due to its low rates and it is anticipated that regulators will have developed methodologies for addressing these costs by the time they become an issue for Manitoba.

Regulatory approval - Programs relying upon specific price signals through rate design such as Conservation Rates will be subject to approval by the Manitoba Public Utilities Board. The timing and level of energy reductions to be achieved under these initiatives may be impacted by the rulings of this Board, which may be influenced by priorities such as rate impacts to low income customers.

## **Codes and Standards**

Government approval- Changes to codes and standards are implemented by government and subject to government approval. At present, government support for energy efficiency codes and standards is strong, with considerable interest and support from all levels of government. Harmonization across North America between Canada and the US is progressing well, creating a more uniform and persuasive market impact through common energy efficiency regulations that directly influence manufacturers. As such, it is anticipated that the influence of codes and standards will remain consistent and supportive to DSM measures over the coming decades. Growing calls for strengthened greenhouse gas emission targets and carbon economy regulation are likely to advance the push for greater use of DSM measures across Canada and the US.

Coverage - Codes and standards can apply to all or a subset of equipment and buildings, which will impact the resulting electric and natural gas savings. Energy codes present a significant opportunity for future DSM savings. Federal efforts directed towards future editions of building energy codes are well advanced, so it is anticipated that adoption of future energy codes will continue to be supportive of both electric and natural gas savings as improved methods of modeling energy performance are adopted into the marketplace. These improved and easily accessible modeling tools will highlight potential opportunities for energy savings within buildings, supporting the development of more energy efficient materials and construction practices within the construction industry.

Efficiency level - The minimum efficiency level prescribed in codes and standards can vary and this will also impact the resulting electricity and natural gas savings.

Compliance - Once a code or standard is in place, electric and natural gas savings will depend on the degree to which consumers, builders and other market players comply with the requirements and the ability of the governing bodies to monitor and enforce compliance. Compliance is a key concern for utilities as it largely rests with local municipal enforcement agencies that are often under-resourced. To support compliance, Manitoba Hydro often establishes existing codes and standards as base criteria for involvement in DSM programming, driving the market to become minimally compliant with codes and regulations related to energy performance.

## 1.4.2 Past DSM Performance

To gain a perspective on the risk of achieving DSM targets, it is useful to view past performance in achieving the forecast DSM targets. This section outlines Manitoba Hydro's achievements of its long term, mid-term and short term DSM targets.

## Long Term Analysis (10 yr)

The 10 year electric DSM targets were compared to energy savings achieved from all past Power Smart Plans where the tenth year has concluded. Achieved electric savings surpassed planned savings for all three plans by a significant margin. This margin is reasonable and expected as these early plans were conservative in nature and additional opportunities were persued subsequent to the plan being developed. Ultimately, this assessment demonstrates that historically Manitoba Hydro has achieved its long term electric DSM forecasts.

	10 yr Actual (GW.h)	10 yr Target (GW.h)	Difference	% Above / (Below) Target					
2000 PS Plan	842	452	390	86%	*				
2001 PS Plan	963	511	452	88%	*				
2005 PS Plan	1,707	1,312	395	30%					
2006 PS Plan	1,824	1,456	368	25%					
Average	1,334	933	401	43%					
* Actual savings exclude savings due to standards									

## Mid Term Analysis (5 yr)

To assess mid-term DSM achievability, the 5 year electric and natural gas DSM targets were compared to achieved savings. Overall, for both electricity and natural gas, achieved savings met or exceeded the targeted savings. This assessment indicates that in the mid-term, Manitoba Hydro has achieved its planned electric and natural gas forecasts. It also indicates that the variability from forecasted savings decreases as the forecast time spans are reduced.

It should be noted that the natural gas targets in the 2005 Power Smart Plan were dramatically surpassed by the savings achieved. As this was the first Power Smart Plan to include natural gas savings, the targets were conservative and were subsequently exceeded by more DSM activities.

	5 yr Actual (GW.h)	5 yr Target (GW.h)	Difference	% Above / (Below) Target
2000 PS Plan	224	250	-26	-11%
2001 PS Plan	321	288	33	11%
2005 PS Plan	708	634	74	12%
2006 PS Plan	826	799	27	3%
2008 PS Plan	928	834	94	11%
2009 PS Plan	1,103	1,120	-17	-2%
2010 PS Plan	1,138	1,131	7	1%
2011 PS Plan	1,220	969	251	26%
Average	808	753	55	7%
Actual savings	exclude saving	s due to stan	lards	

tual savings exclude savings due to standards

ual savings exclude savings due to standards

## Short Term Analysis (1 yr)

To assess short term DSM achievability, the annual electric and natural gas DSM targets were compared to achieved savings. Overall, achieved electric and natural gas energy savings surpassed the planned DSM savings. This analysis demonstrates that in the short term, Manitoba Hydro has generally achieved its forecasted electric and natural gas forecasts.

It should be noted that the shortfall for electric savings in 2014/15 was mainly due to unanticipated delays in the Load Displacement Program. This initiative was a new addition to the plan and the forecasted savings did not account for the difficulty in implementing such large scale projects. This demonstrates that the timelines may vary for the implementation of some DSM projects; however this is just a year-over-year variability and not a risk to the overall achievement of DSM targets over a longer period of time.

	1 yr Actual (GW.h)	1 yr Target (GW.h)	Difference	% Above / (Below) Target	_		1 yr Actual (million m³)	1 yr Target (million m³)	Difference	% Above / (Below) Target
2009-2010	263	311	-48	-15%		2009-2010	7.3	7.9	-0.6	-8%
2010-2011	268	258	10	4%		2010-2011	11.2	6.7	4.5	67%
2011-2012	260	240	20	8%		2011-2012	14.4	10	4.4	44%
2012-2013	332	173	159	92%		2012-2013	14.6	10	4.6	46%
2013-2014	260	177	83	47%		2013-2014	9.0	10.3	-1.3	-13%
2014-2015	273	363	-90	-25%		2014-2015	10.1	10.2	-0.1	-1%
2015-2016	346	292	54	19%	*	2015-2016	9.5	8.9	0.6	7% *
Average	286	259	27	10%		Average	10.9	9.1	1.7	19%

\* Actual savings reflect unaudited estimate

\* Actual savings reflect unaudited estimate

## 1.4.3 Risk Management

As Manitoba Hydro's DSM plan involves a diverse offering of many programs and initiatives, the risk associated with achieving the targeted energy savings is inherently minimized through diversification. In addition, the overall risk is further reduced by undertaking ongoing and regular reviews of individual program performance and making regular adjustments to the Corporation's overall DSM plan on an annual basis.

## Energy Efficiency Programs – Risk Level: Low

Energy Efficiency programs present a relatively low level of risk to the Corporation. Energy efficiency program participation and resulting savings build gradually over time which allows for adjustment to the program designs, ensuring alignment with long term targets. Program participation and resulting energy and capacity savings achieved are tracked quarterly for each initiative to provide timely feedback and opportunity for design changes. Similarly, program costs are managed by comparing expenditures to the program budget on a monthly basis to identify variances from planned expenditures. Free ridership rates and other factors that impact program energy and capacity savings are also measured on an annual basis through the impact evaluation process which also provide timely feedback. Although Manitoba Hydro's overall plan is formally adjusted on an annual basis, adjustments are made to specific programs throughout the year and implemented when deemed appropriate.

## Load Displacement and Alternative Energy Programs – Risk Level: High

The risk associated with achieving the energy savings with the Load Displacement and Alternative Energy programs present a relatively high level of risk to the Corporation. This risk is generally related more towards the timing of the achievement of the energy savings. These initiatives involve a much smaller number of customers, large capital investment required by customers, complex installations and the need to integrate the projects into production processes while minimizing downtime. Since each of the smaller number of participants have large potential energy and capacity savings, there is less diversification in the load displacement portfolio, meaning variances in the timing of these projects will have a dramatic impact on annual targets for both program expenditures and energy and capacity savings. The risks will be managed by working closely with customers and by assisting them with assessing their respective business cases supporting each opportunity. Although there is a short-term timing risk related to the implementation of the projects, the long-term impact to Manitoba Hydro is relatively insignificant provided the projects are undertaken within a reasonable period of time and prior to decisions involving adding new generation supply in Manitoba. There is a reasonable probability that the majority of the identified projects will be implemented within the time frame of this plan.

#### Conservation Rates Initiative – Risk Level: Medium

The Conservation Rate initiatives (i.e. residential and commercial) involve a medium level of risk to the Corporation. Manitoba Hydro intends to manage this risk by using a third-party consultant to assist with the estimation of energy savings and by working closely with key stakeholders to address their specific concerns. A similar initiative has already been implemented by B.C. Hydro and Manitoba Hydro will take the opportunity to learn from their experiences.

#### Fuel Choice Initiative – Risk Level: Medium to High

Achieving the energy savings associated with the Fuel Choice initiative presents a medium to high level of risk to the Corporation. This initiative involves encouraging customers to switch from using electricity to natural gas for space heating purposes where natural gas is available. This initiative would result in participating customers having lower heating bills however it would result in higher regional emissions and lower global emissions. Given the dynamics associated with this initiative, Manitoba Hydro has mixed support for pursuing this initiative by its various stakeholders. For example, the provincial government is not supportive of Manitoba Hydro pursuing this opportunity while some interveners are strong advocates of Manitoba Hydro pursuing the opportunity. Manitoba Hydro is managing this risk by continuing to have discussions with its key stakeholders to assess whether the opportunity will or should be pursed.

## Other Emerging Technologies – Risk Level: Medium to High

The Other Emerging Technologies category presents a medium to high level of risk to the Corporation. As these are emerging technologies, there are risks related to the pace of product development, the cost of products and market acceptance. Manitoba Hydro will manage this risk by continuing to monitor progress in technology and/or product development and by making adjustments to its DSM plan on an ongoing basis.

### Codes and Standards – Risk Level: Low

The Codes and Standards category presents a low level of risk to the Corporation. Once codes are adopted in Manitoba there is still a requirement for enforcement, which is the responsibility of the Office of the Fire Commissioner and the City of Winnipeg and other larger municipal entities. Given that energy efficiency in the building code is relatively new, mechanisms for enforcement and training of code authorities will need to be formalized. Manitoba Hydro will help manage this risk by assisting code authorities and industry stakeholders with the identification of key aspects of building energy code, supporting the industry in areas of difficulty and provide training for both industry and code officials. Manitoba Hydro's longer term strategy of developing programs that are aligned with future code requirements will also assist in mitigating the risk by educating the industry on energy efficient technologies and design practices that will eventually be introduced and enforced within energy codes.

Energy savings achieved through the implementation of energy performance standards for equipment and systems are often referenced in Power Smart programs and Energy Efficiency Regulations. Energy savings achieved through federal regulations applying to goods imported into Canada are relatively secure and risk-free. Energy savings achieved through provincial regulations with lower levels of compliance enforcement are generally less secure and therefore contain greater risk in achievement. Manitoba Hydro will help manage the risks by continuing to make energy performance standards a core component of eligibility for Power Smart program incentives. In this manner, customers and vendors become accustomed to compliance with the standards, easing compliance with regulations that generally arrive once market acceptance of new energy efficient technologies has been achieved through the influence of utility programs.

## **1.5 Economic Assumptions**

## Marginal Costs

The 2016 Demand Side Management Plan incorporated the following forecasts to estimate the marginal benefits for energy savings resulting from the revenue realized from conserved electricity being sold in the export market, the avoided costs of new transmission and the supply of natural gas:

- Electric The electric marginal cost forecast was prepared and compiled by the Resource Planning and Market Analysis Department. Marginal values were provided for savings at the distribution level, transmission level, and generation level. For the 2016 Demand Side Management Plan, the following assumptions were applied:
  - Marginal costs were based on a uniform supply with a 100% capacity factor
  - Distribution Level Programs used a loss factor of 14% to translate back to generation
  - General Service Large Programs used a loss factor of 10% to translate back to generation
  - Generation Level Programs used a loss factor of 14% to translate to distribution level
  - US/CAD Exchange Rates and Escalation Factors were derived from the Corporation's P911 corporate policy document issued October 9<sup>th</sup>, 2015
  - Transmission marginal costs were updated using Report on Marginal Transmission Cost Estimates SPD 2015/11
  - Distribution marginal costs were updated using the 2015 Distribution Marginal Cost Estimate
- Natural Gas The alternative cost forecast for natural gas was prepared based on the natural gas price forecast which was provided by the Economic Analysis Department. Unlike the price forecast, it does not include distribution costs. The benefits of avoided greenhouse gas emissions were included in the natural gas marginal benefits used to calculate the Societal Cost (SC) and Total Resource Cost (TRC) metric. A greenhouse gas cost forecast was provided by the Energy Policy & Analysis Department.
- In addition, water benefits were calculated based on 2015 City of Winnipeg Water and Sewer rates effective January 1<sup>st</sup>, 2015.

## **Customer Rates**

The following forecasts were used to determine the impact of customer bill reductions resulting from their Power Smart energy savings:

- Electric The Electric Rates & Regulatory Department provided the rate forecast for electricity. Commercial and industrial program rates were determined by a weighted average based on the forecast participation by each of the Corporations' billing classes. Residential rates were consistent for all residential programs. For the 2016 Demand Side Management Plan, the weighted rates were based on the approved August 1<sup>st</sup>, 2015 rate forecast which assumed the 2015/16 real rates would increase by 1.8% to 2028/29 and no real rate increase from 2029/30 onward. This was based on the projected rate increase of 3.95% for 2016/17 and the long term rate increase of 2.0% per year (as per IFF-15) less the 2016/17 escalation rate of 2.1 % and the long term escalation rate of 2.1% (MbCPI per P911-1 October 9th, 2015), (represented in 2016 \$).
- Natural Gas The natural gas price forecast was prepared by the Economic Analysis Department with input from the Energy Price Outlook. For the 2016 Demand Side Management Plan, the following assumptions were applied:
  - Forecast starting point was the February 1<sup>st</sup>, 2015 rate
  - Commodity price changes into the future were based on the forecast of natural gas prices contained in the Energy Price Outlook which represented a consensus view of futures markets and a suite of five independent forecasting organizations
  - Non-commodity (monthly charge, transportation, distribution) price changes were based on IFF-14 assumptions on general rate increases and the Economic Outlook assumptions on Manitoba inflation. Non-commodity price changes in the post-IFF period were based on historical trends

## **Economic Variables**

For the 2016 Demand Side Management Plan, the Projected Escalation, Interest, & Exchange Rates – P911 corporate policy document issued October 9<sup>th</sup>, 2015 was used to discount all forward-looking savings and costs. The real weighted average cost of capital of 4.15% was used to discount real dollar cash flows and energy savings. Rates for all historical benefits, costs, and energy savings used actual economic results for each year.

## 1.6 Comparison to 2015 DSM Forecast

## Electric DSM Targets Comparison for 2016/17 – 2030/31

The forecast electric energy savings in this plan are approximately 98 GW.h higher than previously forecast in the 2015 Power Smart Plan, resulting in a 2.2% increase. The following

section highlights programs with notable changes.

#### Affordable Energy Program (-)

 Decrease due to Drain Water Heat Recovery technology no longer offered in program.

#### Community Geothermal (-)

 Decrease due to decline in forecasted average savings per application and anticipated participation levels based on updated market information.

## Commercial Lighting (+)

• Increase due to greater uptake of LED technology.

#### Commercial Geothermal Program (-)

 Decrease due to reductions in market penetration levels based on updated market information.

#### Commercial HVAC - HRVs (+)

 Increase in forecasted average savings per application and anticipated participation levels based on updated market information.

## Commercial Refrigeration (+)

 Increase in anticipated participation levels based on updated market information.

#### Power Smart Energy Manager (+)

Increase in anticipated participation levels based on updated market information.

#### Performance Optimization (+)

 Increase in anticipated participation levels based on updated market information.

## Load Displacement & Alternative Energy (-)

Decrease in anticipated number of projects based on updated market information.

## Residential Solar Photovoltaics Program (-)

 Decrease in anticipated participation levels based on updated market information.

#### Commercial Solar Photovoltaics Program (+)

 Increase in anticipated participation levels based on updated market information.

#### Codes & Standards (-)

Decrease in anticipated future codes savings relating to the new commercial construction market.

	2016 DSM Forecast (GW.h)	2015 DSM Forecast (GW.h)	Change	% Contribution to overall change
		10.2		
New Homes Program	18.3 29.3	19.2 27.8	-1.0 1.5	-19
Home Insulation Program Water and Energy Saver Program	13.2	11.9	1.3	19
Affordable Energy Program	25.2	38.0	-12.8	-139
Refrigerator Retirement Program	8.7	16.6	-7.9	-89
Drain Water Heat Recovery Initiative	0.2	0.0	0.2	09
Residential LED Lighting Program	15.4	6.6	8.9	9%
Community Geothermal Program	50.0	60.5	-10.5	-119
Appliances	0.4	0.0	0.4	0%
HRV Controls	4.5	0.0	4.5	5%
Power Bars	0.0	0.0	0.0	0%
Smart Thermostats	0.2	0.0	0.2	0%
Plug-in Timers	0.1	0.0	0.1	0ª
Community Energy Plan	0.0	0.0	0.0	0ª
Power Smart Residential Loan	5.3	6.7	-1.4	-10
Power Smart PAYS Financing	3.4	3.2	0.2	0%
Residential Earth Power Loan	20.1	17.5	2.7	39
Residential Programs	194.5	208.1	-13.6	-149
Commercial Lighting Program	623.2	396.8	226.4	2319
LED Roadway Lighting Conversion Program	48.5	48.5	0.0	0ª
Commercial Building Envelope - Windows Program	25.2	27.6	-2.4	-20
Commercial Building Envelope - Insulation Program	33.8	30.2	3.7	49
Commercial Geothermal Program	37.4	84.7	-47.3	-480
Commercial HVAC Program - Chillers (Water-Cooled)	0.9	4.7	-3.9	-40
Commercial HVAC Program - CO2 Sensors	4.4	2.9	1.4	19
Commercial HVAC Program - HRVs	40.3	11.6	28.6	299
Commercial HVAC Program - Air Cooled Chillers	24.5	15.6	8.8	99
Commercial Custom Measures Program	35.1	28.9	6.2	60
Commercial Building Optimization Program	15.8	21.5	-5.7	-64
New Buildings Program	139.0	136.0	3.0	39
Commercial Refrigeration Program	71.2	56.5	14.7	159
Commercial Kitchen Appliance Program	1.3	1.1	0.2	00
Network Energy Management Program	0.3	3.4	-3.1	-39
Internal Retrofit Program	17.5	6.9	10.6	119
Power Smart Energy Manager	15.5	4.6	10.9	119
Power Smart Shops	12.5	3.3	9.2	99
Race to Reduce	0.0	0.0	0.0	09
Parking Lot Controller	2.6	0.0	2.6	39
Power Smart for Business PAYS Financing	0.0	0.0	0.0	09
Commercial Programs	1,148.9	884.8	264.1	2709
Performance Optimization Program	397.0	321.7	75.3	779
Industrial Programs	397.0	321.7	75.3	779
Energy Efficiency Subtotal	1,740.3	1,414.6	325.7	3339
Curtailable Rate Program	-	-	-	
Load Management		-		
			-	
Discourse Octionization Descenter		120.1		240
Bioenergy Optimization Program	106.4	130.1	-23.7	-240
Customer Sited Load Displacement	504.1	593.2	-89.0	-91
Customer Sited Load Displacement				-91
Customer Sited Load Displacement .oad Displacement & Alternative Energy Conservation Rates - Residential	504.1 610.6 163.5	593.2 723.2 161.6	-89.0 -112.7 1.9	-91' - <b>115</b> ' 2'
Customer Sited Load Displacement .oad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial	504.1 610.6 163.5 257.1	593.2 723.2 161.6 243.6	-89.0 -112.7 1.9 13.5	-919 -1159 29 149
Customer Sited Load Displacement .oad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates	504.1 610.6 163.5 257.1 420.6	593.2 723.2 161.6 243.6 405.2	-89.0 -112.7 1.9 13.5 15.4	-91 -1159 20 140 169
Customer Sited Load Displacement .oad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates Fuel Choice	504.1 610.6 163.5 257.1 420.6 291.3	593.2 723.2 161.6 243.6 405.2 291.3	-89.0 -112.7 1.9 13.5 15.4 0.0	-91' -115' 2' 14' 16' 0'
Customer Sited Load Displacement Load Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates Fuel Choice	504.1 610.6 163.5 257.1 420.6	593.2 723.2 161.6 243.6 405.2	-89.0 -112.7 1.9 13.5 15.4	-91' -115' 2' 14' 16' 0'
Customer Sited Load Displacement Load Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates Fuel Choice Fuel Choice	504.1 610.6 163.5 257.1 420.6 291.3 291.3	593.2 723.2 161.6 243.6 405.2 291.3 291.3	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0	-91' -1155 2' 14' 165 0'
Customer Sited Load Displacement .oad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates Fuel Choice Residential Air Source Heat Pumps Program	504.1 610.6 163.5 257.1 420.6 291.3	593.2 723.2 161.6 243.6 405.2 291.3	-89.0 -112.7 1.9 13.5 15.4 0.0	-91' -115' 2' 14' 16' 0' 0' 0'
Customer Sited Load Displacement .oad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates Fuel Choice Residential Air Source Heat Pumps Program Residential Future Opportunities	504.1 610.6 163.5 257.1 420.6 291.3 291.3 291.3 7.4 91.7	593.2 723.2 161.6 243.6 405.2 291.3 291.3 291.3 6.3 83.3	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 1.2 8.3	-91' -115' 2' 14' 16' 0' 0' 0'
Customer Sited Load Displacement .oad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates Fuel Choice Residential Air Source Heat Pumps Program Residential Air Source Heat Pumps Program Residential Solar Photovoltaics Program (PV)	504.1 610.6 163.5 257.1 420.6 291.3 291.3 291.3 7.4 91.7 35.3	593.2 723.2 161.6 243.6 405.2 291.3 291.3 291.3 6.3 83.3 79.3	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 1.2 8.3 -44.0	-91' -115' 2' 14' 16' 0' 0' 0' 1' 1' 9' 9'
Customer Sited Load Displacement .oad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates Fuel Choice United Choice Residential Air Source Heat Pumps Program Residential Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Water Heating	504.1 610.6 163.5 257.1 420.6 291.3 291.3 291.3 7.4 91.7 35.3 0.2	593.2 723.2 161.6 243.6 405.2 291.3 291.3 6.3 83.3 79.3 3.0	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 1.2 8.3 -44.0 -2.8	-91' -115' 2' 14' 16' 0' 0' 0' 1' 1' 9 9 -45' -3'
Customer Sited Load Displacement .oad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates Fuel Choice Fuel Choice Residential Air Source Heat Pumps Program Residential Future Opportunities Residential Future Opportunities Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating	504.1 610.6 163.5 257.1 227.1 291.3 291.3 291.3 7.4 91.7 35.3 0.2 2.6	593.2 723.2 161.6 243.6 405.2 291.3 291.3 6.3 83.3 79.3 3.0 2.2	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 1.2 8.3 -44.0 -44.0 -48.0 5	-911 -115' 2' 14' 16' 0' 0' 0' 1' 1' 9 9 -45' -33 0'0
Customer Sited Load Displacement .oad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates Fuel Choice Residential Air Source Heat Pumps Program Residential Air Source Heat Pumps Program Residential Air Source Heat Pumps Program Residential Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Pool Heating Residential Solar Thermal Program - Pool Heating Commercial Future Opportunities	504.1 610.6 163.5 257.1 420.6 291.3 291.3 291.3 291.3 91.7 35.3 0.2 2.6 91.7	593.2 723.2 161.6 243.6 405.2 291.3 291.3 291.3 83.3 79.3 3.0 2.2 83.3	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 1.2 8.3 -44.0 -2.8 0.5 8.3	-91 -115 2 14 14 16 0 0 0 0 1 1 1 9 9 -45 -3 0 0 9 9
Customer Sited Load Displacement .oad Displacement & Atternative Energy Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates Fuel Choice Residential Air Source Heat Pumps Program Residential Future Opportunities Residential Future Opportunities Residential Solar Thermal Program (PV) Residential Solar Thermal Program - Pool Heating Commercial Solar Thermal Program (PV)	504.1 610.6 163.5 257.1 420.6 291.3 291.3 7.4 91.7 35.3 0.2 2.6 91.7 138.7	593.2 723.2 161.6 243.6 405.2 291.3 291.3 291.3 6.3 83.3 79.3 3.0 2.2 83.3 3.114.0	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 1.2 8.3 -44.0 -2.8 0.5 8.3 24.7	-911 -115° 22 14' 16' 0° 0° 11' 99 -455 -33 00 99 -32 25'
Customer Sited Load Displacementoad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates Fuel Choice Residential Air Source Heat Pumps Program Residential Future Opportunities Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Pool Heating Commercial Future Opportunities Commercial Solar Thotovoltaics Program (PV) Commercial Variable Speed and Frequency Drives Commercial Available Speed and Frequency Drives	504.1 610.6 163.5 257.1 420.6 291.3 291.3 291.3 291.3 0.2 2.6 91.7 138.7 138.7 4.7	593.2 723.2 161.6 243.6 405.2 291.3 291.3 6.3 83.3 79.3 3.0 2.2 83.3 114.0 6.6	89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 1.2 8.3 -44.0 -2.8 0.5 8.3 24.7 -1.9	-91' -115' 2' 14 16' 0' 0' 0' 0' 1' 1' 9' -3' -3' 0' 9' 9' 25' -2'
Customer Sited Load Displacement .oad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates Fuel Choice Residential Air Source Heat Pumps Program Residential Future Opportunities Commercial Polar Thermal Program - Pool Heating Commercial Solar Thermal Program - Pool Heating Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV) Commercial Variable Speed and Prequency Drives Tindustrial Future Opportunities	504.1 610.6 163.5 257.1 420.6 291.3 291.3 7.4 91.7 35.3 0.2 2.6 91.7 138.7	593.2 723.2 161.6 243.6 405.2 291.3 291.3 291.3 6.3 83.3 79.3 3.0 2.2 83.3 3.114.0	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 1.2 8.3 -44.0 -2.8 0.5 8.3 24.7	-91' -115' 2' 14' 16' 0' 0' 0' 0' 0' 1' 1' 9' 9' -3' 0' 9' 25' -2' 25' -2' 2' 9' 9'
Customer Sited Load Displacement Load Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates Fuel Choice Residential Air Source Heat Pumps Program Residential Future Opportunities Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Nool Heating Commercial Solar Thotovoltaics Program (PV) Commercial Solar Thotovoltaics Program (PV) Commercial Solar Thermal Program - Nool Heating Commercial Solar Thotovoltaics Program (PV) Commercial Variable Speed and Frequency Drives Industrial Future Opportunities Dther Emerging Technologies	504.1 610.6 163.5 257.1 420.6 291.3 291.3 291.3 7.4 91.7 35.3 0.2 2.6 91.7 138.7 45.7 91.7 91.7 464.1	593.2           723.2           161.6           243.6           405.2           291.3           291.3           291.3           3.3           3.0           2.2           83.3           114.0           6.6           83.3           461.4	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	-91' -115' 2' 14' 14' 0' 0' 0' 0' 11' 1' 9' 25' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2'
Customer Sited Load Displacement Load Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Commercial Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Commercial Future Opportunities Commercial Variable Speed and Frequency Drives Industrial Future Opportunities Commercial Variable Speed and Frequency Drives Commercial Variable Speed and Frequency Drives Commercial Variable Speed and Frequency Drives Context Commercial Variable Speed and Frequency Drives Commercial Variable Speed and Frequency Drives Context Commercial Variable Speed and Frequency Drives Cother Emerging Technologies	504.1 610.6 163.5 257.1 420.6 291.3 291.3 291.3 291.3 7.4 91.7 35.3 0.2 2.6 91.7 138.7 4.7 91.7 464.1 3,526.8	593.2 723.2 723.2 161.6 243.6 405.2 291.3 291.3 30.2 291.3 3.0 2.2 2 83.3 3.1 14.0 6.6 83.3 461.4 3,295.7	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 1.2 8.3 8.3 24.7 -1.9 8.3 24.7 -1.9 8.3 2.6 231.1	-91' -115' 2' 14' 16' 0' 0' 0' 1' 1' 9' -3' 3' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2'
Customer Sited Load Displacement Load Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates Fuel Choice Residential Air Source Heat Pumps Program Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Pool Heating Commercial Future Opportunities Commercial Solar Thotovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV)	504.1 610.6 163.5 257.1 420.6 291.3 291.3 291.3 7.4 91.7 35.3 0.2 2.6 91.7 138.7 45.7 91.7 91.7 464.1	593.2           723.2           161.6           243.6           405.2           291.3           291.3           291.3           3.3           3.0           2.2           83.3           114.0           6.6           83.3           461.4	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	-24' -91' -115' 2' 14' 16' 0' 0' 0' -1' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2'
Customer Sited Load Displacement Load Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Commercial Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Commercial Future Opportunities Commercial Variable Speed and Frequency Drives Industrial Future Opportunities Commercial Variable Speed and Frequency Drives Commercial Variable Speed and Frequency Drives Commercial Variable Speed and Frequency Drives Context Commercial Variable Speed and Frequency Drives Commercial Variable Speed and Frequency Drives Context Commercial Variable Speed and Frequency Drives Cother Emerging Technologies	504.1 610.6 163.5 257.1 420.6 291.3 291.3 291.3 291.3 7.4 91.7 35.3 0.2 2.6 91.7 138.7 4.7 91.7 464.1 3,526.8	593.2 723.2 723.2 161.6 243.6 405.2 291.3 291.3 30.2 291.3 3.0 2.2 2 83.3 3.1 14.0 6.6 83.3 461.4 3,295.7	-89.0 -112.7 1.9 13.5 15.4 0.0 0.0 0.0 1.2 8.3 8.3 24.7 -1.9 8.3 24.7 -1.9 8.3 2.6 231.1	-91' -115' 2' 14' 16' 0' 0' 0' 1' 1' 9' 9' -2' 2' 2' 2' 2' 2' 2' 2' 2' 2'
Customer Sited Load Displacementoad Displacement & Alternative Energy Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates Fuel Choice Residential Air Source Heat Pumps Program Residential Future Opportunities Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Commercial Solar Thermal Program (PV) Com	504.1 610.6 163.5 257.1 420.6 291.3 291.3 291.3 291.3 291.3 35.3 0.2 2.6 91.7 138.7 45.7 4.7 91.7 91.7 91.7 35.3 464.1 3,526.8	593.2 723.2 723.2 161.6 243.6 405.2 291.3 291.3 3.0 2.2 83.3 3.0 2.2 83.3 3.0 6.6 83.3 114.0 6.6 83.3 461.4 3.295.7 1,112.4	-89.0 -112.7 1.9 1.3.5 15.4 0.0 0.0 0.0 1.2 8.3 -44.0 -2.8 8.3 -44.0 -2.8 8.3 2.4.7 -1.9 8.3 2.4.7 -1.3 3.3 -1.5 -1	-91 -115' 2 14 16' 0 0 0' 1 1 9 -0 2 5 -2 9 9 25 -2 9 9 3' 236'

## Natural Gas DSM Targets Comparison for 2016/17 to 2030/31

The forecast natural gas savings in this plan are 4.4 million cubic metres higher than previously forecast in the 2015 Power Smart Plan, resulting in a 4.0% increase. The following section highlights programs with notable changes.

#### New Home Program (+)

 Increase due to revisions in future building code savings based on updated market information.

## Affordable Energy Program (+)

Increase due to extension of program offering.

## HRV Controls (+)

• Increase due to new program offering in 2016.

#### Power Smart Residential Loan (+)

• Increase in forecasted average savings per loan.

#### Residential Earth Power Loan (-)

Decrease in anticipated number of loans based on updated market information.

#### Commercial HVAC Program - Boilers (-)

Decrease in anticipated participation levels based on updated market information.

## Commercial HVAC Program – HRVs (+)

 Increase in anticipated participation levels based on updated market information.

#### **Commercial Building Optimization Program (-)**

Decrease in anticipated participation levels based on updated market information.

#### Natural Gas Optimization Program (+)

 Increase due to extension of program offering and increase in forecasted average savings per project.

#### Codes & Standards (-)

 Decrease in anticipated future codes savings relating to the new commercial construction market.

#### Interactive Effects (-)

 Reflects greater volume required due to increased interactive heating effects from higher electric savings from the Commercial Lighting Program.

	2016 DSM Forecast (million m <sup>3</sup> )	2015 DSM Forecast (million m <sup>3</sup> )	Change	% Contribution to overall change
New Homes Program	7.8	5.4	-0.1	55% -3%
Home Insulation Program Water and Energy Saver Program	1.6	0.9	-0.1	-5%
Affordable Energy Program	6.9	4.8	2.1	48%
Refrigerator Retirement Program	0.9		2.1	40.78
Drain Water Heat Recovery Initiative	0.0	-		-
Residential LED Lighting Program	0.0	-	-	-
Community Geothermal Program	0.0	-	-	-
Appliances	0.0	0.0	0.0	0%
HRV Controls	0.7	0.0	0.7	16%
Power Bars	0.0	0.0	0.0	0%
Smart Thermostats	0.1	0.0	0.1	2%
Plug-in Timers	0.0	0.0	0.0	0%
Community Energy Plan	0.0	0.0	0.0	0%
Power Smart Residential Loan	5.7	3.6	2.0	46%
Power Smart PAYS Financing	-0.3	0.0	-0.3	-7%
Residential Earth Power Loan	0.3	1.3	-1.0	-23%
Residential Programs	29.3	22.6	6.6	151%
Commercial Lighting Program	-	-	-	-
LED Roadway Lighting Conversion Program	-	-	-	-
Commercial Building Envelope - Windows Program Commercial Building Envelope - Insulation Program	4.5	3.7	0.8	18%
Commercial Building Envelope - Insulation Program	12.6	12.2	0.4	10%
Commercial Geothermal Program	-	-	-	-
Commercial HVAC Program - Chillers (Water-Cooled) Commercial HVAC Program - CO2 Sensors		-	-	-
Commercial HVAC Program - CO2 Sensors	1.0	0.9	0.1	2%
Commercial HVAC Program - HRVs	6.4	2.9	3.5	80%
Commercial HVAC Program - Air Cooled Chillers	0.0	0.0	0.0	0%
Commercial Custom Measures Program	2.2	1.8	0.4	-25%
Commercial Building Optimization Program	3.8	3.7	-1.1	-25%
New Buildings Program Commercial Refrigeration Program	3.8	3.7	0.1	0%
Commercial Kitchen Appliance Program	0.3	0.0	0.0	-1%
Network Energy Management Program	0.0	0.0	0.0	0%
Internal Retrofit Program	0.0	0.0	0.1	2%
Power Smart Energy Manager	1.3	0.0	0.9	21%
Power Smart Shops	0.1	0.0	0.0	1%
Race to Reduce	0.0	0.0	0.0	0%
Parking Lot Controller	0.0	0.0	0.0	0%
Power Smart for Business PAYS Financing	0.3	0.0	0.3	6%
Commercial Programs	41.4	36.7	4.8	109%
Performance Optimization Program Industrial Programs	- 14.0	- 9.1	- 4.9	- 111%
Energy Efficiency Subtotal	84.7	68.4	16.3	371%
Curtailable Rate Program				-
Load Management	-	-	-	-
Bioenergy Optimization Program	0.0	0.0	0.0	0%
Customer Sited Load Displacement Load Displacement & Alternative Energy	- 0.0	- 0.0	0.0	- 0%
Conservation Rates - Residential		<u>-</u>		
Conservation Rates - Commercial		-		
Conservation Rates	-	-	-	-
Fuel Choice	-27.7	-27.7	0.0	0%
Fuel Choice	-27.7	-27.7	0.0	0%
Recidential Air Source Heat Rumps Program				
Residential Air Source Heat Pumps Program				
Residential Future Opportunities Residential Solar Photovoltaics Program (PV)		-	-	
Residential Solar Thermal Program - Water Heating		-	-	-
Residential Solar Thermal Program - Pool Heating	0.5	1.4	-1.0	-22%
Commercial Future Opportunities	-		-	
Commercial Solar Photovoltaics Program (PV)	-	-	-	-
Commercial Variable Speed and Frequency Drives	-	-	-	-
Industrial Future Opportunities	-	-	-	-
Other Emerging Technologies	0.5	1.4	-1.0	-22%
Impacts	57.5	42.2	15.3	350%
Codes, Standards & Regulations (at generation)	72.9	74.3	-1.4	-33%
Interactive Effects	-15.8	-6.3	-9.5	-217%
Program Support		-	-	-
	115	110	4	100%
DSM Plan - 2016/17 - 2030/31	115	110	4	100%

## Utility Cost Comparison for 2016/17 to 2030/31

The forecast utility cost in this plan is approximately \$52 million higher than previously forecast in the 2015 Power Smart Plan, resulting in a 4.0% increase. The following section highlights programs with notable changes.

## Affordable Energy Program (+)

Increase due to extension of program offering.

## Residential LED Lighting Program (+)

Increase due to additional spending on lighting campaign activity.

## **Community Geothermal Program (-)**

 Decrease due to decline in forecasted average incentive per application and anticipated participation levels based on updated market information.

## HRV Controls (+)

• Increase due to new program offering in 2016.

## Commercial Lighting Program (+)

 Increase in anticipated participation levels and related incentive payouts based on updated market information.

## Commercial Building Envelope (+)

 Increase in anticipated participation levels and related incentive payouts based on updated market information.

#### **Commercial Geothermal Program (-)**

 Decrease due to reductions in market penetration levels and related incentive payouts based on updated market information.

#### Commercial HVAC Program – HRVs (+)

 Increase in anticipated participation levels and related incentive payouts based on updated market information.

#### Performance Optimization Program (-)

• Decrease in anticipated program administration costs.

## Load Displacement & Alt. Energy (-)

 Decrease in anticipated no of projects and related incentive payouts based on updated market information.

#### Residential Solar Photovoltaics Program (-)

 Decrease in anticipated participation levels and related incentive payouts based on updated market information.

#### Commercial Solar Photovoltaics Program (+)

 Increase in anticipated participation levels and related incentive payouts based on updated market information.

	2016 DSM Utility	2015 DSM Utility		Contribution
	Investment (millions \$)	Investment (millions \$)	Change	to overall change
New Lines - Due was	42.2	42.0	<b>#0.2</b>	00
New Homes Program Home Insulation Program	\$3.2 \$27.1	\$3.0 \$28.4	\$0.2 -\$1.2	-2%
Water and Energy Saver Program	\$5.8	\$4.4	\$1.4	3%
Affordable Energy Program	\$93.7	\$88.6	\$5.2	10%
Refrigerator Retirement Program	\$8.4	\$9.0	-\$0.6	-1%
Drain Water Heat Recovery Initiative	\$0.1	\$0.0	\$0.1	0%
Residential LED Lighting Program	\$7.4	\$2.1	\$5.4	10%
Community Geothermal Program Appliances	\$22.5 \$0.4	\$26.3 \$0.0	-\$3.7 \$0.4	-79
HRV Controls	\$0.4	\$0.0	\$0.4	19
Power Bars	\$2.0	\$0.0	\$2.0	09
Smart Thermostats	\$0.3	\$0.0	\$0.3	19
Plug-in Timers	\$0.0	\$0.0		0%
Community Energy Plan	\$1.7	\$0.0	\$1.7	39
Power Smart Residential Loan	\$0.0	\$0.0	\$0.0	09
Power Smart PAYS Financing	\$0.0	\$0.0	\$0.0	09
Residential Earth Power Loan	\$0.0	\$0.0	\$0.0	0%
Residential Programs	\$173.6	\$161.7	\$11.9	239
Commercial Lighting Program	\$123.3	\$100.7	\$22.6	439
LED Roadway Lighting Conversion Program	\$44.4 \$23.7	\$45.2 \$17.6	-\$0.8 \$6.1	-29
Commercial Building Envelope - Windows Program Commercial Building Envelope - Insulation Program	\$23.7	\$17.0	\$4.6	99
Commercial Building Envelope - Insulation Program	\$40.0	\$43.8	-\$27.1	-529
Commercial HVAC Program - Chillers (Water-Cooled)	\$10.7	\$1.3	-\$27.1	-29
Commercial HVAC Program - CO2 Sensors	\$4.0	\$2.5	\$1.5	39
Commercial HVAC Program - HRVs	\$35.4	\$6.0	\$29.5	569
Commercial HVAC Program - Air Cooled Chillers	\$11.9	\$6.9	\$5.0	109
Commercial Custom Measures Program	\$12.4	\$13.2	-\$0.9	-29
Commercial Building Optimization Program	\$9.3	\$9.5	-\$0.2	09
New Buildings Program	\$13.2	\$16.6	-\$3.4	-69
Commercial Refrigeration Program	\$13.5	\$8.9	\$4.6	99
Commercial Kitchen Appliance Program	\$0.3	\$0.4	\$0.0	00
Network Energy Management Program	\$0.1	\$0.4	-\$0.3	-19
Internal Retrofit Program	\$10.6	\$5.8	\$4.8	99
Power Smart Energy Manager	\$3.7	\$0.6	\$3.0	69
Power Smart Shops	\$3.6	\$1.8	\$1.7	39
Race to Reduce	\$0.8	\$0.0	\$0.8	29
Parking Lot Controller	\$0.5	\$0.0	\$0.5	19
Power Smart for Business PAYS Financing	\$0.0 \$371.8	\$0.0 \$320.6	\$0.0 \$51.2	09 989
Performance Optimization Program ndustrial Programs	\$122.2 \$130.0	\$139.2 \$144.7	-\$17.0 -\$14.7	-329
Energy Efficiency Subtotal	\$675.3	\$627.0	\$48.3	929
Curtailable Rate Program	\$106.6 \$106.6	\$97.5 \$97.5	\$9.0 <b>\$9.0</b>	17º 179
Load Management	\$106.6	\$97.5	\$9.0	
Bioenergy Optimization Program	\$37.5	\$37.9	-\$0.4	-10
Customer Sited Load Displacement	\$81.8	\$94.0	-\$12.2	-23
oad Displacement & Alternative Energy	\$119.4	\$131.9	-\$12.5	-249
Conservation Rates - Residential	\$13.2	\$13.4	-\$0.2	04
Conservation Rates - Commercial	\$17.3	\$17.6	-\$0.2	04
Conservation Rates	\$30.5	\$30.9	-\$0.4	-19
Fuel Choice	\$53.8	\$54.6		-2
uel Choice	\$53.8	\$54.6	-\$0.9	-29
Residential Air Source Heat Pumps Program	\$2.5	\$2.2	\$0.3	1
Residential Future Opportunities	\$50.6	\$45.9		99
Residential Solar Photovoltaics Program (PV)	\$35.9	\$59.8	-\$24.0	-46
Residential Solar Thermal Program - Water Heating	\$0.3	\$1.5	-\$1.2	-2'
Residential Solar Thermal Program - Pool Heating	\$1.3	\$1.1	\$0.2	0'
Commercial Future Opportunities	\$54.6	\$49.6	\$5.0	10
Commercial Solar Photovoltaics Program (PV)	\$87.6	\$71.9	\$15.7	30'
Commercial Variable Speed and Frequency Drives	\$2.7	\$3.4	-\$0.7	-1
Industrial Future Opportunities Other Emerging Technologies	\$59.9 <b>\$295.3</b>	\$54.4 \$289.8	\$5.5 \$5.5	10 <sup>4</sup> 10 <sup>4</sup>
mpacts	\$1,280.8	\$1,231.9	\$49.0	939
Codes, Standards & Regulations (at generation)	-	-	-	
Interactive Effects	-	-	-	
Program Support	\$86.4	\$82.9	\$3.5	79
DSM Plan - 2016/17 - 2030/31	\$1,367	\$1,315	\$52	1009
2011 - 2010/ 1/ - 2030/ 31	ψ1,307	ψ1,315	φυΖ	100

016 DSM 2015 DSM

%

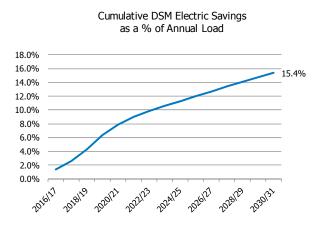
## 2 DEMAND SIDE MANAGEMENT

## 2.1 DSM Targets

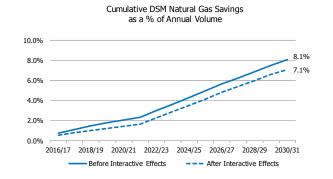
## 2.1.1 Electric and Natural Gas DSM Savings

In summary, the plan sets out to realize electricity savings of 1,232 MW and 4,506 GW.h, natural gas savings of 130 million cubic metres before interactive effects and combined global greenhouse gas emission reductions of 3.3 million tonnes by 2030/31.

This demand side management plan represents 15.4% of the estimated electric load forecast offsetting 59% of projected load growth during this period and 8.1% of the estimated natural gas volume forecast by 2030/31, further reducing natural gas consumption in Manitoba. Including 15.8 million cubic meters in natural gas consumption due to interactive effects, the plan is expected to result in net natural gas savings of 115 million cubic metres which represents 7.1% of the estimated volume forecast by 2030/31.



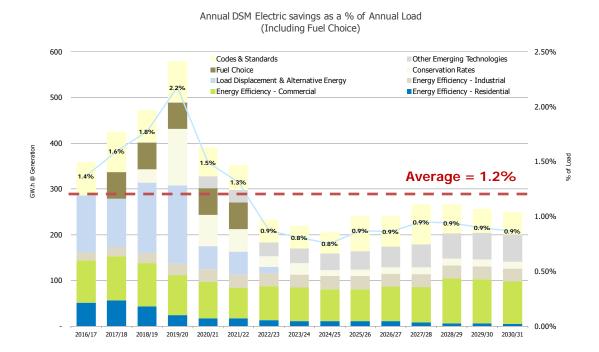
Note: Total DSM Electric savings per the above graph includes forecast savings from program impacts and savings from Codes, Standards and Regulations. Source of Load Forecast: 2015 Electric Load Forecast.



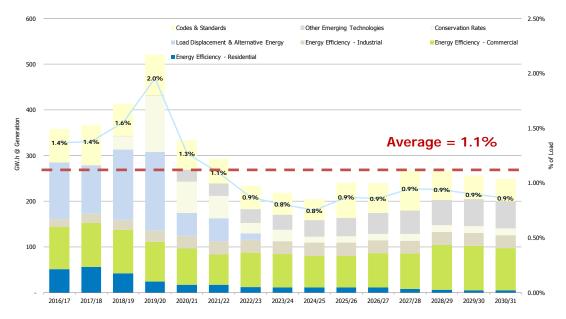
Note: Total DSM Natural Gas savings per the above graph includes forecast savings from program impacts and Codes, Standards and Regulations. Note: The above graph reflects a percentage of volume calculation that excludes the natural gas consumption of both Manitoba Hydro Power Stations and Special Contracts in the volume forecast. Source of Natural Gas Volume Forecast: 2015 Natural Gas Volume Forecast

## Annual Electric DSM Savings as a % of Annual Load

The following charts depict Manitoba Hydro's annual electric DSM efforts in relation to annual electric load growth.

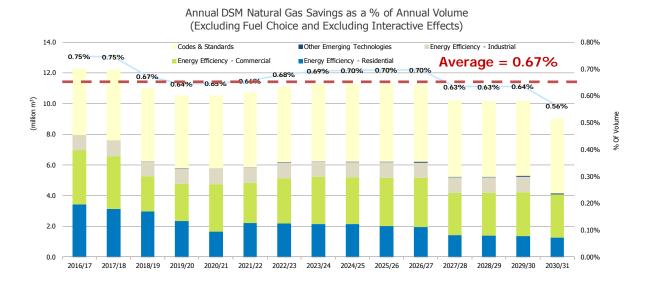


Annual DSM Electric savings as a % of Annual Load (Excluding Fuel Choice)

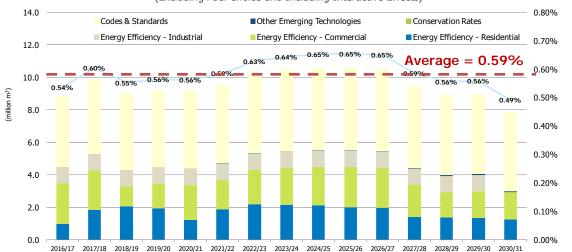


## Annual Natural Gas DSM Savings as a % of Annual Volume

The following charts depict Manitoba Hydro's annual natural gas DSM efforts in relation to annual natural gas volume growth.



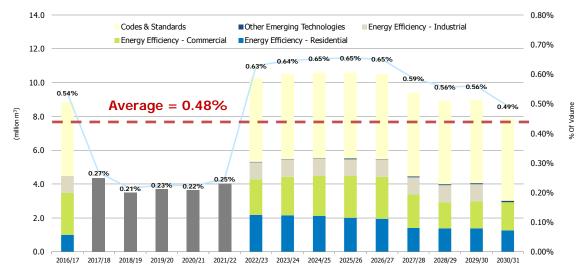
Note: The above graph reflects a percentage of volume calculation that excludes the natural gas consumption of both Manitoba Hydro Power Stations and Special Contracts in the volume forecast.



% Of Volume

Annual DSM Natural Gas Savings as a % of Annual Volume (Excluding Fuel Choice and Including Interactive Effects)

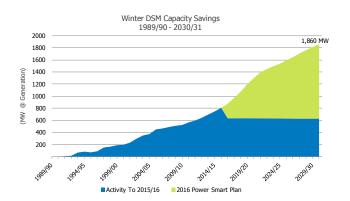
Note: The above graph reflects a percentage of volume calculation that excludes the natural gas consumption of both Manitoba Hydro Power Stations and Special Contracts in the volume forecast.

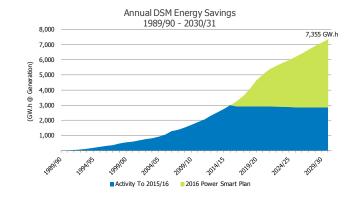


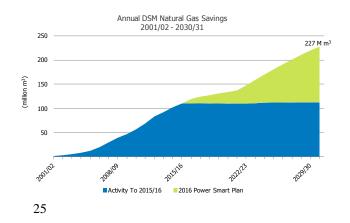
## Annual DSM Natural Gas Savings as a % of Annual Volume (Including Fuel Choice and Interactive Effects)

Note: The above graph reflects a percentage of volume calculation that excludes the natural gas consumption of both Manitoba Hydro Power Stations and Special Contracts in the volume forecast. Combined with energy savings achieved to date, total electrical savings of 1,860 MW and 7,355 GW.h and total natural gas savings of 258 million cubic metres before interactive effects will be realized by 2030/31. These combined energy savings are expected to result in an overall reduction of greenhouse gas emissions of 5.4 million tonnes by 2030/31. This activity represents 24.9% of the estimated electric load forecast and 16.0% of the estimated natural gas volume forecast by 2030/31. Including natural gas consumption due to interactive effects, total natural gas savings of 227 million cubic metres will be realized, representing 14.1% of the estimated natural gas volume forecast by 2030/31.

The following charts graphically represent the capacity, electric energy and natural gas energy savings achieved to date and the savings anticipated from future DSM activity for the 2016 Demand Side Management Plan:







The following table shows detailed DSM savings associated with the 2016 Demand Side Management Plan by sector to 2030/31.

2	2016/17 - 2030	/31				
	Winter Capacity (MW)		Annual Energy (GW.h)		Annual Energy (million m <sup>3</sup> )	
Residential						
New Homes Program	7.3		16.0		7.8	
Home Insulation Program Water and Energy Saver Program	12.8 2.1		25.7 11.6		6.4 1.6	
Affordable Energy Program						
Affordable Energy Program - Insulation Affordable Energy Program - Furnace	8.5 n/a		22.1 n/a		6.9 0.0	
Affordable Energy Program - Total	8.5		22.1		6.9	
Refrigerator Retirement Program Drain Water Heat Recovery Initiative	0.8 0.0		7.6 0.1		- n/a	
Residential LED Lighting Program	4.3		13.5		-	
Community Geothermal Program Appliances & Electronics Initiative	22.0 0.1		43.9 0.4		n/a 0.0	
HRV Controls	1.6		4.0		0.7	
Smart Thermostats Community Energy Plan	0.1		0.2		0.1	
Residential Programs Total (@ Meter)	59.5	7%	145.3	5%	23.5	41%
Customer Service Initiatives / Financial Loan Programs						
Power Smart Residential Loan Power Smart PAYS Financing	2.4 1.5		4.7 3.0		5.7 -0.3	
Residential Earth Power Loan	5.8		17.7		0.3	
Residential CSI / Financial Loan Programs Total (@ Meter)	9.7	1%	25.3	1%	5.7	10%
Commercial						
Commercial Lighting Program LED Roadway Lighting Conversion Program	133.8 6.3		546.7 42.6		- n/a	
Commercial Building Envelope - Windows Program	7.2		22.1		4.5	
Commercial Building Envelope - Insulation Program Commercial Geothermal Program	13.1 16.4		29.7 32.8		12.6	
Commercial Geothermal Program Commercial HVAC Program - Boilers	n/a		n/a		n/a 3.1	
Commercial HVAC Program - Chillers (Water-Cooled)	0.0		0.8		n/a	
Commercial HVAC Program - CO2 Sensors Commercial HVAC Program - HRVs	2.4 17.3		3.9 35.3		1.0 6.4	
Commercial HVAC Program - Air Cooled Chillers	0.0		21.5		n/a	
Commercial HVAC Program - Water Heaters Commercial Custom Measures Program	n/a 7.1		n/a 30.8		2.1 2.2	
Commercial Building Optimization Program	2.8		13.8		3.7	
New Buildings Program	36.3		121.9		3.8	
Commercial Refrigeration Program Commercial Kitchen Appliance Program	7.7		62.4 1.1		0.3	
Network Energy Management Program	0.0		0.3		-	
Internal Retrofit Program	3.0		15.3		0.1	
Power Smart Energy Manager Power Smart Shops	3.1 3.3		13.6 11.0		1.3 0.1	
Race to Reduce	0.0		0.0		0.0	
Parking Lot Controller Commercial Programs Total (@ Meter)	0.0 260.0	30%	1,007.8	32%	0.0 41.2	72%
Power Smart For Business PAYS Financing commercial CSI / Financial Loan Programs Total (@ Meter) ndustrial Performance Optimization Program Natural Gas Optimization Program	0.0 0.0 45.4 n/a	0%	0.0 0.0 360.9 n/a	0%	0.3 0.3 n/a 14.0	0%
ndustrial Programs Total (@ Meter)	45.4	5%	360.9	12%	14.0	24%
nergy Efficiency Subtotal (@ Meter)	374.6	43%	1,539.3	49%	84.7	147%
.oad Management						
Curtailable Rate Program oad Management Programs Total (@ Meter)	145.0	17%	n/a	0%	n/a	00/
	145.0		n/a		n/a	
and Displacement & Alternative Energy	145.0		n/a	0.10		0%
oad Displacement & Alternative Energy Bioenergy Optimization Program	46.5		n/a 96.7	0 /0		0%
Bioenergy Optimization Program Customer Sited Load Displacement	46.5 60.0		96.7 458.3		n/a n/a n/a	
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter)	46.5	12%	96.7		n/a n/a	0%
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) onservation Rates Conservation Rates - Residential	46.5 60.0 106.5 17.2		96.7 458.3 555.0 143.4		n/a n/a n/a n/a	
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) Conservation Rates - Residential Conservation Rates - Commercial	46.5 60.0 106.5		96.7 458.3 555.0		n/a n/a n/a	
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) ionservation Rates Conservation Rates - Residential Conservation Rates - Commercial ionservation Rates Total (@ Meter)	46.5 60.0 106.5 17.2 27.1	12%	96.7 458.3 555.0 143.4 225.5	18%	n/a n/a n/a n/a n/a n/a	0%
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) Conservation Rates Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates Total (@ Meter) 'uel Choice Fuel Choice	46.5 60.0 106.5 17.2 27.1 44.3	12% 5%	96.7 458.3 555.0 143.4 225.5 368.9 255.5	18%	n/a n/a n/a n/a n/a (27.7)	0%
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) Onservation Rates Conservation Rates - Residential Conservation Rates - Commercial Onservation Rates Total (@ Meter) 'uel Choice Fuel Choice Uel Choice Total (@ Meter)	46.5 60.0 106.5 17.2 27.1 44.3	12%	96.7 458.3 555.0 143.4 225.5 368.9	18%	n/a n/a n/a n/a n/a n/a	0%
Bioenergy Optimization Program Customer Sited Load Displacement and Displacement & Alt. Energy Programs Total (@ Meter) conservation Rates Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates	46.5 60.0 106.5 17.2 27.1 44.3	12% 5%	96.7 458.3 555.0 143.4 225.5 368.9 255.5 255.5	18%	n/a n/a n/a n/a n/a n/a (27.7) (27.7)	0%
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Conserva	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 127.7 0.0	12% 5%	96.7 458.3 555.0 143.4 225.5 368.9 255.5 255.5 6.5 80.4	18%	n/a n/a n/a n/a n/a n/a (27.7) (27.7) (27.7) n/a	0%
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) :onservation Rates Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates -	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 127.7 0.0 16.7 2.8	12% 5%	96.7 458.3 555.0 143.4 225.5 368.9 255.5 255.5 255.5 6.5 80.4 30.9	18%	n/a n/a n/a n/a n/a (27.7) (27.7) (27.7)	0%
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) conservation Rates Conservation Rates - Residential Conservation Rates - Commercial conservation Rates Total (@ Meter) uel Choice Fuel Choice uel Choice Uel Choice Total (@ Meter) Dther Emerging Technologies Residential Air Source Heat Pumps Program Residential Future Opportunities	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 127.7 0.0	12% 5%	96.7 458.3 555.0 143.4 225.5 368.9 255.5 255.5 6.5 80.4	18%	n/a n/a n/a n/a n/a n/a (27.7) (27.7) (27.7) n/a	0%
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) conservation Rates Conservation Rates - Residential Conservation Rates - Commercial conservation Rates Total (@ Meter) uel Choice Fuel Choice uel Choice Gel Choice Total (@ Meter) Dther Emerging Technologies Residential Air Source Heat Pumps Program Residential Future Oportunities Residential Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Residential Future Oportunities	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 127.7 0.0 16.7 2.8 0.0 0.0 0.0	12% 5%	96.7 458.3 555.0 143.4 225.5 255.5 255.5 255.5 6.5 80.4 30.9 0.2 2.3 80.4	18%	n/a n/a n/a n/a n/a n/a n/a (27.7) (27.7) (27.7) n/a n/a n/a n/a n/a n/a n/a	0%
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) conservation Rates Conservation Rates - Residential Conservation Rates - Commercial conservation Rates - Commercial commercial Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Residential Future Opportunities Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV)	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 0.0 16.7 2.8 0.0 0.0 0.0 16.7 12.9 0.1	12% 5%	96.7 458.3 555.0 143.4 225.5 368.9 255.5 255.5 6.5 80.4 30.9 0.2 2.3	18%	n/a n/a n/a n/a n/a (27.7) (27.7) (27.7) n/a n/a n/a n/a n/a n/a n/a n/a	0%
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) conservation Rates - Residential Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates - Commercial el Choice Fuel Choice Used Choice Total (@ Meter) Used Choice Total (@ Meter) Used Choice Total (@ Meter) Used Choice Fuel (@ Meter) Used Choice Total (@ Meter) Used Choice Fuel (@ Meter) Used Choice Total (@ Meter) Used Choice Total (@ Meter) Residential Future Opportunities Commercial Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Pool Heating Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV)	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 127.7 2.8 0.0 0.0 16.7 2.8 0.0 0.0 16.7 2.8 0.0 0.0 16.7 12.9 0.1	12% 5% 15%	96.7 458.3 555.0 555.0 368.9 255.5 255.5 6.5 80.4 30.9 0.2 2.3 80.4 121.7 4.2 83.3	18% 12% 8%	n/a n/a n/a n/a n/a n/a (27.7) (27.7) (27.7) (27.7) n/a n/a n/a n/a n/a n/a n/a n/a	0% 0% (48%)
Bioenergy Optimization Program Customer Sited Load Displacement and Displacement & Alt. Energy Programs Total (@ Meter) conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates - Commercial Conservation Rates - Commercial Well Choice Fuel Choice Fuel Choice Generation (@ Meter) Uther Emerging Technologies Residential Ar Source Heat Pumps Program Residential Future Opportunities Residential Solar Thorwal Program - Pool Heating Residential Solar Thormal Program - Pool Heating Commercial Solar Thorwal Program - Pool Heating Commercial Solar Photovoltaics Program (PV) Commercial Solar Thorwal Program - Pool Heating Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV)	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 0.0 16.7 2.8 0.0 0.0 0.0 16.7 12.9 0.1	12% 5%	96.7 458.3 555.0 143.4 225.5 368.9 255.5 255.5 6.5 80.4 30.9 0.2 2.3 80.4 121.7 4.2	18%	n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	0%
Bioenergy Optimization Program Customer Sited Load Displacement oad Displacement & Alt. Energy Programs Total (@ Meter) Conservation Rates - Residential Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Commercial Solar Photovoltaics Program Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV) Commercial Variable Speed and Frequency Drives Industrial Future Opportunities Dither Emerging Technologies Total (@ Meter)	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 127.7 2.8 0.0 0.0 16.7 2.8 0.0 0.0 16.7 2.8 0.0 0.0 16.7 12.9 0.1	12% 5% 15% 8%	96.7 458.3 555.0 555.0 368.9 255.5 255.5 6.5 80.4 30.9 0.2 2.3 80.4 121.7 4.2 83.3	18% 12% 8%	n/a n/a n/a n/a n/a n/a (27.7) (27.7) (27.7) (27.7) n/a n/a n/a n/a n/a n/a n/a n/a	0% 0% (48%)
Bioenergy Optimization Program Customer Sted Load Displacement and Displacement & Alt. Energy Programs Total (@ Meter) Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Commercial Solar Photovoltaics Program Residential Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Voater Heating Residential Solar Thermal Program - Voater Heating Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Phot	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 0.0 16.7 2.8 0.0 0.0 0.0 0.0 0.0 0.0 0.6.5 17.2 2.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	12% 5% 15% 8%	96.7 458.3 555.0 143.4 225.5 368.9 255.5 255.5 6.5 80.4 30.9 0.2 2.3 80.4 121.7 4.2 83.3 410.0	18% 12% 8%	n/a n/a n/a n/a n/a n/a (27.7)	0% 0% (48%)
Bioenergy Optimization Program Customer Sted Load Displacement coad Displacement & Alt. Energy Programs Total (@ Meter) Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Solution - Commercial Commercial Commercial Commercial Solut Photovoltaics Program (PV) Residential Solut Photovoltaics Program (PV) Commercial Variable Speed and Frequency Drives Industrial Solut Photovoltaics Program (PV) Commercial Variable Speed and Frequency Drives Industrial Future Oportunities Dater Emerging Technologies Total (@ Meter) Program Impacts Total (@ Meter)	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 0.0 16.7 2.8 0.0 0.0 0.0 0.0 0.0 0.0 0.6.5 17.2 2.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	12% 5% 15% 8%	96.7 458.3 555.0 143.4 225.5 368.9 255.5 255.5 6.5 80.4 30.9 0.2 2.3 80.4 121.7 4.2 83.3 410.0	18% 12% 8%	n/a n/a n/a n/a n/a n/a (27.7) (27.7) (27.7) (27.7) (27.7) n/a n/a n/a n/a n/a 5 n.5 n.5 n.6 5 7.5	0% 0% (48%)
Customer Sited Load Displacement Load Displacement & Alt. Energy Programs Total (@ Meter) Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Residential Air Source Heat Pumps Program Residential Solar Therone IProgram - Water Heating Residential Solar Thermai Program - Voater Heating Residential Solar Thermai Program - Pool Heating Commercial Solar Photovoltaics Program(PV) Commercial Solar Photovoltaics Photovoltaics Photovoltai	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 127.7 2.8 0.0 16.7 2.8 0.0 16.7 12.9 0.0 16.7 2.9 0.0 17.3 66.5 864.8 227.3	12% 5% 15% 8%	96.7 458.3 555.0 143.4 225.5 255.5 255.5 255.5 255.5 255.5 255.5 255.5 255.5 255.3 80.4 30.9 30.9 30.9 30.9 31.28.8 410.0 3,128.8 858.9 3,988	18% 12% 8%	n/a n/a n/a n/a n/a (27.7) (27.7) (27.7) (27.7) n/a n/a n/a n/a n/a 5 72.9	0%
Bioenergy Optimization Program Customer Sited Load Displacement .coad Displacement & Alt. Energy Programs Total (@ Meter) Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Commercial Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Commercial Solar Thermal Program - Water Heating Commercial Solar Thermal Program (PV) Commercial Solar Thermal Program (PV) Commercial Solar Photovoltacs Program (PV) Commercial Solar Photovoltacs Program (PV) Commercial Solar Photoportunities Dither Emerging Technologies Total (@ Meter) Program Impacts Total (@ Meter) Codes, Standards and Regulations (@ Meter) Power Smart 2016/17 to 2030/31 Impacts (@ Meter) Power Smart 2016/17 to 2030/31 Impacts (@ Generation)	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 2.8 0.0 16.7 2.8 0.0 0.0 16.7 1.2 9 1.2 9 1.2 9 1.7 3 66.5 864.8 227.3 1,092 1,232	12% 5% 15% 8%	96.7 458.3 555.0 143.4 225.5 255.5 255.5 255.5 255.5 255.5 255.5 255.5 255.3 80.4 30.2 0.2 2 0.2 2 8.3 3 410.0 3,128.8 858.9 3,988 4,506	18% 12% 8%	n/a n/a n/a n/a n/a n/a (27.7) (27.7) (27.7) (27.7) n/a n/a n/a n/a n/a 5 7.5 57.5 -15.8	0% 0% (48%)
Bioenergy Optimization Program Customer Sted Load Displacement Load Displacement & Alt. Energy Programs Total (@ Meter) Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Residential Air Fuel Choice Fuel Choice Fuel Choice - Commercial Commercial Source Heat Pumps Program Residential Future Opportunities Commercial Solar Thermal Program - Voater Heating Residential Solar Thermal Program - Voater Heating Commercial Solar Photovoltaics Program (PV) Commercial Variable Speed and Frequency Drives Industrial Future Opportunities Dither Emerging Technologies Total (@ Meter) Program Impacts Total (@ Meter) Enteractive Effects Codes, Standards and Regulations (@ Meter)	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 127.7 2.8 0.0 16.7 2.8 0.0 16.7 12.9 0.0 16.7 2.9 0.0 17.3 66.5 864.8 227.3	12% 5% 15% 8%	96.7 458.3 555.0 143.4 225.5 255.5 255.5 255.5 255.5 255.5 255.5 255.5 255.5 255.3 80.4 30.9 30.9 30.9 30.9 31.28.8 410.0 3,128.8 858.9 3,988	18% 12% 8%	n/a n/a n/a n/a n/a (27.7) (27.7) (27.7) (27.7) n/a n/a n/a n/a n/a 5 72.9	0% 0% (48%)
Bioenergy Optimization Program Customer Sted Load Displacement and Displacement & Alt. Energy Programs Total (@ Meter) Conservation Rates - Residential Conservation Rates - Commercial Conservation Rates - Commercial Commercial Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Water Heating Residential Solar Thermal Program - Water Heating Commercial Solar Thermal Program - Volar Heating Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV) Residential Future Opportunities Commercial Solar Photovoltaics Program (PV) Residential Future Opportunities Commercial Solar Photovoltaics Program (PV) Residential Variable Speed and Frequency Drives Industrial Future Opportunities Commercial Solar Photovoltaics Program (PV) Residential Solar Thermal Program (PV) Residential Solar Thermal Program (PV) Commercial Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics Program (PV) Residential Solar Photovoltaics Program (PV) Residential Solar Photovoltaics Program (PV) Commercial Solar Photovoltaics (PM) Photovers Smart 2016/17 to 2030/31 Impacts (@ Meter) Savings Achieved To 2015/16 (@ Meter)	46.5 60.0 106.5 17.2 27.1 44.3 127.7 127.7 127.7 0.0 0.6 0.6 0.0 0.6 0.0 0.6 12.9 0.1 17.3 66.5 864.8 227.3 1,092 1,232 555	12% 5% 15% 8%	96.7 458.3 555.0 143.4 225.5 368.9 255.5 255.5 6.5 80.4 30.9 0.2 2.3 80.4 121.7 4.2 83.3 410.0 3,128.8 858.9 3,988 4,506	18% 12% 8%	n/a n/a n/a n/a n/a n/a n/a (27.7) (27.5) (27	0% 0% (48%)

Electric	and	Natural	Gas	DSM	Savings
	20	16/17 -	2030	0/31	

i Natural gas interactive effects reported with overall total

## 2.1.2 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, Water & Energy Saver 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 967,405 litres of fuel oil and 330,546 litres of propane will be achieved from 2016/17 to 2030/31.

Affordable Energy Fund Other Fuel Savings
2016/17 - 2030/31
(000s, litres)

	2016/17	2017/18	2018/19- 2030/31
Fuel Oil Savings			
Home Insulation Program	2.0	2.0	12.6
Water & Energy Saver Program	4.2	.0	.0
Oil & Propane Furnace Replacement	95.1	95.1	756.4
Annual Fuel Oil Savings	101.3	97.1	769.0
Cumulative Fuel Oil Savings, 2016/17 - 2030/31	101.3	198.4	967.4
Dropono Covince			
Propane Savings			
Home Insulation Program	7.2	7.2	48.4
Water & Energy Saver Program	3.3	.0	.0
Oil & Propane Furnace Replacement	26.6	26.6	211.2
Annual Propane Savings	37.1	33.8	259.6
Cumulative Propane Savings, 2016/17 - 2030/31	37.1	70.9	330.5

## 2.1.3 Energy Efficient Codes, Standards & Regulation Savings

Many Canadian and U.S. electric utilities, including Manitoba Hydro, have been engaged in DSM activities for more than two decades. In addition to utility specific DSM programs, Manitoba Hydro's strategy to affect change in codes and standards involves being an active participant and, in many cases, a driving force on a number of provincial and national energy efficiency codes and standards committees. These codes and standards are subsequently referenced in national and provincial regulations that mandate minimum energy performance levels for a variety of appliances, buildings and other energy consuming measures. The focus of Manitoba Hydro's efforts on these committees is to advance the progress of product efficiency improvements through the development of test methodologies that facilitate measurement and comparison of energy performance improvements available from commercially viable product advancements, which are then incorporated into Manitoba Power Smart programs, and subsequent energy efficiency regulations and building codes proposed by national and provincial regulators.

Not all codes and standards are regulated, with some codes and standards being developed for the purpose of supporting good business practices that assist customers in quantifying and comparing the energy performance of measures being considered for implementation. In these instances, Manitoba Hydro supports the adoption of such non-regulated codes and standards within its Power Smart programs.

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

# Strategic Steering Committee on Performance, Energy Efficiency and Renewables

Manitoba Hydro is a leading contributor on the Canadian Standards Association's Strategic Steering Committee on Performance, Energy Efficiency and Renewables (SCOPEER). This Canadian Standards Association committee, with participation from federal and provincial authorities, electric utilities, industry associations and equipment suppliers, provides oversight and governance for the process used to develop energy performance standards and establish minimum energy performance levels for energy consuming measures across most residential, commercial and industrial sectors. SCOPEER includes Technical Committees responsible for specific end-use technology areas, including Heating, Ventilation, Air Conditioning and Refrigeration Equipment (TC 401), Industrial Equipment (TC 402), Residential Equipment (TC 403), Lighting Equipment (TC 419), Solar Equipment (TC 420) and Energy Management (TC 422). Individual Technical Subcommittees operating within each of the Technical Committees are responsible for the development of specific standards related to the energy performance of enduse measures that are vetted and approved by the SCOPEER committee for adoption. Electric utilities, equipment suppliers and consumer reference these standards within their programs and specific areas of activity, while regulatory agencies at the national and provincial level adopt these standards and their associated minimum energy performance levels into energy efficiency regulations.

## **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 regulation of energy efficient codes and standards as such regulations 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 to ensure successful implementation.

Efforts to achieve energy savings through Energy Efficient Codes and Standards initiatives are forecasted in the 2016 Demand Side Management Plan to achieve capacity savings of 299 MW, energy savings of 1106 GW.h and 83 million cubic metres of natural gas annually by 2030/31. As a result of these savings, a greenhouse gas emissions reduction of 0.9 million tonnes is expected by 2030/31.

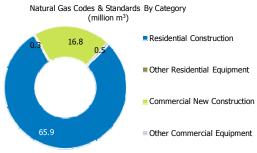
The following table and charts provide a summary of the planned energy savings in 2030/31 from codes and standards that are currently implemented in energy efficiency regulation at the provincial and national level. Future DSM plans will provide updated forecasts of savings from codes and standards based on new information, such as the pending proposals being put forward by Natural Resources Canada for Amendments 13 and 14, which include both new and enhanced energy efficiency regulations for a variety of energy consuming measures.

Code		Demand Savings	Natural Gas	CO2 Reductions	
Category	Components	Winter MW	Annual GW.h	Annual millions m <sup>3</sup>	Annual Tonnes
Residential Construction	Insulation, Windows, Pilot Light Gas Fire Place, Furnace, Heat Recovery Ventilation, Showerhead	32.1	100.7	65.9	193,127
Residential Lighting	General Service Lamps	75.5	203.6	-	137,402
Residential Appliances	Dishwashers, Clothes Washers, Clothes Dryers, Refrigerators, Freezers, Ranges, Stoves, Cooktops	31.2	191.6	-	129,301
Other Residential Equipment	Central Air Conditioning, Residential Furnace	0.4	53.0	0.3	36,274
Commercial New Construction	Various Building Code Amendments	99.2	335.4	16.8	258,280
Commercial Lighting	General Service Lamps, Exit Signs, Fluorescent Lamp Ballasts	60.8	220.8	-	149,057
Other Commercial Equipment	Commercial Furnace, Boiler and Spray Valves	0.1	0.5	0.5	1,193
Total @ Generation		299	1106	83	904,634

#### Energy Savings from Codes & Standards 2016/17 - 2030/31

\* 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 and C.1





## **Status of Codes and Standards**

The following table summarizes the status of changes to provincially and nationally regulated codes and standards included in the 2016 Demand Side Management Plan, including actual or expected dates for implementation.

For electricity, changes that account for 69% of total energy savings have been enacted and 31% are planned.

For natural gas, changes that account for 87% of total energy savings have been enacted and 12% are planned.

Code	Components	Frome	Natural Gas	Level of			
Category	Components	Energy GW.h	Natural Gas Annual million m <sup>3</sup>	Level of Government		Expected Effect	Planned
				Coronantin	Lindottola	Announceu	. Idiniod
Residential Construction	Building Code - Insulation	16.9	6.9	MB	2008		
Residential Construction	Building Code - Various measures	69.8	51.7	MB	2010		
Residential Construction	Building Code - Various measures	14.1	7.3	MB			2021
Residential Lighting	General Service Lamps (MEPS)	81.7	-	Federal	2014		
Residential Lighting	General Service Lamps (MEPS) (Future)	121.9	-	Federal			2025
Residential Appliances	Various appliances	159.6	-	Federal			
Residential Appliances	Various appliances (Future)	31.9	-	Federal			2020
Other Residential Equipment	Central Air Conditioning	47.0	-	Federal	2006		
Other Residential Equipment	Central Air Conditioning (Future)	6.0	-	Federal			2020
Other Residential Equipment	Residential Furnace	-	0.3	Federal / MB	2009		
Commercial New Construction	Building Code	223.1	13.7	MB	2016		
Commercial New Construction	Building Code (Future)	112.3	3.1	MB			2022
Commercial Lighting	General Service Lamps (MEPS)	35.0	-	Federal			2019
Commercial Lighting	General Service Lamps (MEPS) (Future)	27.0	-	Federal			2025
Commercial Lighting	Exit Signs	1.9	-	Federal	2004		
Commercial Lighting	Fluorescent lamp ballasts (New / Reno)	157.0	-	Federal	2006 / 2010		
Other Commercial Equipment	Commercial Furnace	-	0.2	Federal / MB	2009		
Other Commercial Equipment	Commercial Boilers	-	0.1	Federal / MB		2019	
Other Commercial Equipment	Commercial Spray Valves	0.5	0.1	Federal / MB	2011		
Total (GW.h)		1106			757	0.0	348
					69%	0%	31%
Total (million m <sup>3</sup> )			83		73	0	10
					87%	0%	12%

## Status of Changes to Codes and Standards

## Code, Standard & Regulation Descriptions

The following section describes each of the codes and standards listed in the Summary Table noted in Section 2.1.3 that have been taken into consideration when developing a forecast for projected savings.

## **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 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 October1, 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.

<u>Building Code</u> Manitoba Building Code, amendment (PROVINCIAL) Regulation 142/2010 Registered: October 4, 2010 Effective date: December 1, 2010

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.

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. The Gold standard announced in 2007 required the use of heat recovery ventilators (HRV), 94 % AFUE furnaces, electronic ignition for natural gas fireplaces, R50 attic insulation, water efficient fixtures 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 (MBC). In fact, a majority of the technologies adopted by the MBC 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 may have postured with strong opposition to adopting the code. 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 52/2015 Registered: April 27, 2015 Effective date: April 1, 2016

In December 2012, the National Building Code's (NBC) first attempt at incorporating energy efficiency into the code for Part 9 buildings was published as section 9.36 of the NBC. Although Manitoba had already incorporated energy efficiency into the MBC in advance of this publication, an effort was made by the energy sub-committee of the Manitoba Building Standards Board to review the contents of 9.36 with the intent to align the requirements as much as possible. The review concluded with minimal changes to the pre-existing requirements of the MBC that were made effective in 2010 other than one significant change; the requirement for a drain water heat recovery system. This requirement, the first of its kind in Canada, actually resulted in an efficiency level for new homes in Manitoba that surpassed the NBC requirement and was applauded by energy efficiency advocates from across the country. Due to the recency of this requirement, an estimate of the energy savings impacts resulting from the installation of drain water heat recovery systems is not included current planning assumptions, however, Manitoba Hydro staff will provide estimates in future plans.

<u>Building Code</u> Manitoba Building Code, amendment (PROVINCIAL) Regulation (Proposed) Effective date: 2020

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 2020. Manitoba Hydro has used a placeholder post-2020 Manitoba Building Code to account for future potential code savings beyond that realized through the Power Smart New Home program.

## **Residential Lighting**

<u>General Service Lamps</u> National Resources Canada (FEDERAL) Amendment 12B to Energy Efficiency Regulations Published: January 15, 2014 (Canada Gazette Part II) Effective date(s): January 1<sup>st</sup>, 2014 - 75 to 100 watt equivalent lamps December 31<sup>st</sup>, 2014 - 40 to 60 watt equivalent lamps

The Government of Canada announced in Amendment 12B to the Energy Efficiency Regulations, published on January 15, 2014 that they would introduce Minimum Energy Performance Standards (MEPS) for general service lamps in 2012. The consequent Regulations came into force in December 2013 and applied to 100 and 75 W bulbs manufactured on or after January 1, 2014, and to 60 and 40 W bulbs manufactured on or after December 31, 2014. 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.

The next iteration of residential lighting regulations has not been proposed. Manitoba Hydro has used a placeholder for Minimum Energy Performance Standard beginning in 2025 to account for future potential savings. This assumed MEP accounts for the impact of light-emitting diode (or equivalent) efficient lighting technology replacing the performance levels stipulated within Amendment 12B described above.

## **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. The forecast of the expected influence of regulated residential appliances includes the impact of existing Natural Resources Canada requirements. Additionally, placeholder standards are projected post-2020 to determine the impact of the next increment to these existing NRCAN standards. These placeholder standards are based on future harmonization with recently emerged or pending U.S. Department of Energy residential appliance standards.

## **Other Residential Equipment**

<u>Central Air Conditioning</u> 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.

The forecast of post-2020 increments to the above central air conditioning MEPS determines the impact of the next increment to these existing NRCAN standards. Future placeholder standards were based on future harmonization with U.S. Department of Energy residential central air conditioner standards.

<u>Residential High Efficiency Furnace</u> 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.

## **Commercial New Construction**

<u>Building Code</u> Manitoba Energy Code for Buildings Regulation 213/2013 Registered: December 20, 2013 Effective Date: December 1, 2014

The national commitment to update the 1997 National Energy Code for Buildings (NECB) was initiated in Manitoba by the Energy Code Advisory Committee (ECAC) which was led by Manitoba Hydro. Manitoba Hydro 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's Minister of Labour provided formal support that signaled Manitoba's intention to adopt the document once published, however the Province still moved forward with their own energy strategy and convened a sub-committee of the Building Standards Board of Manitoba to recommend Manitoba-based energy and water efficiency recommendations that could be implemented in advance of the release of the 1997 NECB.

In January 2011, the energy efficiency amendments developed for the Manitoba building code were approved by the Building Standards Board of Manitoba and the Minister of Labour. However, with the NECB already through its public consultation phase and targeting a release date of Fall 2011, it was decided to hold back on regulating the specific Manitoba amendments so that a review and implementation of the NECB could be implemented. The sub-committee that developed the Manitoba amendments was reconvened in fall of 2012 with the task of reviewing the NECB and determining its applicability to the Manitoba market. Once again, Manitoba Hydro played a key role with several Power Smart staff contributing to this process. The sub-committee provided a recommendation that was formally adopted with minor adjustments in the December of 2013 for implementation and enforcement in December of 2014.

Manitoba Hydro staff continues to contribute to the national process for the development of building codes with several Customer Engineering Services staff actively involved in national meetings to ensure Manitoba Hydro objectives are met. NECB 2015 was published December 18<sup>th</sup>, 2015 and NECB 2020 is currently in development. Manitoba Hydro staff are also members of the Manitoba Building Standards Board Sub-Committee on Energy and Water Efficiency, which is responsible for reviewing all national changes to the energy code prior to adoption in Manitoba. Review of NECB 2015 is slated to occur in 2016.

Manitoba Hydro's Commercial New Buildings program will continue to play a critical role in advancing industry knowledge and expertise ahead of requirements adopted in the Manitoba Energy Code for Buildings. Manitoba Hydro has used a placeholder post-2020 Building Code which reflects current regulatory intentions beyond the 2011 NECB described above.

## **Commercial Lighting**

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

- 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

## General Service Lamps

National Resources Canada (FEDERAL) Amendment 12B to Energy Efficiency Regulations Published: January 15, 2014 (Canada Gazette Part II) Effective date(s): January 1<sup>st</sup>, 2014 - 75 to 100 watt equivalent lamps December 31<sup>st</sup>, 2014 - 40 to 60 watt equivalent lamps

The Government of Canada announced in Amendment 12B to the Energy Efficiency Regulations, published on January 15, 2014 that they would introduce Minimum Energy Performance Standards (MEPS) for general service lamps in 2012. The consequent Regulations came into force in December 2013 and applied to 100 and 75 W bulbs manufactured on or after January 1, 2014, and to 60 and 40 W bulbs manufactured on or after December 31, 2014. 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.

The next iteration of commercial lighting regulations has not been proposed. Manitoba Hydro has used a placeholder for Minimum Energy Performance Standard beginning in 2025 to account for future potential savings. This assumed MEP accounts for the impact of light-emitting diode (or equivalent) efficient lighting technology replacing the performance levels stipulated within Amendment 12B described above.

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.

<u>Fluorescent lamp ballasts</u> 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 15<sup>th</sup>, 2006 (New Construction Market) April 1<sup>st</sup>, 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.

**Other Commercial Equipment** 

<u>Commercial High Efficiency Furnace</u> 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 mark 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 it 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 it pre-program average of 30% to an estimated 75% by March 2015, thus facilitating the adoption of a higher performance standard in Manitoba.

<u>Commercial Pre Rinse Spray Valve</u> Manitoba Plumbing Code Regulation 32/2011 Adoption of National Plumbing Code of Canada 2010 Published: March 28, 2011 The Buildings and Mobile Homes Act (C.C.S.M. c. B93) Effective date: April 1, 2011

On April 1, 2011 the Manitoba Government repealed the Manitoba Plumbing Code, Manitoba Regulation 128/2006 and adopted the National Plumbing Code of Canada 2010 issued by the Canadian Commission on Buildings and Fire Codes, National Research Council Canada. The code states that the maximum flow rate for a pre-rinse spray valve not exceed 6.1 litres per minute (1.60 gallons per minute). The Power Smart Rinse & Save Program influenced market adoption; converting the Manitoba market to pre-rinse spray valves with equal or higher energy efficiency than the code. Manitoba Hydro's involvement has expedited market transformation and thus facilitated the adoption of the code.

At an Industrial level, Manitoba Hydro 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)

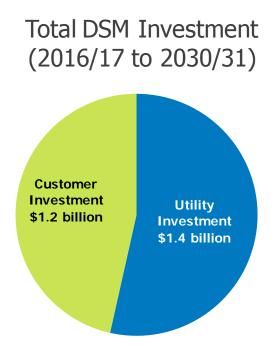
This work pertains primarily to industrial and commercial equipment that incorporates or applies to electric motors, variable speed drives, air compressors, compressed air systems, fans, pumps, transformers, power quality systems, battery charges, uninterruptible power supplies, lighting systems, refrigeration, 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). Industrial codes and standards are often developed as non-regulated mechanisms designed to support good practices in the selection, operation and maintenance of energy consuming measures. As such, these codes and standards are incorporated into Manitoba Hydro's Industrial Power Smart programs supporting the savings objectives of these programs.

## 2.2 DSM Investment

## 2.2.1 Total Investment

Manitoba Hydro's current 15 year DSM plan involves an investment of approximately \$2.6 billion (utility investment of \$1.4 billion and customer investment of an estimated \$1.2 billion, excluding cost impacts of changes to codes and standards).



## 2.2.2 Utility Investment

The following table provides the cumulative electric and natural gas internal DSM investment totals to 2030/31 broken down by market sector and cost basis. Including other internal DSM investments, it is expected that by 2030/31, an additional cumulative utility investment amount of \$1.4 billion will have been spent on Power Smart programs and initiatives. Including investments to date, it is expected that by 2030/31, a cumulative investment of achieving the energy savings will have been \$2.1 billion.

Inte	rnal DSM Utility Invo 2016/17 - 2030/3					
	Electric Cumulative Utility Costs (millions \$)		Natural Gas Cumulative Utility Costs (millions \$)		Total Cumulative Utility Costs (millions \$)	
Residential New Homes Program	\$3.0		\$0.2		\$3.2	
Home Insulation Program Water and Energy Saver Program	\$13.4 \$3.8		\$13.7 \$2.0		\$27.1 \$5.8	
Affordable Energy Program						
Affordable Energy Program - Insulation Affordable Energy Program - Furnace	\$24.6		\$45.5 \$23.7		\$70.0 \$23.7	*
Affordable Energy Program - Total	\$24.6		\$69.2		\$93.7	*
Refrigerator Retirement Program Drain Water Heat Recovery Initiative	\$8.4 \$0.1		-		\$8.4 \$0.1	
Residential LED Lighting Program	\$7.4 \$22.5		-		\$7.4 \$22.5	
Community Geothermal Program Appliances & Electronics Initiative	\$22.5		-		\$22.5	
HRV Controls Smart Thermostats	\$1.2 \$0.1		\$1.6 \$0.2		\$2.8 \$0.3	
Community Energy Plan	\$1.4		\$0.3		\$1.7	
Residential Programs Total	\$86.4	8%	\$87.2	51%	\$173.6	14%
Commercial						
Commercial Lighting Program LED Roadway Lighting Conversion Program	\$123.3 \$44.4		-		\$123.3 \$44.4	
Commercial Building Envelope - Windows Program Commercial Building Envelope - Insulation Program	\$10.3		\$13.3		\$23.7	
Commercial Geothermal Program	\$11.8 \$16.7		\$28.2		\$40.0 \$16.7	
Commercial HVAC Program - Boilers	-		\$1.9		\$1.9 \$0.2	
Commercial HVAC Program - Chillers (Water-Cooled) Commercial HVAC Program - CO2 Sensors Commercial HVAC Program - HRVs	\$0.2 \$1.7		\$2.3		\$0.2	
Commercial HVAC Program - HRVs Commercial HVAC Program - Air Cooled Chillers	\$20.7 \$11.9		\$14.7		\$35.4 \$11.9	
Commercial HVAC Program - Water Heaters	-		\$2.4		\$2.4	
Commercial Custom Measures Program Commercial Building Optimization Program	\$9.2 \$3.8		\$3.2 \$5.5		\$12.4 \$9.3	
New Buildings Program	\$10.9		\$2.3		\$13.2	
Commercial Refrigeration Program Commercial Kitchen Appliance Program	\$13.5 \$0.1		- \$0.2		\$13.5 \$0.3	
Network Energy Management Program	\$0.1		-		\$0.1	
Internal Retrofit Program Power Smart Energy Manager	\$10.5 \$2.2		\$0.1 \$1.5		\$10.6 \$3.7	
Power Smart Shops	\$3.4		\$0.1		\$3.6	
Race to Reduce Parking Lot Controller	\$0.5 \$0.5		\$0.3		\$0.8 \$0.5	
Commercial Programs Total	\$295.8	27%	\$76.0	44%	\$371.8	29%
Industrial						
Performance Optimization Program Natural Gas Optimization Program	\$122.2		\$7.8		\$122.2 \$7.8	
Industrial Programs Total	\$122.2	11%	\$7.8	5%	\$130.0	10%
Energy Efficiency Subtotal	\$504.4	45%	\$170.9	99%	\$675.3	53%
Load Management						
Curtailable Rate Program Load Management Programs Total	\$106.6 \$106.6	10%	-	0%	\$106.6 \$106.6	8%
Load Displacement & Alternative Energy	\$100.0	1070		0,0	\$100.0	0.0
Bioenergy Optimization Program	\$37.5		-		\$37.5	
Customer Sited Load Displacement Load Displacement & Alt. Energy Programs Total	\$81.8	11%	-	0%	\$81.8 \$119.4	9%
Conservation Rates						
Conservation Rates - Residential	\$13.2 \$17.3		-		\$13.2 \$17.3	
Conservation Rates - Commercial Conservation Rates Total	\$30.5	3%	-	0%	\$17.5	2%
Fuel Choice						
Fuel Choice Fuel Choice Total	\$53.8	5%	-	0%	\$53.8	4%
	\$55.0	570		0,0	\$55.0	170
Other Emerging Technologies Residential Air Source Heat Pumps Program	\$2.5		-		\$2.5	
Residential Future Opportunities	\$50.6		-		\$50.6	
Residential Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Water Heating	\$35.9 \$0.3		-		\$35.9 \$0.3	
Residential Solar Thermal Program - Pool Heating Commercial Future Opportunities	\$0.4 \$54.6		\$0.9		\$1.3 \$54.6	
Commercial Solar Photovoltaics Program (PV)	\$87.6		-		\$87.6	
Commercial Variable Speed and Frequency Drives Industrial Future Opportunities	\$2.7 \$59.9		-		\$2.7 \$59.9	
Other Emerging Technologies Total	\$294.4	27%	\$0.9	0%	\$295.3	23%
Program Impacts Total	\$1,109.0	100%	\$171.8	100%	\$1,280.8	100%
Program Support and Contingency Costs	\$66.6		\$16.0		\$82.6	
Power Smart Investment Total, 2016/17- 2030/31	\$1,175.6		\$187.8		\$1,363.5	
Other Internal DSM Investments						
Affordable Energy Fund	\$3.6		\$0.2		\$3.8	
Cumulative Investment Total, 2016/17 - 2030/31	\$1,179.2		\$188.0		\$1,367.2	
Spent to 2015/16	\$522.9		\$164.8		\$687.7	
Cumulative Investment Total, 1989/90 - 2030/31	\$1,702.2		\$352.8		\$2,055.0	

\*\* Includes Furnace Replacement Program Expenditures

The following table outlines the total projected DSM budget including all internal sources of funding to 2030/31. A total investment of \$1.4 billion is planned for the period of 2016/17 to 2030/31.

Forecasted Internal DSM Budget

					20	16/17 - 2 (millior										
	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Total
Electric DSM																
Electric Power Smart	56.8	81.3	100.7	95.6	90.3	88.5	68.2	62.0	64.1	68.4	72.7	76.7	81.0	84.9	84.4	1,175.6
Affordable Energy Fund	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	-	-	-	2.5
Annual Electric Budget	\$57.1	\$81.5	\$101.0	\$95.9	\$90.6	\$88.7	\$68.4	\$62.2	\$64.4	\$68.6	\$72.8	\$76.8	\$81.0	\$84.9	\$84.4	\$1,178.2
Natural Gas DSM																
Natural Gas Power Smart	13.7	13.3	11.8	11.0	11.0	11.1	10.6	10.7	10.6	10.8	10.5	9.7	9.8	10.1	9.6	164.1
Affordable Energy Fund	0.1	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	0.2
Furnace Replacement Budget	2.5	2.6	2.6	2.7	2.5	2.3	2.2	1.9	0.6	0.6	0.6	0.6	0.6	0.7	0.7	23.7
Annual Natural Gas Budget	\$16.3	\$15.9	\$14.5	\$13.7	\$13.4	\$13.4	\$12.8	\$12.6	\$11.2	\$11.4	\$11.2	\$10.3	\$10.4	\$10.7	\$10.2	\$188.0
Oil and Propane DSM																
Affordable Energy Fund	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	-	-	-	-	-	-	1.1
Annual Oil and Propane Budget	\$0.0	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2	\$0.1	-	-	-	-	-	-	\$1.1
Manitoba Hydro Annual Budget	\$73.4	\$97.4	\$115.6	\$109.7	\$104.2	\$102.3	\$81.4	\$75.0	\$75.6	\$80.0	\$83.9	\$87.1	\$91.4	\$95.6	\$94.7	
Cumulative Investment 2016/17 - 2030/31	\$73.4	\$170.8	\$286.4	\$396.1	\$500.3	\$602.5	\$683.9	\$758.9	\$834.5	\$914.5	\$998.4	\$1,085.5	\$1,176.9	\$1,272.6	\$1,367.2	\$1,367.2

Note: Figures may not add due to rounding

Including investments to date, it is expected that by 2030/31, a cumulative investment of achieving the energy savings will have been \$2.1 billion, \$1.7 billion of the costs are funded through the Corporation's Power Smart electricity budget, \$297 million from the Power Smart natural gas budget, \$35 million from the Affordable Energy Fund, and \$37 million from the Furnace Replacement budget for targeting furnace replacement.

#### Total Internal DSM Budget 1989/90 - 2030/31 (millions \$)

	Expenditures to date 1989/90 - 2015/16	15 yr planning horizon 2016/17 - 2030/31	Total 1989/90 - 2030/31
Electric DSM			
Electric Power Smart	509.6	1,175.6	1,685.2
Affordable Energy Fund	12.8	2.5	15.3
Annual Electric Budget	\$522.4	\$1,178.2	\$1,700.5
Natural Gas DSM			
Natural Gas Power Smart	132.9	164.1	297.1
Affordable Energy Fund	18.2	0.2	18.3
Furnace Replacement Budget	13.7	23.7	37.4
Annual Natural Gas Budget	\$164.8	\$188.0	\$352.8
Oil and Propane DSM			
Affordable Energy Fund	0.6	1.1	1.7
Annual Oil and Propane Budget	\$0.6	\$1.1	\$1.7
Cumulative Investment 1989/90 - 2030/31	\$687.7	\$1,367.2	\$2,055.0

Note: Figures may not add due to rounding

## 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.

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. As of March 31<sup>st</sup>, 2016 approximately \$34.1 million of the Affordable Energy Fund had been spent, leaving the remaining \$4.2 million.

R	Remaining
Free editors e	Tetel
Expeditures Total Budget to Date	Total Budget
	Judget
Affordable Energy Program 23.1 21.7	1.4
Geothermal Support 1.6 1.5	0.2
Community Support and Outreach 0.8 0.8	-
Oil and Propane Heated Homes 0.3 0.3	-
Special Projects	
Residential ecoENERGY Audits 0.5 0.5	-
Oil and Propane Furnace Replacement 1.1 0.2	0.9
Solar Water Heaters 0.3 0.3	-
Power Smart Residential Loan 2.1 2.0	0.1
Oil and Propane Heated Homes - Additional funding         0.3         0.1	0.2
Unallocated 0.7 -	0.7
Community Energy Development	
ecoENERGYProgram Funding 4.1 4.1	-
Power Smart PAYS Financing Program 0.4 0.1	0.3
Subtotal \$35.3 \$31.5	\$3.8
Energy & Resource Fund * 0.8 0.8	-
Manitoba Electric Bus *1.21.1	0.1
FortWhyte EcoVillage * 0.1 0.1 0.1	-
Diesel Community Green Pilot Demonstration * 0.4 0.1 Métis Generation Fund * 0.5 0.5	0.3
TOTALS         \$38.3         \$34.1	\$4.2

## Affordable Energy Fund Budget

\* Non Demand Side Management Budget 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 planning horizon.

Affordable Energy Fund Budget													
(millions \$)												2027/28-	
	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28-	Total
Affordable Energy Program	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	-	-	1.4
Geothermal Support	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	0.2
Special Projects													
Oil and Propane Furnace Replacement	-	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	-	-	-	0.9
Power Smart Residential Loan	0.1	0.0	-	-	-	-	-	-	-	-	-	-	0.1
Oil and Propane Heated Homes - Additional funding	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	0.2
Unallocated	-	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7
Community Energy Development													
Power Smart PAYS Financing Program	0.1	0.1	0.1	0.0	0.0	0.0	-	-	-	-	-	-	0.3
Subtotal	\$0.3	\$0.3	\$0.4	\$0.5	\$0.4	\$0.4	\$0.4	\$0.4	\$0.3	\$0.1	\$0.1	\$0.1	\$3.8
Manitoba Electric Bus *	0.0	0.0			-	-					-		0.1
Diesel Community Green Pilot Demonstration *	0.3	-	-	-		-	-	-	-	-		-	0.3
Annual Budget	\$0.7	\$0.4	\$0.4	\$0.5	\$0.4	\$0.4	\$0.4	\$0.4	\$0.3	\$0.1	\$0.1	\$0.1	\$4.2
Cumulative Budget 2016/17 - 2030/31	\$0.7	\$1.1	\$1.5	\$2.0	\$2.4	\$2.8	\$3.3	\$3.6	\$3.9	\$4.0	\$4.1	\$4.2	\$4.2

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

Figures may not add due to rounding

## Affordable Energy Program

The Affordable Energy Fund supports the Affordable Energy Program by targeting low-income Manitobans through an individual, community and neighbourhood approach.

## 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 with the interest rate being offered at 4.9% for the first five years of the loan term.

## Special Projects

## 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. The estimated savings of the other fuel types resulting from these upgrades are provided in section 2.1.2 of this report.

## 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 to a rate of 3.9%.

## 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. The estimated savings of the other fuel types resulting from the installation of insulation in customer homes are provided in section 2.1.2 of this report.

## Community Energy Development

## Power Smart PAYS Financing Program

This initiative provides funding to reduce the interest rate for the PAYS financing program from the cost recovery rate to a rate of 3.9%.

### Manitoba Electric Bus

Funding is provided to support the Manitoba Electric Bus Project; 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.

## **Diesel Community Green Pilot Demonstration**

This initiative provides funding to support a pilot demonstration focusing on green technologies in one of four diesel communities.

### **Unallocated**

Manitoba Hydro will continue to support energy efficiency and conservation to participants throughout the planning horizon as staff will determine what future opportunities are available. As such, a placeholder for the projected funds required to support these continued efforts is conveyed as unallocated.

# Furnace Replacement Budget

The 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.

The following table outlines the planned additions and expenditures over the planning horizon.

Furnace Replacement Budget

(millions \$)

		2016/17	2017/18	2018/19	2019/20 - 2030/31	Total
Furnace Replacement Budget						
Opening Balance	21.0					
Annual Additions		3.8	3.8	-	-	28.6
Annual Budget		2.5	2.6	2.6	16.0	23.7
Annual Balance	\$21.0	\$22.2	\$23.5	\$20.9	\$4.9	\$4.9

Note: Figures may not add due to rounding

# 2.3 DSM Metrics and other related measurements

# 2.3.1 Integrated Perspective

# Metrics

The following table outlines the cost effectiveness, from an integrated perspective, of the program offerings provided in the 2016 Demand Side Management Plan.

			ated DSM .6/17 - 20		;					
	Combine	ed DSM			Elect	ric DSM			Natural G	as DSM
						LRC				LRC
	SC	TRC	SC	TRC	TRC NPV (	¢/kW.h)	SC	TRC	TRC NPV	(¢/m³)
Residential							-			
New Homes Program Home Insulation Program	1.2 2.5	1.1 2.3	3.1 4.7	2.8 4.3	\$20.5 \$41.1	4.9 3.1	0.7 1.2	0.6	(\$16.8)	44.2 <i>wc</i> 24.3
Water and Energy Saver Program	2.5	2.3 5.1	4.7 5.3	4.5 5.0	\$14.4	2.5	5.5	5.3	\$1.4 \$8.4	24.5 11.5 W
Affordable Energy Program	1.5	1.3	2.7	2.5	424.0	5.4	0.9	0.8	(45.0)	27.0
Affordable Energy Program - Insulation Affordable Energy Program - Furnace	1.5	0.5	2.7 n/a	2.5 n/a	\$24.0 n/a	5.4 n/a	0.9	0.8	(\$5.8) (\$4.6)	37.9 w 52.9 *
Affordable Energy Program - Total	1.4	1.2	2.7	2.5	\$24.0	5.4	0.8	0.7	(\$10.5)	40.1 * w
Refrigerator Retirement Program Drain Water Heat Recovery Initiative	1.8 2.0	1.7 1.8	2.3 2.0	2.1 1.8	\$13.6 \$0.1	2.9 4.1	n/a n/a	n/a n/a	(\$5.5) n/a	n/a/ n/a
Residential LED Lighting Program	10.7	9.7	13.2	12.0	\$29.9	0.8	n/a	n/a	(\$6.1)	n/a /
Community Geothermal Program Appliances & Electronics Initiative	1.5 1.6	1.4 1.5	1.5 1.5	1.4 1.4	\$19.8 \$0.5	9.5 13.0	n/a 0.0	n/a 0.0	n/a \$0.1	n/a 0.0 w
HRV Controls	2.1	2.0	4.0	3.6	\$4.9	3.1	0.9	0.8	(\$0.5)	29.1
Smart Thermostats Community Energy Plan	1.8 0.0	1.6 0.0	5.2 0.0	4.7 0.0	\$0.3 (\$1.0)	2.7 0.0	1.0 0.0	0.9 0.0	(\$0.0) (\$0.2)	26.3 0.0
Residential Programs Total	1.8	1.6	2.7	2.5	\$168.4	4.7	0.8	0.7	(\$29.6)	42.1
Commercial										
Commercial Lighting Program	3.3	3.0	3.6	3.3	\$410.2	2.9	n/a	n/a	(\$44.3)	n/a /
LED Roadway Lighting Conversion Program Commercial Building Envelope - Windows Program	1.7 2.4	1.5 2.1	1.7 4.0	1.5 3.6	\$20.9 \$22.9	6.4 3.1	n/a 1.2	n/a 1.1	n/a \$0.9	n/a 24.3
Commercial Building Envelope - Insulation Program	3.1	2.8	6.6	6.0	\$42.8	2.2	1.8	1.6	\$14.8	15.7
Commercial Geothermal Program Commercial HVAC Program - Boilers	3.1 3.0	2.9 2.7	3.1 n/a	2.9 n/a	\$34.4 n/a	4.7 n/a	n/a 3.0	n/a 2.7	n/a \$6.9	n/a 9.0 <i>c</i>
Commercial HVAC Program - Chillers (Water-Cooled)	3.0	2.7	3.0	2.7	\$0.4	1.6	n/a	n/a	n/a	n/a
Commercial HVAC Program - CO2 Sensors Commercial HVAC Program - HRVs	3.6	3.2	7.0 5.2	6.3 4.7	\$8.0 \$42.4	2.4	1.4	1.3 1.0	\$0.7 (\$0.1)	18.8 27.2
Commercial HVAC Program - Air Cooled Chillers	1.8	1.6	1.8	1.6	\$4.4	2.8	n/a	n/a	(\$0.1) n/a	27.2 n/a
Commercial HVAC Program - Water Heaters	1.5	1.3	n/a	n/a	n/a	n/a	1.5	1.3	\$1.2	18.1
Commercial Custom Measures Program Commercial Building Optimization Program	1.8 2.0	1.6 1.9	1.9 3.4	1.7 3.1	\$14.7 \$7.0	5.5 2.9	1.5 1.3	1.3 1.2	\$1.6 \$1.0	19.7 21.5
New Buildings Program	3.5	3.1	4.3	3.9	\$341.7	3.1	0.9	0.8	(\$6.8)	35.8 c
Commercial Refrigeration Program Commercial Kitchen Appliance Program	4.3 13.6	3.9 13.2	3.8 17.9	3.4 17.1	\$45.4 \$3.2	2.1	n/a 11.5	n/a 11.2	\$8.9 \$4.0	n/a / 8.4 w
Network Energy Management Program	1.2	1.1	1.3	1.2	\$0.0	5.6	n/a	n/a	(\$0.0)	n/a /
Internal Retrofit Program Power Smart Energy Manager	1.5 3.2	1.4 2.9	1.5 4.3	1.4 4.0	\$3.3 \$10.6	4.5 2.3	n/a 1.6	n/a 1.4	n/a \$1.1	n/a / 18.4 w
Power Smart Shops	4.0	3.7	3.9	3.5	\$11.9	3.1	9.9	9.7	\$0.9	11.4 <i>iw</i>
Race to Reduce	3.0	2.8	3.7	3.3	\$1.3	1.6	1.9	1.7	\$0.2	10.9
Parking Lot Controller Commercial Programs Total	3.3	3.0	3.3	3.0	\$1.0	1.6	n/a 1.0	n/a 0.9	n/a (\$9.9)	n/a 30.5
Industrial									(10.07	
Performance Optimization Program	3.0	2.7	3.0	2.7	\$234.0	2.9	n/a	n/a	n/a	n/a
Natural Gas Optimization Program Industrial Programs Total	1.4	1.3	n/a 3.0	n/a 2.7	n/a \$234.0	n/a 2.9	1.4	1.3	\$6.9	19.1
Energy Efficiency Subtotal	2.7	2.5	3.3	3.0	\$1,428.8	3.3	0.9	0.9	(\$32.6)	32.6
Load Management	- (-	- /-	- 1-	- (-	- (-	- /-	- /-	- /-	- /-	- /-
Curtailable Rate Program Load Management Programs Total	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a
Load Displacement & Alternative Energy										
Bioenergy Optimization Program	1.5	1.4	1.5	1.4	\$48.3	9.2	n/a	n/a	n/a	n/a
Customer Sited Load Displacement	1.6	1.4	1.6	1.4	\$124.7 \$173.0	4.7	n/a n/a	n/a n/a	n/a n/a	n/a n/a
Load Displacement & Alt. Energy Programs Total	1.0	1.4	1.0	1.4	\$175.0	3.4	II/a	nya	n/a	nya
Conservation Rates Conservation Rates - Residential	18.7	17.0	18.7	17.0	\$161.6	0.4	n/a	n/a	n/a	n/a
Conservation Rates - Commercial	23.9	21.7	23.9	21.7	\$261.9	0.3	n/a	n/a	n/a	n/a
Conservation Rates Total	21.6	19.6	21.6	19.6	\$423.5	0.4	n/a	n/a	n/a	n/a
Fuel Choice	7.5	6.8	7.5	6.8	\$459.5	1.9	n/a	n/a	n/a	n/a
Fuel Choice Total	7.5	6.8	7.5	6.8	\$459.5	1.9	n/a	n/a	n/a	n/a
Other Emerging Technologies										
Other Emerging Technologies Residential Air Source Heat Pumps Program	0.8	0.7	0.8	0.7	(\$1.5)	8.8	n/a	n/a	n/a	n/a
Residential Future Opportunities	1.6	1.4	1.6	1.4	\$26.0	6.5	n/a	n/a	n/a	n/a
Residential Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Water Heating	0.6	0.5	0.6 0.4	0.5 0.4	(\$19.5) (\$0.4)	14.6 17.8	n/a n/a	n/a n/a	n/a n/a	n/a n/a
Residential Solar Thermal Program - Pool Heating	1.0	0.9	1.4	1.3	\$0.2	3.3	0.8	0.7	(\$0.4)	38.3
Commercial Future Opportunities Commercial Solar Photovoltaics Program (PV)	1.7	1.6 0.7	1.7 0.8	1.6 0.7	\$30.6 (\$38.1)	6.0 11.4	n/a n/a	n/a n/a	n/a n/a	n/a n/a
Commercial Variable Speed and Frequency Drives	0.8	1.5	0.8	1.5	(\$38.1) \$0.7	3.6	n/a n/a	n/a n/a	n/a n/a	n/a n/a
Industrial Future Opportunities	2.0	1.8	2.0	1.8	\$39.2	5.4	n/a	n/a	n/a	n/a
Other Emerging Technologies Total	1.2	1.1	1.2	1.1	\$37.3	8.0	0.8	0.7	(\$0.4)	38.3
Program Impacts Total	2.6	2.4	2.9	2.6	\$2,522.1	3.6	0.9	0.9	(\$33.1)	32.7
Program Support	-	-	-	-	(\$44.0)	-	-	-	(\$10.5)	-
Program Impacts Total (Incl. Support and Contingency Costs)	2.5	2.3	2.8	2.5	\$2,478.1	3.7	0.9	0.8	(\$43.6)	34.0
Other Internal DSM Investments										-
Affordable Energy Fund	-	-	-	-	(\$2.8)	-	-	-	(\$0.2)	-
Overall Portfolio Metric	2.5	2.3	2.8	2.5	\$2,475.3	3.7	0.9	0.8	(\$43.8)	34.1

Notes:

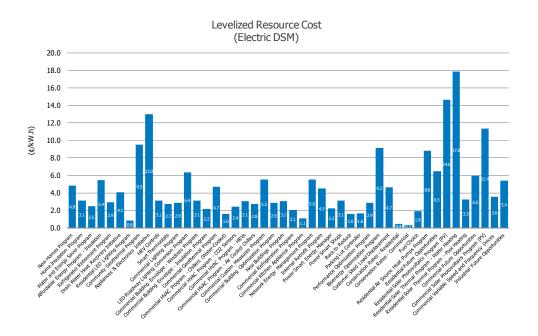
\* Includes Furnace Replacement Program

c Program assumption includes savings from Codes & Standards

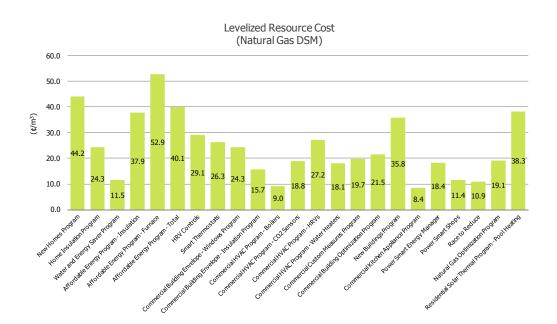
i Program reflects natural gas interactive effects w SC, TRC and TRC NPV include Water Savings Benefits

1) Overall portfolio metrics do not include Customer Service Initiatives / Financial Loan Programs nor Curtailable Rate Program

The following chart provides the Levelized Resource Cost of the electric program offerings in the 2016 Demand Side Management Plan.



The following chart provides the Levelized Resource Cost of the natural gas program offerings in the 2016 Demand Side Management Plan.

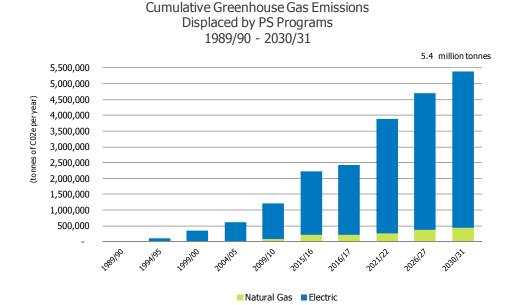


## **Global Greenhouse Gas Emissions Reductions**

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 2016 Demand Side Management Plan, including greenhouse gas emission reductions resulting from Manitoba Hydro's Power Smart efforts since 1989. Global greenhouse gas emission reductions of 3.3 million tonnes are forecast to be achieved due to energy savings outlined in the Demand Side Management Plan.

	Annual CO2 Reductions (tonnes)
CO2 Reductions - Electric	3,041,540
CO2 Reductions - Natural Gas	218,098
2016/17 Power Smart Plan (2016/17 - 2030/31)	3,259,638
CO2 Reductions Achieved to Date - Electric	1,922,767
CO2 Reductions Achieved To Date - Natural Gas	214,544
Savings Achieved to 2015/16 (1989/90 - 2030/31)	2,137,311
Total Projected to 2030/31	5,396,948

Including reductions achieved to date, approximately 5.4 million tonnes are forecast to be realized due to Manitoba Hydro's Power Smart efforts by 2030/31.



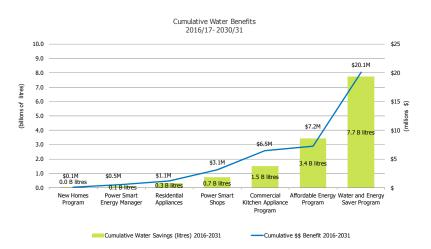
## Additional Measureable Non-Energy Benefits

As part of the 2016 Demand Side Management Plan, the following residential and commercial programs are expected to capture additional water saving benefits:

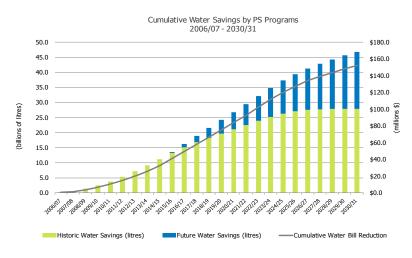
-	New Homes Program	-	Commercial Kitchen Appliance Program
-	Power Smart Energy Manager	-	Affordable Energy Program

- Residential Appliances Water and Energy Saver Program
- Power Smart Shops

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 14 billion liters of water and \$39 million in bill savings will be achieved from 2016/17 to 2030/31.



When combined with savings to date, Power Smart programs are expected to save approximately 47 billion liters of water and \$152 million by 2030/31.



# 2.3.2 Utility Perspective

# Metrics

The following table outlines the cost effectiveness, from a utility perspective, of the program offerings provided in the 2016 Demand Side Management Plan.

	Utility DSM M 2016/17 - 20							
			Ele	ctric DSM			Natural G	as DSM
	RIM	NUB	NPV	LUC (¢/kW.h)	RIM	NUB	NPV	LUC (¢/m3)
				(				(
esidential New Homes Program	1.4	4.6	\$9.3	1.1	0.7	-53.7	(\$10.1)	0.2
Home Insulation Program	1.7	1.9	\$9.5	2.6	0.5	-0.8	(\$19.1)	12.1
Water and Energy Saver Program	0.7	-0.1	(\$3.9)	2.4	0.5	-1.0	(\$3.8)	11.3
Affordable Energy Program								
Affordable Energy Program - Insulation Affordable Energy Program - Furnace	0.9 n/a	0.8 n/a	(\$3.9) n/a	5.7 n/a	0.3	-0.3 -0.1	(\$40.0) (\$19.7)	37.9 126.5
Affordable Energy Program - Total	0.9	0.8	(\$3.9)	5.7	0.1	-0.1	(\$19.7)	50.8
Refrigerator Retirement Program	0.6	-0.9	(\$14.2)	1.8	n/a	n/a	\$2.7	n/a
Drain Water Heat Recovery Initiative	0.6	-0.2	(\$0.1)	3.3	n/a	n/a	n/a	n/a
Residential LED Lighting Program	1.0	0.9	(\$0.4)	2.1	n/a	n/a	\$2.9	n/a
Community Geothermal Program Appliances & Electronics Initiative	1.2	1.7 -0.1	\$10.6 (\$0.4)	2.8	n/a 0.7	n/a 0.0	n/a (\$0.0)	n/a 0.0
HRV Controls	1.1	1.6	\$0.7	1.9	0.4	-0.6	(\$2.5)	16.3
Smart Thermostats	1.3	2.9	\$0.1	1.7	0.4	-0.6	(\$0.4)	16.3
Community Energy Plan	0.0	0.0	(\$1.0)	0.0	0.0	0.0	(\$0.2)	0.0
sidential Programs Total	1.0	1.1	\$6.1	2.7	0.4	-0.4	(\$90.2)	24.4
mmercial								
Commercial Lighting Program	1.1	1.6	\$49.4	1.3	n/a	n/a	\$14.5	n/a
LED Roadway Lighting Conversion Program	0.8	0.6	(\$14.1)	3.6	n/a	n/a	n/a	n/a
Commercial Building Envelope - Windows Program Commercial Building Envelope - Insulation Program	1.1 1.3	1.5 2.5	\$3.6 \$11.4	2.4 2.0	0.5	-0.4 -0.5	(\$11.7) (\$28.0)	17.2 12.8
Commercial Geothermal Program	1.3	2.2	\$12.2	2.6	n/a	-0.5 n/a	(\$28.0) n/a	n/a
Commercial HVAC Program - Boilers	n/a	n/a	n/a	n/a	0.7	-1.6	(\$4.5)	3.9
Commercial HVAC Program - Chillers (Water-Cooled)	0.8	-0.2	(\$0.2)	1.2	n/a	n/a	n/a	n/a
Commercial HVAC Program - CO2 Sensors Commercial HVAC Program - HRVs	1.3 1.2	2.7	\$2.3 \$7.5	2.2 3.4	0.5 0.5	-0.4 -0.4	(\$2.6) (\$12.2)	14.5 15.0
Commercial HVAC Program - HRVs Commercial HVAC Program - Air Cooled Chillers	1.2	1.6 0.0	\$7.5 (\$7.7)	3.4	0.5 n/a	-0.4 n/a	(\$12.2) n/a	15.0 n/a
Commercial HVAC Program - Water Heaters	n/a	n/a	(\$7.7) n/a	n/a	0.6	-0.7	(\$3.0)	8.8
Commercial Custom Measures Program	1.1	1.7	\$3.8	1.5	0.6	-0.6	(\$3.4)	8.6
Commercial Building Optimization Program	1.0	0.9	(\$0.3)	2.1	0.5	-0.5	(\$5.3)	12.6
New Buildings Program	1.5	17.5	\$148.9	0.2	0.8	-3.0	(\$7.6)	1.8
Commercial Refrigeration Program Commercial Kitchen Appliance Program	0.9	0.7	(\$3.4) \$0.1	1.5 0.6	n/a 0.6	n/a -1.6	(\$2.4) (\$0.6)	n/a 5.1
Network Energy Management Program	0.8	0.4	(\$0.1)	2.3	n/a	-1.0 n/a	\$0.0	n/a
Internal Retrofit Program	1.4	1.4	\$3.3	4.5	n/a	n/a	n/a	n/a
Power Smart Energy Manager	1.2	2.6	\$2.6	1.0	0.6	-0.7	(\$1.9)	8.2
Power Smart Shops	1.0	1.1	\$0.4	2.0	0.5	-1.0	(\$0.2)	10.1
Race to Reduce	0.9 0.7	0.6 -0.1	(\$0.2) (\$0.6)	1.4 1.8	0.5	-0.7 n/a	(\$0.4) n/a	9.7 n/a
Parking Lot Controller mmercial Programs Total	1.2	2.0	\$218.9	1.8	n/a 0.6	-0.4	(\$69.3)	13.7
			+				(+)	
dustrial Performance Optimization Program	1.1	1.5	\$39.1	1.6	n/a	n/a	n/a	n/a
Natural Gas Optimization Program	n/a	n/a	n/a	n/a	0.7	-1.2	(\$11.4)	4.2
ustrial Programs Total	1.1	1.5	\$39.1	1.6	0.7	-1.2	(\$11.4)	4.2
rgy Efficiency Subtotal	1.1	1.7	\$264.2	1.6	0.5	-0.4	(\$170.9)	15.8
d Management								
Curtailable Rate Program	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ad Management Programs Total	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ad Displacement & Alternative Energy								
Bioenergy Optimization Program	1.3	2.5	\$43.1	2.2	n/a	n/a	n/a	n/a
Customer Sited Load Displacement ad Displacement & Alt. Energy Programs Total	1.1	1.5	\$38.1	1.1	n/a n/a	n/a n/a	n/a n/a	n/a n/a
nservation Rates	1.2	1.0	401.2	1.5		.,,,,	/u	/u
Servation Rates Conservation Rates - Residential	0.8	-2.4	(\$34.3)	0.4	n/a	n/a	n/a	n/a
Conservation Rates - Commercial	1.2	5.3	\$54.1	0.3	n/a	n/a	n/a	n/a
nservation Rates Total	1.0	1.9	\$19.7	0.4	n/a	n/a	n/a	n/a
l Choice								
Fuel Choice	1.4	4.4	\$151.0	1.1	n/a	n/a	n/a	n/a
el Choice Total	1.4	4.4	\$151.0	1.1	n/a	n/a	n/a	n/a
ner Emerging Technologies								
Residential Air Source Heat Pumps Program	0.6	-1.0	(\$2.7)	2.4	n/a	n/a	n/a	n/a
Residential Future Opportunities	0.8	0.2	(\$22.6)	3.1	n/a	n/a	n/a	n/a
Residential Solar Photovoltaics Program (PV)	0.5	-0.1	(\$19.7)	6.1	n/a	n/a	n/a	n/a
Residential Solar Thermal Program - Water Heating	0.4	-0.2	(\$0.3)	7.3	n/a	n/a	n/a	n/a
Residential Solar Thermal Program - Pool Heating	0.4	-3.5	(\$1.1)	1.2	0.5	-0.7	(\$0.9)	14.2
Commercial Future Opportunities Commercial Solar Photovoltaics Program (PV)	0.9	0.6 0.3	(\$11.3) (\$32.4)	3.4 3.7	n/a n/a	n/a n/a	n/a n/a	n/a n/a
Commercial Variable Speed and Frequency Drives	0.6	0.3	(\$1.3)	4.1	n/a	n/a	n/a	n/a
Industrial Future Opportunities	0.9	0.9	(\$4.8)	3.7	n/a	n/a	n/a	n/a
ner Emerging Technologies Total	0.8	0.4	(\$96.2)	3.7	0.5	-0.7	(\$0.9)	14.2
		1.6	\$419.9	1.5	0.5	-0.4	(\$171.8)	15.8
	1 1 1		- 9719.9	1.5	0.5	-0.4	(\$1/1.0)	15.8
gram Impacts Total	1.1							
igram Impacts Total Igram Support		-	(\$44.0)	-	-	-	(\$10.5)	-
gram Impacts Total gram Support		1.5	(\$44.0) \$376.0	1.6	0.5	-0.4	(\$10.5) (\$182.3)	17.2
gram Impacts Total gram Support gram Impacts Total (Incl. Support and Contingency Costs) er Internal DSM Investments		-	\$376.0		0.5		(\$182.3)	
gram Impacts Total		-	. ,		0.5			

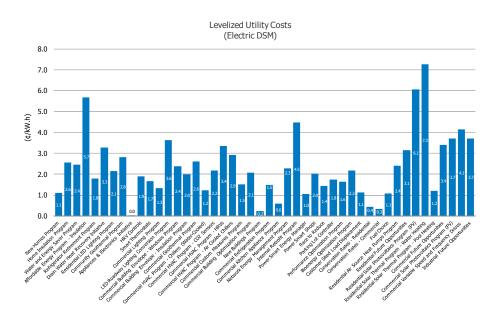
Notes:

\*Includes Furnace Replacement Program

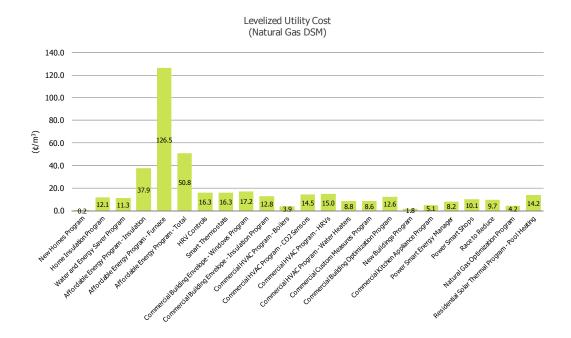
c Program assumption includes savings from Codes & Standards i Program reflects natural gas interactive effects 1) Overall portfolio metrics do not include Customer Service Initiatives / Financial Loan Programs nor Curtailable Rate Program

Overall portious nectos do tou include closofiel serve analysis / indicat claim roganis no clatalade kate rogani
 Overall portion metrics include all support, contingency and Affordable Energy Fund Expenditures and Furance Replacement Program
 Excluding the Affordable Energy Program, overall natural gas LUC is 12.3 ¢/m<sup>3</sup>

The following chart provides the Levelized Utility Cost of the electric program offerings in the 2016 Demand Side Management Plan.



The following chart provides the Levelized Utility Cost of the natural gas program offerings in the 2016 Demand Side Management Plan.



# 2.3.3 Customer Perspective

# Metrics

The following table outlines the cost effectiveness, from a participating customer perspective, of the program offerings provided in the 2016 Demand Side Management Plan.

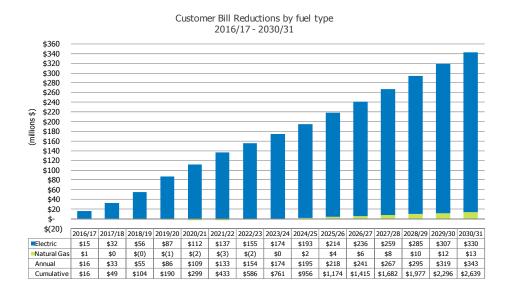
Description         Description         Description         Description           Readential         67         2.1         \$11.3         16.9           New Homes Program         6.7         2.1         \$12.5         \$2.5         \$33.7         5.9           Wate and Energy Rogram         0.0         2.4.2         \$18.3         0.0           Affordable Energy Program - Insulation         n/a         n/					mer DSM M 6/17 - 2030
Commercial Lighting Program         6.7         2.1         \$11.3         16.9           Home Ensistency Rogram         0.0         24.2         \$31.3         0.0           Affordable Energy Program         number Ensistence         n/a         n/a         n/a         n/a           Affordable Energy Program         number Energy Program         number Energy Program         n/a	atural Gas DSM	Natu	tric DSM	Elec	
New Homes Program         6.7         2.1         \$11.3         16.5           Home Insulation Program         1.2         5.2         \$31.7         5.9           Water and Energy Sover Program         0.0         24.2         \$18.3         0.0           Affordable Energy Program - Traulation         n/a         n/a         n/a         n/a         n/a           Affordable Energy Program - Total         n/a         n/a         n/a         n/a         n/a           Refigreator Reterrent Program         1.4         5.4         \$27.8         n/a           Dran Water Heat Recovery Inflative         2.1         3.2         \$3.2         n/a           Applances & Electronics Inflative         2.2         3.5         \$44.2         5.9           Simmercial         1.6         \$24.8         \$0.0         0.0         0.0           Commercial Lighting Program         0.1         6.5         \$2.4         \$19.2         \$4           Commercial Lighting Program         0.1         6.5         \$2.4         \$19.2         \$4           Commercial Lighting Program - Enselton Program         0.3         2.4         \$2.2         \$7         \$1.5           Commercial Lighting Program - Insulation Program         0.2	PC PC NPV	Payback	PC NPV	РС	Payback
New Homes Program         6.7         2.1         \$11.3         16.5           Home Insulation Program         1.2         5.2         \$31.7         5.9           Water and Energy Sover Program         0.0         24.2         \$18.3         0.0           Affordable Energy Program - Traulation         n/a         n/a         n/a         n/a         n/a           Affordable Energy Program - Total         n/a         n/a         n/a         n/a         n/a           Refigreator Reterrent Program         1.4         5.4         \$27.8         n/a           Dran Water Heat Recovery Inflative         2.1         3.2         \$3.2         n/a           Applances & Electronics Inflative         2.2         3.5         \$44.2         5.9           Simmercial         1.6         \$24.8         \$0.0         0.0         0.0           Commercial Lighting Program         0.1         6.5         \$2.4         \$19.2         \$4           Commercial Lighting Program         0.1         6.5         \$2.4         \$19.2         \$4           Commercial Lighting Program - Enselton Program         0.3         2.4         \$2.2         \$7         \$1.5           Commercial Lighting Program - Insulation Program         0.2					
Water and Energy Source Program         0.0         24.2         \$18.3         0.0           Affordable Energy Program - Insulation         n/a         n/a         n/a         n/a         n/a           Affordable Energy Program - Total         n/a         n/a         n/a         n/a         n/a           Refigerator Reference Program         1.4         5.4         \$27.3         n/a           Residential LD ighting Program         0.0         31.2         \$30.2         n/a           Residential LD ighting Program         2.1         3.2         \$40.4         N/a           Commercial Column Settlement Program         0.0         0.0         0.0         0.0           Commercial Lighting Program         2.1         3.4         \$28.4         5.9           Commercial Lighting Program         0.0         0.0         0.0         0.0           Commercial Lighting Program         2.1         3.4         \$28.4         1.3           Commercial Lighting Program - Ensultato Program         0.2         7.5         \$3.1         1.3           Commercial Lighting Program - Ensultato Program         0.2         \$4.2         \$2.4         \$2.2           Commercial Lighting Program - Ensultato Program         0.2         \$5.7         1	0.8 (\$10.6)	16.9	\$11.3	2.1	6.7
Affordable Energy Program - Insulation         n/a         n/a         n/a         n/a         n/a         n/a           Affordable Energy Program - Total         n/a         n/a <td>2.0 \$17.9</td> <td></td> <td></td> <td></td> <td></td>	2.0 \$17.9				
Affordable Energy Program - Torance         n/a	0 16.9 \$12.0	0.0	\$18.3	24.2	0.0
Affordable Energy Program - Total         n/a         n/a <t< td=""><td>a n/a n/a</td><td>n/a</td><td>n/a</td><td>n/a</td><td>n/a</td></t<>	a n/a n/a	n/a	n/a	n/a	n/a
Affordable Energy Program - Total         n/a         n/a         n/a         n/a         n/a           Refrigerator Retrement Program         1.4         5.4         \$27.8         n/a           Drain Water Heat Recovery Initiative         2.1         3.2         \$30.4         n/a           Residential LD lighting Program         1.0         1.2         \$9.3         n/a           Community Geothermal Program         1.0         1.2         \$9.3         n/a           Applances & Electronics Initative         4.7         1.9         \$1.0         0.0           Commercial Lighting Program         0.0         0.0         0.0         0.0         0.0           Commercial Lighting Program         0.1         1.6         \$24.0         n/a           Commercial Lighting Program         0.2         7.5         \$31.4         1.3           Commercial Lighting Program         0.2         7.5         \$31.4         0.7         n/a					
Drain Water Heat Recovery Initiative         2.1         3.2         \$0.2         r/a           Residential EU bipting Program         0.0         31.2         \$3.3         r/a           Applances & Bettronics Initiative         4.7         1.9         \$1.0         0.0           HW Controls         2.2         3.5         \$4.2         2.0         7.0           Commercial Multing Energy Plan         0.0         0.0         0.0         0.0         0.0           Commercial Lighting Program         2.1         3.4         \$360.3         n/a           Commercial Lighting Program         0.1         1.6         \$24.0         n/a           Commercial Lighting Program         0.3         2.7         \$1.3         1.3           Commercial Multing Envelope - Vindows Program         0.2         7.5         \$31.4         1.3           Commercial INAC Program - Delars (Water-Cooled)         1.7         6.1         \$5.7         1.5           Commercial Multing Develope - Vindows Program         1.3         5.5         2.7         \$1.5           Commercial INAC Program - Network Cooled         1.7         6.1         \$5.7         1.5           Commercial Lighting Program         1.0         5.5         7.7         1.5 <td>a n/a n/a</td> <td></td> <td>n/a</td> <td>n/a</td> <td>n/a</td>	a n/a n/a		n/a	n/a	n/a
Residential LED Lighting Program         0.0         31.2.2         \$3.0.4         n/a           Community Centremis Initiative         4.7         1.9         \$1.0         0.0           HRV Controls         3.2         4.2         \$0.0         0.0         0.0           Community Inergy Plan         0.0         0.0         0.0         0.0         0.0           Commercial Lighting Program         2.1         3.4         \$360.8         n/a           Commercial Lighting Program         0.1         1.6         \$24.0         n/a           Commercial Lighting Program         0.3         2.4         \$2.2         n/a           Commercial Lighting Program - Ohlers (Water-Cooled)         1.7         6.1         \$0.7         n/a           Commercial HVAC Program - Ohlers (Water-Cooled)         1.7         6.1         \$0.7         n/a           Commercial HVAC Program - Nethers         0.4         9.0         \$5.7         1.5           Commercial HVAC Program - Nethers         0.4         9.0         \$5.7         1.5           Commercial HVAC Program - Nethers         1.0         1.6         \$1.0         7.4           Commercial HVAC Program - Nethers         1.0         \$1.4         \$1.5         \$1.5					
Community Geothermal Program         13.0         1.2         9.3         n/a           Applances & Betronics Initiative         4.7         1.9         \$1.0         0.0           HRV Controls         2.2         3.5         \$4.2         7.0           Community Energy Plan         0.0         0.0         9.0         0.0           Commercial         Difficing Program         2.1         3.4         \$360.8         n/a           Commercial Lighting Crowersion Program         0.8         7.5         \$31.4         1.3           Commercial Ruiding Envelope - Vindows Program         0.2         7.5         \$31.4         1.3           Commercial Ruiding Envelope - Vindows Program         0.2         7.5         \$31.4         1.3           Commercial RuAC Program - Roles         Nuter - Cooled)         1.7         6         \$5.7         1.5           Commercial RuAC Program - Network Chilers         0.0         2.9         \$12.2         n/a           Commercial Ruiding Diversion Program         10.3         1.6         \$10.9         7.4           Commercial Ruiding Diversion Program         10.3         1.6         \$10.9         7.4           Commercial Ruiding Diversion Program         10.3         1.6         \$10.9					
Applances & Electronis Initiative       4.7       1.9       \$1.0       0.0         HRV Controls       2.2       3.5       \$4.2       5.0         Smart Thermostats       3.2       4.2       \$0.0       0.0         Community Energy Plan       0.0       0.0       0.0       0.0         Commercial Lighting Program       0.1       1.6       \$24.0       n/a         Commercial Lighting Program       0.1       1.6       \$24.0       n/a         Commercial Lighting Program       0.2       7.5       \$31.4       1.3         Commercial FWAC Program - Dollers       n/a       n/a       n/a       n/a         Commercial HWAC Program - Dollers       0.4       9.0       \$5.7       1.5         Commercial HWAC Program - Nets       2.9       \$1.2       n/a       4.0         Commercial HWAC Program - Nets       0.1       9.0       \$5.7       1.5         Commercial HWAC Program - Nets       0.2       9       \$1.2       n/a         Commercial HWAC Program - Nets       0.1       9.0       \$5.7       1.5         Commercial HWAC Program - Nets       0.1       1.6       \$1.0       n/a         Commercial Lighton Probram       0.4       7.5 <td></td> <td></td> <td></td> <td></td> <td></td>					
Smirt Thermostats         3.2         4.2         9.0         0.0           Community Energy Plan         0.0         0.0         \$0.0         \$0.0           Commercial Lighting Program         2.1         3.4         \$360.8         n/a           Commercial Lighting Program         0.0         1.6         \$24.0         n/a           Commercial Building Envelope - Insulation Program         0.2         7.5         \$31.4         1.3           Commercial HVAC Program- Boliers         n/a         n/a         n/a         n/a         n/a           Commercial HVAC Program- COLS essors         0.4         9.0         \$5.7         1.5           Commercial HVAC Program- HVAC toold Chillers         0.0         2.9         \$12.2         n/a           Commercial HVAC Program- HVAC toold Chillers         0.0         2.9         \$12.2         n/a           Commercial Building Optimization Program         1.0         \$1.6         \$10.9         7.4           Commercial Building Optimization Program         1.0         \$1.6         \$10.9         7.4           Commercial Building Optimization Program         0.0         1.6         \$1.0         \$1.0         \$1.0         \$1.0         \$1.0         \$1.0         \$1.0         \$1.0 <t< td=""><td></td><td></td><td></td><td></td><td></td></t<>					
Community Energy Plan         0.0         0.0         \$0.0         \$0.0           Commercial Commercial Lighting Program         2.1         3.4         \$360.8         n/a           Commercial Building Envelope - Windows Program         0.8         7.5         \$31.4         1.3           Commercial Building Envelope - Windows Program         0.2         7.5         \$31.4         1.3           Commercial Building Envelope - Windows Program         0.3         2.4         \$22.2         n/a           Commercial HVAC Program - Chilers (Water-Cooled)         1.7         6.1         \$0.7         7.5           Commercial HVAC Program - Alt Cooled Chillers         0.0         2.9         \$1.2         n/a           Commercial Building Optimization Program         1.0         1.6         \$1.0         9.7         \$2.8         2.8         0.0           Commercial Building Optimization Program         0.0         1.0         \$1.6         \$1.0         9.7         \$3.5         \$1.5         \$0.1         n/a         \$1.6         \$1.0         \$1.6         \$1.0         \$1.6         \$1.0         \$1.6         \$1.0         \$1.6         \$1.0         \$1.6         \$1.0         \$1.6         \$1.0         \$2.8         \$1.8         \$1.0         \$1.6 <td< td=""><td></td><td></td><td>\$4.2</td><td>3.5</td><td>2.2</td></td<>			\$4.2	3.5	2.2
Commercial         View           Commercial Lighting Conversion Program         2.1         3.4         \$360.8         n/a           LED Roadway Lighting Conversion Program         0.0         1.6         \$24.0         n/a           Commercial Building Envelope - Insulation Program         0.2         7.5         \$31.4         1.3           Commercial HVAC Program - Boliers         n/a         n/a         n/a         n/a         n/a           Commercial HVAC Program - Colles (Water-Cooled)         1.7         6.1         80.7         n/a           Commercial HVAC Program - COlles (Water-Cooled)         1.7         6.1         80.7         n/a           Commercial HVAC Program - Nethers         0.4         9.0         \$5.7         1.5           Commercial HVAC Program - Water Heaters         n/a         n/a         n/a         n/a           Commercial Refrigeration Program         1.3         1.6         \$10.9         7.4           Commercial Refrigeration Program         0.3         1.6         \$10.9         7.4           Commercial Refrigeration Program         0.3         1.6         \$10.9         7.4           Commercial Refrigeration Program         0.0         1.8         4         \$3.1         0.0					
Commercial Lighting Program         2.1         3.4         \$30.8         r/a           LED Roadway Ughting Conversion Program         0.0         1.6         \$24.4         r/a           Commercial Building Envelope - Vindows Program         0.2         7.5         \$31.4         1.3           Commercial Geothermal Program         0.2         7.5         \$31.4         1.3           Commercial HVAC Program - Chilers (Water-Cooled)         1.7         6.1         \$0.7         n/a           Commercial HVAC Program - Chilers (Water-Cooled)         1.7         6.1         \$0.7         n/a           Commercial HVAC Program - Revise         0.4         9.0         \$5.7         1.5           Commercial HVAC Program - Mater Cooled Chillers         0.0         2.9         \$1.2.2         n/a           Commercial Building Optimization Program         1.0.3         1.6         \$1.0.9         7.4         4.0           Commercial Refrigeration Program         0.0         1.6         \$1.0.9         7.4         8.8         N/a           Commercial Building Optimization Program         0.3         1.5         \$0.1         n/a         1.1         N/a         1.1         0.0         N/a         1.1         N/a         1.1         1.1         1.1	0.0 \$0.0	0.0	\$0.0	0.0	0.0
LED Roadway Lighting Conversion Program         0.0         1.6         \$\$24.0         n/a           Commercial Building Envelope - Vindows Program         0.2         7.5         \$\$11.4         1.3           Commercial Building Envelope - Insulation Program         0.2         7.5         \$\$11.4         1.3           Commercial HVAC Program - Colliers         n/a         n/a         n/a         3.4           Commercial HVAC Program - Colliers (Water-Cooled)         1.7         6.1         \$\$0.7         n/a           Commercial HVAC Program - Art Cooled Chillers         0.0         2.9         \$\$12.2         n/a           Commercial HVAC Program - Art Cooled Chillers         0.0         2.9         \$\$12.2         n/a           Commercial Building Optimization Program         1.9         5.0         \$\$7.3         3.5           Commercial Building Program         0.4         4.7         \$\$48.8         n/a           Commercial Building Coptimization Program         0.4         1.5 </td <td></td> <td></td> <td></td> <td></td> <td></td>					
Commercial Building Envelope - Windows Program         1.8         4.7         \$19.2         5.4           Commercial Building Envelope - Insulation Program         5.3         2.4         \$22.2         n/a           Commercial HVAC Program - Balers         n/a         n/a         n/a         3.4           Commercial HVAC Program - Collers (Water-Cooled)         1.7         6.1         \$0.7         n/a           Commercial HVAC Program - Kilks         2.9         4.2         \$\$33.4         4.0           Commercial HVAC Program - Net Cooled Chillers         0.0         2.9         \$\$12.2         n/a           Commercial HVAC Program - Water Heaters         n/a         n/a         n/a         f.0         \$\$1.0         9.7           Commercial Building Optimization Program         10.3         1.6         \$\$10.9         7.4         \$\$0.0         \$\$7.3         3.5           New Buildings Program         0.0         1.6         \$\$10.9         7.4         \$\$0.0         \$\$0.7         \$\$1.5         \$\$0.1         \$\$0.0         \$\$0.7         \$\$1.5         \$\$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					
Commercial Building Erwelope - Insulation Program         0.2         7.5         \$\$11         1.3           Commercial HVAC Program - Boliers         n/a					
Commercial Geothermal Program         5.3         2.4         \$2.2         n/a           Commercial HVAC Program - Bollers         n/a         n/a         n/a         n/a         3.4           Commercial HVAC Program - CO2 Sensors         0.4         9.0         \$5.7         1.5           Commercial HVAC Program - CO2 Sensors         0.4         9.0         \$5.7         1.5           Commercial HVAC Program - Water Heaters         n/a         n/a         n/a         n/a         4.0           Commercial Buking Optimization Program         10.3         1.6         \$10.9         7.4         4.0           Commercial Refrigeration Program         0.0         2.9         \$12.2         n/a         4.0           Commercial Refrigeration Program         10.3         1.6         \$10.9         7.4         4.0           Commercial Refrigeration Program         0.0         1.8.4         \$3.1         0.0         0           Commercial Refrigeration Program         0.0         1.0         \$0.0         n/a           Network Energy Manager         0.0         5.4         \$11.5         0.0           Power Smart Shops         0.5         4.0         \$11.5         0.0           Race to Reduce         0.1					
Commercial HWA Program - Chilers (Water-Cooled)         1.7         6.1         \$0.7         \$7.6           Commercial HWA Program - Chilers (Water-Cooled)         1.7         6.1         \$0.7         \$7.6           Commercial HWA Program - Mar Cooled Chillers         0.0         2.9         \$12.2         \$7.4           Commercial HWA Program - Water Heaters         n/a         n/a         \$7.3         3.5           Commercial Evide Custom Measures Program         10.3         1.6         \$10.9         7.4           Commercial Evide Custom Measures Program         1.0         \$0.0         \$7.3         3.5           New Buildings Program         8.5         2.7         \$192.8         28.0           Commercial Refrigeration Program         0.4         4.7         \$48.8         n/a           Commercial Refrigeration Program         0.0         1.0         \$0.0         n/a           Internal Retroft Rogram         0.0         1.0         \$0.0         n/a           Power Smart Shops         0.5         4.0         \$11.5         0.0           Reace to Reduce         0.1         2.6         \$1.4         0.1           Parking Lot Controller         0.1         4.8         \$1.0         n/a           Custome					
Commercial HVAC Program - HRVs         0.4         9.0         \$5.7         1.5           Commercial HVAC Program - HRVs         2.9         \$1.2         n/a           Commercial HVAC Program - Water Heaters         n/a         n/a         n/a         4.0           Commercial HVAC Program - Water Heaters         n/a         n/a         1.0         31.6         \$10.9         7.4           Commercial Exist Measures Program         1.0.3         1.6         \$10.9         7.4         4.0           Commercial Refrigeration Program         8.5         2.7         \$192.8         28.0         0.0         7.4         7.3         3.5           New Buildings Program         0.0         1.6         \$10.9         7.4         8.0         0.0         0.0         1.6         \$10.9         7.4         8.0         0.0         0.0         1.6         \$10.9         7.4         7.4         7.4         7.4         7.4         7.4         7.4         7.4         7.4         7.4         7.5         \$1.5         0.0         7.5         \$1.5         0.0         7.5         \$1.5         0.0         7.6         \$1.1.5         0.0         7.6         \$1.0         \$1.5         0.0         \$1.5         \$1.5         <	4.0 \$10.3	3.4		n/a	
Commercial HVAC Program - Air Cooled Chillers         0.0         2.9         \$12.2         n/a           Commercial HVAC Program - Air Cooled Chillers         0.0         2.9         \$12.2         n/a           Commercial HVAC Program - Air Cooled Chillers         0.0         2.9         \$12.2         n/a           Commercial Building Optimization Program         1.0         \$1.6         \$10.9         7.4           Commercial Refrigeration Program         0.4         4.7         \$48.8         n/a           Commercial Refrigeration Program         0.4         4.7         \$48.8         n/a           Commercial Refrigeration Program         0.0         18.4         \$3.1         0.0           Network Energy Management Program         0.0         1.0         \$0.0         n/a           Power Smart Energy Manager         0.0         5.0         \$8.0         0.0           Race to Reduce         0.1         25.6         \$1.4         0.1         \$11.5         n/a           Industrial         Performance Optimization Program         0.0         2.6         \$194.9         n/a           Ad Management					
Commercial HVAC Program - Air Cooled Chillers         0.0         2.9 $\pm 1.2.2$ r/a           Commercial LVAC Program - Water Heaters         n/a         n/a         n/a         4.0           Commercial Building Optimization Program         1.0.3         1.6 $\pm 10.9$ 7.4           Commercial Building Optimization Program         8.5         2.7 $\pm 192.8$ 28.0           New Buildings Program         0.4         4.7 $\pm 48.8$ n/a           Commercial Kering program         0.0         1.4 $\pm 3.1$ 0.0           Commercial Kering program         0.0         1.0 $\pm 0.0$ n/a           Commercial Kering program         0.0         1.0 $\pm 0.0$ n/a           Onterration Kering Wanagement Program         0.0         1.0 $\pm 0.0$ n/a           Power Smart Energy Manager         0.0         5.0 $\pm 8.0$ 0.0           Power Smart Energy Manager         0.1         2.5.6 $\pm 1.4$ 0.1           Parting Lac Controller         0.1         2.6.6 $\pm 1.4$ 0.1           Parting Lac Controller         0.1         2.6.6 $\pm 1.4$ 0.1			++		
Commercial HVAC Program - Water Heaters $n/a$ $n/a$ $n/a$ $4.0$ Commercial Building Optimization Program         10.3         1.6         \$10.9         7.4           Commercial Building Optimization Program         1.9         \$5.0         \$7.3         3.5           New Buildings Program         0.4         4.7         \$48.8 $n/a$ Commercial Keringeration Program         0.0         18.4         \$3.1         0.0           Commercial Kitchen Applance Program         2.3         1.5         \$0.1 $n/a$ Network Energy Manager         0.0         5.0         \$8.0         0.0           Power Smart Energy Manager         0.0         5.0         \$8.0         0.0           Power Smart Energy Manager         0.1         2.5         \$1.4         0.1           Parking Lot Controller         0.1         2.5         \$1.4         0.1           Industrial         Performance Optimization Program         0.0         2.6         \$194.9         n/a           n/a         n/a         n/a         n/a         1.0         \$5.3         n/a           coad Management					
Commercial Custom Measures Program         10.3         1.6         \$10.9         7.4           Commercial Building Optimization Program         1.9         \$5.0         \$7.3         3.5           New Buildings Program         0.4         4.7         \$\$48.8         n/a           Commercial Refrigeration Program         0.0         18.4         \$\$3.1         0.0           Commercial Refrigeration Program         0.0         1.0         \$\$0.0         n/a           Commercial Refrigeration Program         0.0         1.0         \$\$0.0         n/a           Internal Retroft Program         0.0         1.0         \$\$0.0         n/a           Power Smart Shops         0.5         4.0         \$\$11.5         0.0           Recise Reduce         0.1         2.5         \$\$1.4         0.1           Parking Lot Controller         0.1         4.8         \$\$1.5         0           Industrial         0.0         2.6         \$\$194.9         n/a           Performance Optimization Program         0.0         2.6         \$\$194.9         n/a           Add Management         0.0         2.6         \$\$194.9         n/a           Custamer Sted Load Displacement         1.3         \$\$86.6 <td< td=""><td></td><td></td><td></td><td></td><td></td></td<>					
New Buildings Program         8.5         2.7         \$192.8         28.0           Commercial Kitchen Appliance Program         0.4         4.7         \$48.8         r/a           Commercial Kitchen Appliance Program         0.0         18.4         \$3.1         0.0           Network Energy Management Program         0.0         18.4         \$3.1         0.0           Power Smart Energy Manager         0.0         1.0         \$0.0         r/a           Power Smart Shops         0.5         4.0         \$11.5         0.0           Race to Reduce         0.1         25.6         \$1.4         0.1           Parking Lot Controller         0.1         4.8         \$1.5         r/a           Industrial         Performance Optimization Program         0.0         2.6         \$194.9         r/a           Ad Management         Curtailable Rate Program         0.0         2.6         \$194.9         r/a           Conservation Rates         Conservation Rates         Residential         r/a         r/a         \$1.3         \$86.6         r/a           Curtailable Rate Program         9.2         1.3         \$1.2         n/a         \$20.0         r/a           Customer Stled Load Displacement         5.4					
Commercial Refrigeration Program         0.4         4.7         \$48.8         n/a           Commercial Refrigeration Program         0.0         18.4         \$3.1         0.0           Network Energy Management Program         2.3         1.5         \$0.1         n/a           Power Smart Energy Manager         0.0         1.0         \$0.0         n/a           Power Smart Energy Manager         0.0         5.0         \$8.0         0.0           Power Smart Energy Manager         0.1         2.5         \$1.4         0.1           Race to Reduce         0.1         2.5         \$1.4         0.1           Parking Lot Controller         0.1         2.6         \$1.4         0.1           Industrial         Performance Optimization Program         0.0         2.6         \$194.9         n/a           Modustrial         Performance Optimization Program         0.0         2.6         \$194.9         n/a           Customer Sted Load Displacement         0.0         2.6         \$194.9         n/a           Customer Sted Load Displacement         1.3         \$86.6         n/a         1.3           Customer Sted Load Displacement         1.3         \$1.3         \$1.3         \$1.4           Co					
Commercial Kitchen Applance Program         0.0         18.4         \$3.1         0.0           Network Inergy Management Program         2.3         1.5         \$0.1         n/a           Power Smart Energy Manager         0.0         5.0         \$8.0         0.0           Power Smart Shops         0.5         4.0         \$11.5         0.0           Race to Reduce         0.1         2.5         \$1.4         0.1           Parking Lot Controller         0.1         4.8         \$1.5         n/a           Industrial         Performance Optimization Program         0.0         2.6         \$194.9         n/a           Ad Management	(+)				
Network Energy Management Program         2.3         1.5         \$0.1         n/a           Internal Retrofit Program         0.0         1.0         \$0.0         n/a           Power Smart Energy Manager         0.0         5.0         \$8.0         0.0           Power Smart Energy Manager         0.1         \$2.6         \$1.1.5         0.0           Race to Reduce         0.1         2.5.6         \$1.4         0.1           Parking Lot Controller         0.1         4.8         \$1.5         n/a           Industrial         n/a         n/a         n/a         8.1           Performance Optimization Program         0.0         2.6         \$194.9         n/a           .oad Management         .out n/a         n/a         n/a         8.1           .oad Displacement & Alternative Energy         Bioenergy Optimization Program         4.7         1.0         \$5.3         n/a           .oad Displacement & Alternative Energy         Bioenergy Optimization Program         4.7         1.0         \$5.3         n/a           .costomer Sited Load Displacement         5.4         1.3         \$86.6         n/a            Conservation Rates - Residential         n/a         n/a         \$1.2         n/a					
Internal Retrofit Program         0.0         1.0         \$0.0         n/a           Power Smart Energy Manager         0.0         5.0         \$8.0         0.0           Power Smart Energy Manager         0.0         5.0         \$8.0         0.0           Power Smart Energy Manager         0.1         25.6         \$1.4         0.1           Parking Lot Controller         0.1         25.6         \$1.4         0.1           Industrial         Performance Optimization Program         0.0         2.6         \$194.9         n/a           Natural Gas Optimization Program         0.0         2.6         \$194.9         n/a         8.1					
Power Smart Shops         0.5         4.0         \$11.5         0.0           Race to Reduce         0.1         25.6         \$1.4         0.1           Parking Lot Controller         0.1         25.6         \$1.4         0.1           industrial         0.1         25.6         \$1.4         0.1           Performance Optimization Program         0.0         2.6         \$194.9         n/a           industrial         Natural Gas Optimization Program         0.0         2.6         \$194.9         n/a           coad Management	a n/a n/a	n/a	\$0.0	1.0	
Race to Reduce         0.1         25.6         \$1.4         0.1           Parking Lot Controller         0.1         25.6         \$1.4         0.1           Industrial         0.1         4.8         \$1.5         n/a           Performance Optimization Program         0.0         2.6         \$194.9         n/a           Natural Gas Optimization Program         n/a         n/a         n/a         8.1           Load Management         0.0         2.6         \$194.9         n/a         8.1           Load Displacement & Alternative Energy         Bioenergy Optimization Program         4.7         1.0         \$5.3         n/a           Load Displacement & Alternative Energy         Bioenergy Optimization Program         5.4         1.3         \$86.6         n/a           Conservation Rates         Conservation Rates         Conservation Rates         n/a         n/a         \$1.9         n/a           Fuel Choice         1.9         5.1         \$308.4         n/a           UP Choice         1.9         5.1         \$308.4         n/a           Paciforma         9.2         1.3         \$1.2         n/a           Conservation Rates         Conservation Rates         0.0         n/a <t< td=""><td></td><td></td><td></td><td></td><td></td></t<>					
Parking Lot Controller         0.1         4.8         \$1.5         n/a           Industrial Performance Optimization Program         0.0         2.6         \$194.9         n/a           Natural Gas Optimization Program         0.0         2.6         \$194.9         n/a           Load Management Curtailable Rate Program         n/a         n/a         n/a         n/a           .oad Displacement & Alternative Energy Bioenergy Optimization Program         1.0         \$5.3         n/a           .costomer Sited Load Displacement         5.4         1.3         \$86.6         n/a           Conservation Rates Conservation Rates         n/a         n/a         \$1.2         n/a           Fuel Choice         1.9         5.1         \$308.4         n/a           Tuber Emerging Technologies         6.4         2.0         \$48.7         n/a           Residential Future Opportunities         6.4         2.0         \$48.7         n/a           Dther Emerging Technologies         8.1.3         9.4         1.0         \$6.4         2.0         \$48.7         n/a           Commercial Solar Thermal Program - Pool Heating         3.4         3.5         \$1.3         9.4           Commercial Solar Photovoltaics Program (PV)         11.5         1.					
Performance Optimization Program         0.0         2.6         \$194.9         n/a           Natural Gas Optimization Program         n/a         n/a         n/a         n/a         8.1           Load Management					
Performance Optimization Program         0.0         2.6         \$194.9         n/a           Natural Gas Optimization Program         n/a         n/a         n/a         n/a         8.1           Load Management					
Natural Gas Optimization Program         n/a         n/a         n/a         8.1           .oad Management	a n/a n/a	n/a	\$194.9	2.6	0.0
Curtailable Rate Program         n/a         \$0.0         n/a           .oad Displacement & Alternative Energy Bioenergy Optimization Program Customer Sited Load Displacement         4.7         1.0         \$5.3         n/a           Conservation Rates Conservation Rates	1.7 \$15.1	8.1			
Curtailable Rate Program         n/a         \$0.0         n/a           .oad Displacement & Alternative Energy Bioenergy Optimization Program Customer Sited Load Displacement         4.7         1.0         \$5.3         n/a           Conservation Rates Conservation Rates					
Biomergy Optimization Program         4.7         1.0         \$5.3         n/a           Customer Sited Load Displacement         5.4         1.3         \$86.6         n/a           Conservation Rates	a n/a n/a	n/a	\$0.0	n/a	n/a
Biomergy Optimization Program         4.7         1.0         \$5.3         n/a           Customer Sited Load Displacement         5.4         1.3         \$86.6         n/a           Conservation Rates					
Customer Sited Load Displacement         5.4         1.3         \$86.6         n/a           Conservation Rates         -	a n/a n/a	n/a	\$5.3	1.0	4.7
Conservation Rates - Residential         n/a         n/a         \$195.9         n/a           Conservation Rates - Commercial         n/a         \$207.8         n/a         \$207.8         n/a           Fuel Choice         1.9         5.1         \$308.4         n/a         \$207.8         n/a           Choice         1.9         5.1         \$308.4         n/a         \$207.8         n/a           Choice         1.9         5.1         \$308.4         n/a         \$207.8         n/a           Dther Emerging Technologies         1.9         5.1         \$308.4         n/a         \$207.8         n/a           Residential Air Source Heat Pumps Program         9.2         1.3         \$1.2         n/a         \$207.8         n/a           Residential Solar Theoryontaixes Program (PV)         11.5         1.0         \$0.2         n/a         \$207.8         \$207.8         n/a           Residential Solar Theoryonarus Peogram - Pool Heating         3.4         3.5         \$1.3         9.4         \$207.7         n/a           Commercial Future Opportunities         6.0         1.9         \$41.9         n/a         \$20.7         n/a           Commercial Variable Speed and Frequency Drives         1.4         5.1					
Conservation Rates - Residential         n/a         n/a         \$195.9         n/a           Conservation Rates - Commercial         n/a         \$207.8         n/a         \$207.8         n/a           Fuel Choice         1.9         5.1         \$308.4         n/a         \$207.8         n/a           Choice         1.9         5.1         \$308.4         n/a         \$207.8         n/a           Choice         1.9         5.1         \$308.4         n/a         \$207.8         n/a           Dther Emerging Technologies         1.9         5.1         \$308.4         n/a         \$207.8         n/a           Residential Air Source Heat Pumps Program         9.2         1.3         \$1.2         n/a         \$207.8         n/a           Residential Solar Theoryontaixes Program (PV)         11.5         1.0         \$0.2         n/a         \$207.8         \$207.8         n/a           Residential Solar Theoryonarus Peogram - Pool Heating         3.4         3.5         \$1.3         9.4         \$207.7         n/a           Commercial Future Opportunities         6.0         1.9         \$41.9         n/a         \$20.7         n/a           Commercial Variable Speed and Frequency Drives         1.4         5.1					
Fuel Choice         1.9         5.1         \$308.4         n/a           Dther Emerging Technologies         8.9         5.1         \$308.4         n/a           Dther Emerging Technologies         9.2         1.3         \$1.2         n/a           Residential Air Source Heat Pumps Program         6.4         2.0         \$48.7         n/a           Residential Solar Photovoltaics Program (PV)         11.5         1.0         \$0.2         n/a           Residential Solar Thermal Program - Pool Heating         3.4         3.5         \$1.3         9.4           Commercial Solar Thermal Program - Pool Heating         3.4         3.5         \$1.3         9.4           Commercial Solar Photovoltaics Program (PV)         11.9         1.0         \$5.7         n/a           Commercial Variable Speed and Frequency Drives         1.4         5.1         \$2.0         n/a           Industrial Future Opportunities         4.3         2.1         \$44.0         n/a	a n/a n/a	n/a	\$195.9	n/a	n/a
Fuel Choice         1.9         5.1         \$308.4         n/a           Dther Emerging Technologies         Residential Air Source Heat Pumps Program         9.2         1.3         \$1.2         n/a           Residential Air Source Heat Pumps Program         9.2         1.3         \$1.2         n/a           Residential Future Opportunities         6.4         2.0         \$48.7         n/a           Residential Solar Thermal Program Program PWater Heating         24.1         0.8         (\$0.1)         n/a           Commercial Solar Thermal Program - Pool Heating         3.4         3.5         \$1.3         9.4           Commercial Solar Photovoltaics Program (PV)         11.9         1.0         (\$5.7)         n/a           Commercial Solar Photovoltaics Program (PV)         11.9         1.0         (\$5.7)         n/a           Commercial Variabie Speed and Frequency Drives         1.4         5.1         \$2.0         n/a           Industrial Future Opportunities         4.3         2.1         \$44.0         n/a	a n/a n/a	n/a	\$207.8	n/a	n/a
Dther Emerging Technologies         9.2         1.3         \$1.2         n/a           Residential Air Source Heat Pumps Program         9.2         1.3         \$1.2         n/a           Residential Future Opportunities         6.4         2.0         \$48.7         n/a           Residential Solar Thermal Program (PV)         11.5         1.0         \$0.2         n/a           Residential Solar Thermal Program - Pool Heating         24.1         0.8         (\$1.1         9.4           Commercial Solar Thermal Program - Pool Heating         3.4         3.5         \$1.3         9.4           Commercial Solar Photovoltaics Program (PV)         11.9         1.0         (\$5.7)         n/a           Commercial Variable Speed and Frequency Drives         1.4         5.1         \$2.0         n/a           Industrial Future Opportunities         4.3         2.1         \$44.0         n/a					
Residential Air Source Heat Pumps Program         9.2         1.3         \$1.2         n/a           Residential Future Opportunities         6.4         2.0         \$48.7         n/a           Residential Solar Photovoltaiss Program (PV)         11.5         1.0         \$0.2         n/a           Residential Solar Thermal Program - Water Heating         24.1         0.8         \$(0.1)         n/a           Residential Solar Thermal Program - Pool Heating         3.4         3.5         \$1.3         9.4           Commercial Future Opportunities         6.0         1.9         \$41.9         n/a           Commercial Future Opportunities         6.0         1.9         \$45.7         n/a           Commercial Solar Photovoltaics Program (PV)         11.9         1.0         \$(\$5.7)         n/a           Commercial Solar Deportunities         1.4         5.1         \$2.0         n/a           Industrial Future Opportunities         1.4         5.1         \$2.0         n/a	a n/a n/a	n/a	\$308.4	5.1	1.9
Residential Air Source Heat Pumps Program         9.2         1.3         \$1.2         n/a           Residential Future Opportunities         6.4         2.0         \$48.7         n/a           Residential Solar Photovoltaiss Program (PV)         11.5         1.0         \$0.2         n/a           Residential Solar Thermal Program - Water Heating         24.1         0.8         \$(0.1)         n/a           Residential Solar Thermal Program - Pool Heating         3.4         3.5         \$1.3         9.4           Commercial Future Opportunities         6.0         1.9         \$41.9         n/a           Commercial Future Opportunities         6.0         1.9         \$45.7         n/a           Commercial Solar Photovoltaics Program (PV)         11.9         1.0         \$(\$5.7)         n/a           Commercial Solar Deportunities         1.4         5.1         \$2.0         n/a           Industrial Future Opportunities         1.4         5.1         \$2.0         n/a					
Residential Future Opportunities         6.4         2.0         \$48.7         n/a           Residential Solar Photovoltaics Program (PV)         11.5         1.0         \$0.2         n/a           Residential Solar Thermal Program - Water Heating         24.1         0.8         \$0.1         n/a           Residential Solar Thermal Program - Pool Heating         3.4         3.5         \$1.3         9.4           Commercial Future Opportunities         6.0         1.9         \$41.9         n/a           Commercial Solar Photovoltaics Program (PV)         11.9         1.0         \$5.7         n/a           Commercial Variable Speed and Frequency Drives         1.4         5.1         \$2.0         n/a           Industrial Future Opportunities         4.3         2.1         \$44.0         n/a	a n/a n/a	n/a	\$1.7	13	دە
Residential Solar Photovoltaics Program (PV)         11.5         1.0         \$0.2         n/a           Residential Solar Thermal Program - Water Heating         24.1         0.8         \$(\$0.1)         n/a           Residential Solar Thermal Program - Pool Heating         3.4         3.5         \$1.3         9.4           Commercial Future Opportunities         6.0         1.9         \$41.9         n/a           Commercial Solar Photovoltaics Program (PV)         11.9         1.0         \$(\$5.7)         n/a           Commercial Variable Speed and Frequency Drives         1.4         5.1         \$2.0         n/a           Industrial Future Opportunities         4.3         2.1         \$44.0         n/a					
Residential Solar Thermal Program - Pool Heating         3.4         3.5         \$1.3'         9.4           Commercial Future Opportunities         6.0         1.9         \$41.9         n/a           Commercial Solar Photovotaics Program (PV)         11.9         1.0         \$5.7'         n/a           Commercial Variable Speed and Frequency Drives         1.4         5.1         \$2.0         n/a           Industrial Future Opportunities         4.3         2.1         \$44.0         n/a			\$0.2	1.0	11.5
Commercial Future Opportunities         6.0         1.9         \$41.9         n/a           Commercial Solar Photovoltaics Program (PV)         11.9         1.0         (\$5.7)         n/a           Commercial Variable Speed and Frequency Drives         1.4         5.1         \$2.0         n/a           Industrial Future Opportunities         4.3         2.1         \$44.0         n/a	a n/a n/a	n/a	(\$0.1)		24.1
Commercial Solar Photovoltaics Program (PV)         11.9         1.0         (§5.7)         n/a           Commercial Variable Speed and Frequency Drives         1.4         5.1         \$2.0         n/a           Industrial Future Opportunities         4.3         2.1         \$44.0         n/a					
Commercial Variable Speed and Frequency Drives         1.4         5.1         \$2.0         n/a           Industrial Future Opportunities         4.3         2.1         \$44.0         n/a					
Industrial Future Opportunities 4.3 2.1 \$44.0 n/a			\$2.0		
Dverall Portfolio Metric n/a 2.5 \$2,091.2 n/a	a 1.5 \$113.4		12 001 -		

Notes:

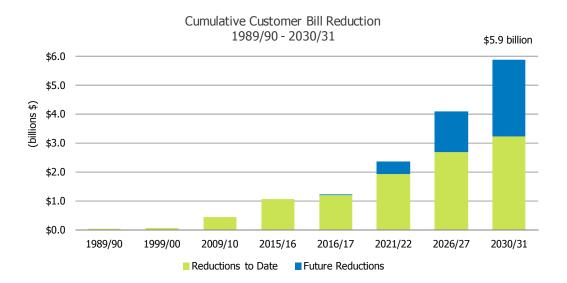
i Program reflects natural gas interactive effects w Payback, PC and PC NPV include Water Savings Benefits

## **Combined Customer Bill Reductions**

The following graph depicts customer bill reductions resulting from electric and natural gas programs outlined in the 2016 Demand Side Management Plan. Power Smart programs are expected to save participating customers an additional \$16 million in 2016/17 alone, \$343 million in 2030/31 and \$2.6 billion cumulatively by 2030/31.



When combined with bill reductions to date, Power Smart programs are expected to save participating customers \$ 472 million in 2030/31 and over \$ 5.9 billion cumulatively by 2030/31.



Demand Side Management Plan 2016/17

SUPPLEMENTAL REPORT: 15 yr (2016 to 2031)

# **APPENDIX A - 2016 DEMAND SIDE MANAGEMENT PLAN - ELECTRIC**

- Appendix A.1 Annual Capacity Savings (MW)
- Appendix A.2 Annual Energy Savings (GW.h)
- Appendix A.3 Annual Utility Costs
- Appendix A.4 Annual Program Administration Costs
- **Appendix A.5 Annual Program Incentive Costs**

																	MW at	
	20	016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Generation 2030/31	
ESIDENTIAL																		-
centive Based New Homes Program		0.1	0.3	0.7	1.0	1.4	2.2	2.9	3.5	4.2	4.7	5.3	5.8	6.4	6.9	7.3	8	
Home Insulation Program		1.8	3.3	4.7	6.0	7.2	8.3	9.4	10.3	11.3	12.1	12.8	12.8	12.8	12.8	12.8	15	
Affordable Energy Program Water and Energy Saver Program		1.2 0.7	2.2 1.5	3.2 2.1	4.1 2.1	4.7 2.1	5.2 2.1	5.8 2.1	6.2 2.1	6.7 2.1	7.1 2.1	7.4 2.1	7.7 2.1	8.0 2.1	8.2 2.1	8.5 2.1	10 2	
Refrigerator Retirement Program		1.1	2.1	2.9	3.6	4.2	4.7	4.7	4.7	4.7	4.7	3.7	2.9	2.2	1.5	0.8	1	
Drain Water Heat Recovery Initiative		0.0	0.0 7.7	0.0	0.0	0.0 7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Residential LED Lighting Program Community Geothermal Program		5.7 1.2	2.8	8.9 4.4	8.3 6.2	8.0	7.3 9.8	6.8 12.2	6.2 14.1	5.7 15.7	5.2 17.4	5.0 19.5	4.8 21.0	4.6 21.7	4.4 22.0	4.3 22.0	5 25	
Appliances		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	0.1	0	
HRV Controls Power Bars		0.5	1.1 0.0	1.6 0.0	1.6 0.0	1.6 0.0	1.6 0.0	1.6 0.0	1.6 0.0	1.6 0.0	1.6 0.0	1.6 0.0	1.6	1.6 0.0	1.6	1.6 0.0	2 0	
Smart Thermostats		0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	ŏ	
Plug-in Timers		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	
Community Energy Plan	Subtotal	12.6	21.2	- 28.7	33.1	37.3	41.5	45.6	49.0	52.1	- 55.1	57.7	- 58.9	59.6	59.7	- 59.5	- 68	7
	Subtotui	12.0	21.2	20.7	55.1	57.5	41.5	40.0	47.0	52.1	00.1	57.7	50.7	57.5	57.7	57.5	00	
ustomer Service Initiatives / Financial Loan Programs Power Smart Residential Loan		0.2	0.3	0.5	0.7	0.8	1.0	1.2	1.3	1.5	1.6	1.8	1.9	2.1	2.2	2.4	3	
Power Smart PAYS Financing		0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.0	1.9	1.3	1.4	1.5	2	
Residential Earth Power Loan		0.2	0.3	0.5	0.6	0.7	0.8	1.0	1.3	1.8	2.3	2.9	3.5	4.2	5.0	5.8	7	
	Subtotal	0.4	0.9	1.3	1.7	2.0	2.5	2.9	3.5	4.2	4.9	5.8	6.7	7.6	8.6	9.7	11	1
DMMERCIAL																		
centive Based			00 F			F0.5	(0.0	74.4	70 /	87.3		100.0	100.0	447.0	404.0	400.0	450	
Commercial Lighting Program LED Roadway Lighting Conversion Program		11.1	22.5 2.8	34.4 4.4	44.4 6.1	53.5 6.3	62.3 6.3	71.1 6.3	79.6 6.3	6.3	94.8 6.3	102.0 6.3	109.8 6.3	117.9 6.3	126.3 6.3	133.8 6.3	153 7	
Commercial Building Envelope - Windows Program		0.4	0.7	1.0	1.4	1.8	2.3	2.7	3.2	3.6	4.2	4.8	5.4	6.0	6.6	7.2	8	
Commercial Building Envelope - Insulation Program Commercial Geothermal Program		1.2 0.3	2.3 0.8	3.1 1.4	3.9 2.2	4.7 3.2	5.6 4.3	6.4 5.5	7.2 6.7	8.1 7.9	8.9 9.2	9.7 10.6	10.6 12.0	11.4 13.5	12.3 14.9	13.1 16.4	15 19	
Commercial HVAC Program - Chillers (Water-Cooled)		-		-	-	-	-			-	-				-		-	
Commercial HVAC Program - CO2 Sensors		0.3	0.7	1.1	1.5	1.9	2.4	2.8	3.3	3.3	3.3	3.2	3.0	2.8	2.6	2.4	3	
Commercial HVAC Program - HRVs Commercial HVAC Program - Air Cooled Chillers		0.1	0.4	0.8	1.4	2.1	2.9	3.9	5.0	6.4	7.8	9.4	11.2	13.1	15.1	17.3	20	
Commercial HVAC Program - Air Cooled Chillers Commercial Custom Measures Program		0.3	0.7	1.1	1.5	1.9	2.3	2.7	3.2	3.6	4.1	4.6	5.2	5.8	6.4	7.1	8	
Commercial Building Optimization Program		0.0	0.1	0.3	0.5	0.7	0.9	1.1	1.3	1.5	1.8	2.0	2.2	2.4	2.6	2.8	3	
New Buildings Program Commercial Refrigeration Program		0.7 0.7	2.6 1.4	3.3 2.1	4.3 2.8	5.5 3.2	7.0 3.5	10.2 3.9	13.5 4.3	16.7 4.7	20.0 5.1	23.2 5.6	26.5 6.1	29.8 6.6	33.0 7.2	36.3 7.7	41 9	
Commercial Refrigeration Program Commercial Kitchen Appliance Program		0.7	0.2	0.2	0.2	0.2	3.5	0.2	4.3	4.7	0.2	0.2	0.2	0.2	0.2	0.2	0	
Network Energy Management Program		0.0	0.0	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	
Internal Retrofit Program		0.3	0.5	0.7	0.9	1.5	2.0	2.4	2.5	2.6	2.7	2.7	2.8	2.9	3.0	3.0	3 4	
Power Smart Shops Power Smart Energy Manager		0.7	1.3	2.0 0.1	2.5 0.3	3.1 0.6	3.3 0.9	3.3 1.2	3.3 1.6	3.3 1.9	3.3 2.2	3.3 2.5	3.3 2.8	3.3 3.0	3.3 3.1	3.3 3.1	4	
Race to Reduce		0.4	0.7	0.9	1.0	0.7	-	-	-	-	-	-	-	-	-	-	1.1	
Parking Lot Controller	6.4444	18.1	37.8	57.0	75.0	- 91.2	-	- 124.0	141.2	- 157.5	174.0	- 190.3	207.4	- 225.1	242.9	-	-	30
	Subtotal	18.1	37.8	57.0	75.0	91.2	106.2	124.0	141.2	157.5	174.0	190.3	207.4	225.1	242.9	260.0	296	3
stomer Service Initiatives / Financial Loan Programs																		
Power Smart for Business PAYS Financing	Subtotal					-			-	-		-		-	-	-		-
	Subtotui																	
DUSTRIAL Performance Optimization Program		19	4.2	6.8	9.7	13.0	16.2	19.5	22.7	26.0	29.2	32.5	35.7	38.9	42.2	45.4	50	
Performance Optimization Program		1.9	4.2	6.8	9.7	13.0	16.2	19.5	22.7	26.0	29.2	32.5	35.7	38.9	42.2	45.4	50	Ę
ENERGY EFFICIENCY	SUBTOTAL	33.0	64.1	93.8	119.5	143.5	166.4	192.0	216.4	239.8	263.2	286.2	308.7	331.2	353.5	374.6	425	4-
AD MANAGEMENT																		
Curtailable Rate Program LOAD MANAGEMENT		145.0	145.0 145.0	145.0	145.0 145.0	145.0 145.0	145.0	145.0	145.0 145.0	145.0 145.0	145.0	145.0 145.0	145.0	145.0 145.0	145.0 145.0	145.0	160 160	_
LOAD MANAGEMENT	SUBTUTAL I	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	160	16
DAD DISPLACEMENT & ALTERNATIVE ENERGY																		
Bioenergy Optimization Program		11.1	12.6 17.6	15.1	19.1 53.0	29.1 56.5	39.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	51	
Customer Sited Load Displacement LOAD DISPLACEMENT & ALTERNATIVE ENERGY		22.4	30.2	33.3 48.4	72.1	85.6	60.0 99.5	60.0 106.5	60.0 106.5	60.0 106.5	60.0 106.5	60.0 106.5	60.0 106.5	60.0 106.5	60.0 106.5	60.0 106.5	117	12
DNSERVATION RATES Conservation Rates - Residential				3.1	10.8	11.9	13.1	14.4	15.9	16.1	16.2	16.4	16.6	16.8	17.0	17.2	20	
Conservation Rates - Commercial			-	-	5.2	11.3	15.3	16.5	17.7	19.0	20.3	21.6	22.9	24.3	25.7	27.1	31	
CONSERVATION RATES	SUBTOTAL		-	3.1	16.0	23.2	28.4	30.9	33.6	35.1	36.5	38.0	39.6	41.1	42.7	44.3	51	
JEL CHOICE																		
Fuel Choice			25.5	51.1	76.6	102.2	127.7	127.7	127.7	127.7	127.7	127.7	127.7	127.7	127.7	127.7	146	
FUEL CHOICE	SUBTOTAL		25.5	51.1	76.6	102.2	127.7	127.7	127.7	127.7	127.7	127.7	127.7	127.7	127.7	127.7	146	15
THER EMERGING TECHNOLOGIES																		
Residential Air Source Heat Pumps Program		-	-		-	-	-	-	-	-	-	-	-	-	-	-		
Residential Future Opportunities Residential Solar Photovoltaics Program (PV)		-	-	-	-	1.5	3.0	4.6	6.1	7.6	9.1	10.6	12.1	13.7	15.2	16.7	19	
Residential Solar Photovoltaics Program (PV) Residential Solar Thermal Program - Water Heating			0.0	- 0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.7	1.1 0.0	1.6 0.0	2.2 0.0	2.8 0.0	3 0	
Residential Solar Thermal Program - Pool Heating				-		-	-			-	-		-	-	-		-	
Commercial Future Opportunities			-		-	1.5	3.0	4.6	6.1	7.6	9.1	10.6	12.1	13.7	15.2	16.7	19	
Commercial Solar Photovoltaics Program (PV) Commercial Variable Speed and Frequency Drives			- 0.0	0.0	0.0	0.1	0.2	0.5	1.0 0.1	1.8 0.1	3.0 0.1	4.4 0.1	6.2 0.1	8.3 0.1	10.6 0.1	12.9 0.1	15 0	
Industrial Enture Opportunities			-	-		1.6	3.1	4.7	6.3	7.9	9.4	11.0	12.6	14.2	15.7	17.3	19	
Industrial Future Opportunities	SUBTOTAL		0.0	0.0	0.0	4.7	9.5	14.4	19.7	25.2	31.1	37.5	44.3	51.5	59.0	66.5	75	1
OTHER EMERGING TECHNOLOGIES																		
OTHER EMERGING TECHNOLOGIES		200	265	341	429	504	577	617	649	679	710	741	772	803	834	865		
OTHER EMERGING TECHNOLOGIES		222	295	381	480	565	647	692	729	763	798	833	868	903	939	973	973	100
OTHER EMERGING TECHNOLOGIES	_		37	53	73	87	97	108	118	127	145	162	186	202	215	227		
OTHER EMERGING TECHNOLOGIES Impacts (at meter) Impacts (at generation) Codes, Standards & Regulations (at meter)		16			83	99	111	123	134	145	165	184	212	231	245	259	259	
OTHER EMERGING TECHNOLOGIES Impacts (at meter) Impacts (at generation)		16 18	42	60														
OTHER EMERGING TECHNOLOGIES Impacts (at generation) Codes, Standards & Regulations (at meter) Codes, Standards & Regulations (at generation)		18	42		503	591	674	724			855		958	1.005	1.050	1 092		
OTHER EMERGING TECHNOLOGIES Impacts (at meter) Impacts (at generation) Codes, Standards & Regulations (at meter)				60 394 442	503 564	591 664	674 758	724 815	767 863	807 908	855 963	903 1,017	958 1,080	1,005	1,050 1,184	1,092	1,232	
OTHER EMERGING TECHNOLOGIES Impacts (at generation) Codes, Standards & Regulations (at meter) Codes, Standards & Regulations (at generation) POWER SMART 2016 to 2030 Impacts (at generation)		18 216	42 302	394									958 1,080	1,005 1,134			1,232	
OTHER EMERGING TECHNOLOGIES Impacts (at generation) Codes, Standards & Regulations (at meter) Codes, Standards & Regulations (at generation) POWER SMART 2016 to 2030 Impacts (at meter) POWER SMART 2016 to 2030 Impacts (at generation) WER SMART 2016 to 2030 Impacts (at generation)		18 216 240	42 302	394 442		664							958 1,080 307	1,134			1,232	
OTHER EMERGING TECHNOLOGIES Impacts (at generation) Codes, Standards & Regulations (at meter) Codes, Standards & Regulations (at generation) POWER SMART 2016 to 2030 Impacts (at generation) POWER SMART 2016 to 2030 Impacts (at generation) WER SMART 2016 to 2030 Impacts (at generation) WER SMART 2016 to 2030 Impacts (at generation)		18 216	42 302 337	394	564		758	815	863	908	963	1,017	1,080	1,005 1,134 307 346	1,184	1,232	1,232	
OTHER EMERGING TECHNOLOGIES Impacts (at meter) Impacts (at generation) Codes, Standards & Regulations (at meter) Codes, Standards & Regulations (at generation) POWER SMART 2016 to 2030 Impacts (at meter) POWER SMART 2016 to 2030 Impacts (at generation) WER SMART SAVINGS TO DATE Incentive Based Program Impacts (at generation) Incentive Based Program Impacts (at generation) Customer Service Initiatives Program Impacts (at meter)		18 216 240 313 353 10	42 302 337 313 353 10	394 442 313 353 10	564 313 353 10	664 313 353 10	758 313 353 10	815 312 352 10	863 311 350 10	908 309 348 10	963 307 346 10	1,017 307 346 10	1,080 307 346 10	1,134 307 346 10	1,184 307 346 10	1,232 307 346 10	346	
OTHER EMERGING TECHNOLOGIES Impacts (at meter) Impacts (at generation) Codes, Standards & Regulations (at meter) Codes, Standards & Regulations (at generation) POWER SMART 2016 to 2030 Impacts (at meter) POWER SMART 2016 to 2030 Impacts (at meter) Incentive Based Program Impacts (at meter) Incentive Based Program Impacts (at meter) Customer Service Initiatives Program Impacts (at generation) Customer Service Initiatives Program Impacts (at generation) Customer Service Initiatives Program Impacts (at generation)		18 216 240 313 353 10 11	42 302 337 313 353 10 11	394 442 313 353 10 11	564 313 353 10 11	664 313 353 10 11	758 313 353 10 11	815 312 352 10 11	863 311 350 10 11	908 309 348 10 11	963 307 346 10 11	1,017 307 346 10 11	1,080 307 346 10 11	1,134 307 346 10 11	1,184 307 346 10 11	1,232 307 346 10 11		
OTHER EMERGING TECHNOLOGIES Impacts (at generation) Codes, Standards & Regulations (at meter) Codes, Standards & Regulations (at generation) POWER SMART 2016 to 2030 Impacts (at meter) POWER SMART 2016 to 2030 Impacts (at generation) OWER SMART SAVINGS TO DATE Incentive Based Program Impacts (at generation) Custome Service Initiatives Program Impacts (at meter) Custome Service Initiatives Program Impacts (at meter) Discontinued Programs (at meter)		18 216 240 313 353 10	42 302 337 313 353 10	394 442 313 353 10	564 313 353 10	664 313 353 10	758 313 353 10	815 312 352 10	863 311 350 10	908 309 348 10	963 307 346 10 11 60	1,017 307 346 10	1,080 307 346 10	1,134 307 346 10	1,184 307 346 10	1,232 307 346 10	346 11	
OTHER EMERGING TECHNOLOGIES Impacts (at meler) Impacts (at generation) Codes, Standards & Regulations (at meter) Codes, Standards & Regulations (at meter) POWER SMART 2016 to 2030 Impacts (at meter) POWER SMART 2016 to 2030 Impacts (at meter) POWER SMART 2016 to 2030 Impacts (at meter) OWER SMART STOLEN Incentive Based Program Impacts (at meter) Incentive Based Program Impacts (at meter) Incentive Based Program Impacts (at meter) Costomer Service Initiatives Program Impacts (at meter) Costomer Service Initiatives Program Impacts (at meter) Discontinued Programs (at generation) Discontinued Programs (at generation) Impacts of Codes & Standards (at meter)		18           216           240           313           353           10           11           60           68           178	42 302 337 313 353 10 11 60 68 178	394 442 313 353 10 11 60 68 178	564 313 353 10 11 60 68 178	664 313 353 10 11 60 68 178	758 313 353 10 11 60 68 178	815 312 352 10 11 60 68 178	863 311 350 10 11 60 68 178	908 309 348 10 11 60 68 178	963 307 346 10 11 60 68 178	1,017 307 346 10 11 60 68 178	1,080 307 346 10 11 60 68 178	1,134 307 346 10 11 60 68 178	1,184 307 346 10 11 60 68 178	1,232 307 346 10 11 60 68 178	346 11 68	
OTHER EMERGING TECHNOLOGIES Impacts (at meter) Impacts (at generation) Codes, Standards & Regulations (at meter) Codes, Standards & Regulations (at generation) POWER SMART 2016 to 2030 Impacts (at meter) POWER SMART 2016 to 2030 Impacts (at meter) OWER SMART 2016 to 2030 Impacts (at meter) OWER SMART 2016 to 2030 Impacts (at meter) Incentive Based Program Impacts (at meter) Locationer Service Intilatives Program Impacts (at generation) Customer Service Intilatives Program Impacts (at generation) Discontinued Programs (at meter) Discontinued Programs (at generation)		18           216           240           313           353           10           11           60           68	42 302 337 313 353 10 11 60 68	394 442 313 353 10 11 60 68	564 313 353 10 11 60 68	664 313 353 10 11 60 68	758 313 353 10 11 60 68	815 312 352 10 11 60 68	863 311 350 10 11 60 68	908 309 348 10 11 60 68	963 307 346 10 11 60 68	1,017 307 346 10 11 60 68	1,080 307 346 10 11 60 68	1,134 307 346 10 11 60 68	1,184 307 346 10 11 60 68	1,232 307 346 10 11 60 68	346 11	

### 2016 Demand Side Management Plan Annual Energy Savings (GW.h)

Normal Important Imp							Annual E	nergy Savi	ings (Gw.i	0								
Internation         Image: Proper internation         Image: Properi internation         Image: Properi internation         Image: Properi		2	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Generation
math         math <th< td=""><td>RESIDENTIAL</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	RESIDENTIAL																	
Normal bias	Incentive Based											40.7	44.0	43.0				40
Matrix	New Homes Program Home Insulation Program					12.0		16.7		20.7	22.5	24.2	25.7	25.7	25.7	25.7		29
Part Not Not Note Note Note Note Note Note	Affordable Energy Program		2.8	5.2	7.7	10.1	11.7	13.2	14.6	16.0	17.4	18.6	19.4	20.1	20.8	21.5	22.1	25
Image: state	Water and Energy Saver Program Refrigerator Refirement Program																	13
Image: Section of the sectio	Drain Water Heat Recovery Initiative																	ó
Man.         10         0.1 <td>Residential LED Lighting Program</td> <td></td> <td></td> <td></td> <td>28.1</td> <td>26.2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>15.2</td> <td></td> <td></td> <td></td> <td></td>	Residential LED Lighting Program				28.1	26.2								15.2				
State       State <t< td=""><td>Community Geothermal Program Appliances</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>28.1</td><td></td><td></td><td>39.1</td><td></td><td></td><td></td><td></td><td></td></t<>	Community Geothermal Program Appliances									28.1			39.1					
mark mark mark mark mark mark markmark mark mark mark 	HRV Controls		1.4	2.8	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5
ProcessorPart<			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0		
LateLa																		
The second seco			-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
The set of		Subtotal	44.4	75.0	100.8	114.6	128.0	140.0	148.2	154.9	161.0	166.6	164.4	160.6	156.6	151.2	145.3	166
Part Prime         Part Prim         Part Prim         Part Pri																		
Buttor       Line       Line <thline< th="">       Line       Line</thline<>																		5
Description         Let be the set of the set												2.1			12.6	2.8		20
		Subtotal	0.9	1.8			4.3			8.4	10.2	12.3	14.5				25.3	
Name         Name <th< td=""><td>COMMERCIAL</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	COMMERCIAL																	
	Incentive Based																	
Barry B	Commercial Lighting Program																	
	LED Roadway Lighting Conversion Program Commercial Building Envelope - Windows Program		9.4	18.9		40.6		42.6		42.6	42.6	42.6	42.6			42.6	42.6	49
	Commercial Building Envelope - Insulation Program		2.6		6.9	8.8		12.5	14.4	16.3	18.2	20.1	22.0	24.0	25.9	27.8	29.7	34
Marcine Market Marke	Commercial Geothermal Program		0.7		2.8	4.4	6.5	8.6	11.0		15.8	18.4	21.2	24.0	26.9	29.9	32.8	37
Participant into       0       0       1       1       0       1       0	Commercial HVAC Program - Chillers (Water-Cooled) Commercial HVAC Program - CO2 Sensors																	4
Second biols       1 <t< td=""><td>Commercial HVAC Program - HRVs</td><td></td><td></td><td>0.7</td><td>1.6</td><td>2.8</td><td>4.3</td><td>6.0</td><td>8.0</td><td>10.3</td><td>13.0</td><td>16.0</td><td>19.3</td><td>22.9</td><td>26.7</td><td>30.9</td><td>35.3</td><td>40</td></t<>	Commercial HVAC Program - HRVs			0.7	1.6	2.8	4.3	6.0	8.0	10.3	13.0	16.0	19.3	22.9	26.7	30.9	35.3	40
Model       Dial	Commercial HVAC Program - Air Cooled Chillers		-		2.0	3.3	4.8	6.2		9.5	11.2	13.0	14.7	16.4	18.1		21.5	24
Marking horizont         1						0.6 2.4	8.3 3.4			13./			20.0 10 0					35
Description         4         1 <th1< th="">         1         1         <th1< td=""><td>New Buildings Program</td><td></td><td>2.5</td><td>8.7</td><td>11.2</td><td>14.4</td><td>18.5</td><td>23.5</td><td>34.4</td><td>45.3</td><td>56.3</td><td>67.2</td><td>78.2</td><td>89.1</td><td>100.1</td><td>111.0</td><td>121.9</td><td>139</td></th1<></th1<>	New Buildings Program		2.5	8.7	11.2	14.4	18.5	23.5	34.4	45.3	56.3	67.2	78.2	89.1	100.1	111.0	121.9	139
Image for the foregram         0	Commercial Refrigeration Program		6.4		20.8	27.3		32.5	35.1	37.9	41.2				55.0			71
mark         1 <th1< th=""> <th1< th=""> <th1< th=""> <th1< th=""></th1<></th1<></th1<></th1<>	Commercial Kitchen Appliance Program Network Epergy Management Program		1.0			1.1		1.1						1.1		1.1	1.1	1
Prior         2         3         3         1 <td>Internal Retrofit Program</td> <td></td> <td>1.7</td> <td></td> <td></td> <td>5.8</td> <td></td> <td>9.5</td> <td></td> <td>11.6</td> <td>12.2</td> <td></td> <td></td> <td>13.8</td> <td></td> <td>14.8</td> <td>15.3</td> <td>17</td>	Internal Retrofit Program		1.7			5.8		9.5		11.6	12.2			13.8		14.8	15.3	17
Interface         Interface <t< td=""><td>Power Smart Shops</td><td></td><td></td><td></td><td>7.5</td><td>9.0</td><td>10.6</td><td>11.1</td><td>11.1</td><td>11.1</td><td>11.1</td><td>11.1</td><td>11.1</td><td>11.1</td><td>11.1</td><td>11.1</td><td>11.0</td><td>12</td></t<>	Power Smart Shops				7.5	9.0	10.6	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.0	12
Phone         Partial	Power Smart Energy Manager Race to Reduce		- 3.8	6.1				4.1	5.4	6.8	8.1	9.5	10.9	12.2	13.1	13.6	13.6	15
Satur         10         10.5         2.8         0.00         0.7.3         0.1.1         0.7.4         0.1.0         0.7.5         0.1.1         0.7.4         0.1.0         0.7.5         0.1.1         0.7.5<								2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3
Network is bailed in the interview of product of produ	*	Subtotal	81.0	165.5	248.4	325.2	385.6	438.1	503.6	567.3	628.7	690.0	750.5	814.1	879.6	945.6	1,007.8	1,149
Network is bailed in the interview of product of produ	Sustomer Service Initiatives / Financial Loan Programs																	
Link         ·	Power Smart for Business PAYS Financing	_	-															-
Pedamuc Quintación Program         Statutol         15.3         32.4         43.4         7.7         03.1         18.3         18.7         18.4         20.2         27.8         20.8         20.2         17.8         20.2         27.8         20.2         27.8         20.2         27.8         20.2         20.2         27.8         20.8         20.2         27.8         20.2         27.8         20.2         27.8         20.2         27.8         20.2         27.8         20.2         20.2         20.2         20.2         20.2         20.2         20.2         20.2         20.2         20.2        <		Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Putmare Detractor Program         Statute         13.3         31.4         14.1         7.7         10.3         13.4         14.7         10.3 <t< td=""><td>INDUSTRIAL</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	INDUSTRIAL																	
DEED SPECIEVE VERSION         11/2         29.8         49.0         52.6         49.1         71.4         81.3         91.1         10.80         1.902         129.1         13.80         1.912         129.1         13.80         1.912         129.1         13.80         1.912         129.1         13.80         1.912         129.1         13.80         1.912         129.1         13.80         1.912         129.1         13.80         1.912         129.1         13.80         1.912         13.91	Performance Optimization Program					77.3		128.9	154.7	180.4	206.2	232.0	257.8	283.5	309.3	335.1	360.9	
LIGUIDELINE LIGUID		subtotal	15.5	33.5	54.1	//.3	103.1	128.9	154.7	180.4	206.2	232.0	257.8	283.5	309.3	335.1	360.9	397
Light Number 1         Light Number 1 <thlight 1<="" number="" th="">         Light Nu</thlight>	ENERGY EFFICIENCY S	UBTOTAL	141.7	275.8	406.0	520.6	621.1	712.4	813.3	911.1	1,006.0	1,100.9	1,187.2	1,275.1	1,365.0	1,454.2	1,539.3	1,740
Local Addition  <	I QAD MANAGEMENT																	
LDD MACELINY SUBTOR         ·	Curtailable Rate Program			<u> </u>					<u> </u>	<u> </u>								
Benergy Generation         25         3.43         1.13         4.18         4.63         6.43         6.45         6.97	LOAD MANAGEMENT SI	UBTOTAL	-	-	-		-	-	-	-		-			-	-	-	-
Benergy Definition Program         25         14.8         14.9         44.8         60.3         64.5         64.7         66.7         6	LOAD DISPLACEMENT & ALTERNATIVE ENERGY																	
LLOD DIPALCHERT & ALTERNATIVE DEERLY SUBTORAL         113.1         15.7.         28.5         61.7         95.0	Bioenergy Optimization Program		29.5															106
COMPANIE         Contraction         1 <th1< th="">         1         1</th1<>	Customer Sited Load Displacement			122.5	254.7	403.1		458.3	458.3			458.3						
Conservation Ratis - Relation Ratis - Constraints - Constra	LOAD DISPLACEMENT & ALTERNATIVE ENERGY S	UBTOTAL	113.1	157.3	296.5	451.9	497.0	542.8	555.0	555.0	555.0	555.0	555.0	555.0	555.0	555.0	555.0	611
Conservation Rates - Communical         ·         <																		
CONSERVATION RATES SUBTION.         ·<         ·         ·<         ·<         ·<         ·<         ·<         ·<         ·<         ·<         ·<         ·<         ·<         ·<         ·<         ·<         ·<         ·<         ·<         ·<<			-		25.8													
Number       Numer       Number       Number		UBTOTAL	-		- 25.8													
Full Choic         -         51.1         102.2         15.3         20.44         25.5									=									
FUEL CHOICE SUBTORAL         ·         51.1         102.2         15.3         20.4         25.5         26.5         26.5         25.5 <td></td> <td></td> <td></td> <td>51 1</td> <td>102.2</td> <td>152.2</td> <td>204.4</td> <td>255 5</td> <td>255 5</td> <td>255 F</td> <td>255 5</td> <td>255.5</td> <td>255 5</td> <td>255 5</td> <td>255 5</td> <td>255 5</td> <td>255.5</td> <td>201</td>				51 1	102.2	152.2	204.4	255 5	255 5	255 F	255 5	255.5	255 5	255 5	255 5	255 5	255.5	201
Commercial Source       Co		UBTOTAL	-			153.3												
Residential Af Source Har Purps Program       -       0 <td></td>																		
Residential Future Opportunities       -       -       -       -       -       7.3       14.6       21.9       29.2       26.5       43.9       51.2       58.5       68.8       73.1       80.4       92         Residential Solar Thromal Program. Value Healing       -       0.0       0.1       0.1       0.2       0.4       0.2       0.4       0.2       0.4       0.2       0.2       0.2       0.4       0.2 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0.2</td> <td>0.5</td> <td>1.0</td> <td>15</td> <td>2.1</td> <td>2.0</td> <td>2.6</td> <td>4.5</td> <td>5.5</td> <td>4.5</td> <td>7</td>								0.2	0.5	1.0	15	2.1	2.0	2.6	4.5	5.5	4.5	7
Residential Sale Procentials Sole Themal Program - Near Heating       -       -       -       0.1       0.2       0.3       0.4       0.6       0.7       0.9       1.1       1.3       1.6       1.9       2.3       3         Commercial Variable Solar Themal Program - Yool Heating       -       -       -       7.6       1.5       2.2       2.6       2.9       2.3       3.4       4.8       4.0       4.7       7       1.9       2.2       2.6       2.9       2.3       3.4       4.8       4.0       1.7       1.9       2.6       2.9       2.3       3.4       4.8       4.0       1.7       1.9       2.6       2.9       2.3       3.4       4.8       4.0       4.7       1.9       2.3       3.6       6.6       2.7       8.8       3.8       4.00       4.7       1.9       2.6       2.6 <td< td=""><td>Residential Future Opportunities</td><td></td><td>-</td><td>-</td><td>-</td><td></td><td>7.3</td><td>14.6</td><td>21.9</td><td>29.2</td><td>36.5</td><td>43.9</td><td></td><td>58.5</td><td>65.8</td><td>73.1</td><td>80.4</td><td>92</td></td<>	Residential Future Opportunities		-	-	-		7.3	14.6	21.9	29.2	36.5	43.9		58.5	65.8	73.1	80.4	92
Residential Solar Thermal Program - Nool Healing <sup>-1</sup> -       0.0       0.1       0.2       0.2       0.3       0.4       0.6       0.7       0.9       1.1       1.3       1.6       1.9       2.3       3         Commercial Solar Phytosoftais Program (P)       -       -       -       0.7       2.0       4.8       9.8       17.3       21.9       4.16       58.7       78.4       1000       12.1       139         Commercial Solar Phytosoftais Program (P)       -       -       -       7.6       15.9       22.7       2.6       2.9       3.2       3.4       56.8       7.8       4.00       4.2       5       5.0       6.0       6.5       7.5       8.5.3       9.2       5.4       50.0       6.0       6.5       7.5       8.5.3       9.2       5.0       6.0       6.5       7.5       8.5.3       9.2       5.0       6.0       6.5       7.5       8.5.3       9.2       5.0       6.0       6.5       7.5       8.5.3       9.2       5.0       6.0       6.5       7.5       8.5.3       9.2       5.6       6.0       3.7       8.6       6.7       9.2       7.5       7.1       8.6       6.0       3.7       8.6	Residential Solar Photovoltaics Program (PV)		-	-	-	-	0.1	0.2	0.6	1.2	2.5	4.8	8.1	12.5	18.0	24.3	30.9	35
Commercial Future Opportunities Program (P) Commercial Variable Speed and Frequency Drives i. 0.1 0.6 1.1 1.5 1.9 2.2 2.6 2.9 3.2 3.4 3.9 51.2 58.5 6.8 73.4 10.0 12.17 139 Commercial Variable Speed and Frequency Drives i. 0.1 0.6 1.1 1.5 1.9 2.2 2.6 2.9 3.2 3.4 3.6 3.8 4.0 4.2 5 industrial Future Opportunities OTHER ELERCING TECHNOLOGIES SUBTORL OTHER ELERCING TECHNOLOGIE	Residential Solar Thermal Program - Water Heating		-															
Commercial Solar Protocoltatics Program (PV)       ·			-	0.0	U. I	u.2 -												
Commercial Variable Speed and Frequency Drives       .       0       1.1       1.5       1.9       2.2       2.6       2.9       3.2       3.4       3.6       3.8       4.0       4.2       5         Orther EMERGING TECHNOLOGIES SUBTORI       . <td>Commercial Solar Photovoltaics Program (PV)</td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td>0.7</td> <td>2.0</td> <td>4.8</td> <td>9.8</td> <td>17.3</td> <td>27.9</td> <td>41.6</td> <td>58.7</td> <td>78.4</td> <td>100.0</td> <td>121.7</td> <td></td>	Commercial Solar Photovoltaics Program (PV)		-	-	-		0.7	2.0	4.8	9.8	17.3	27.9	41.6	58.7	78.4	100.0	121.7	
OTHER EMERGING TECHNOLOGIES SUBTORIL         -         0.2         0.7         1.3         24.8         49.3         75.4         104.2         136.2         172.2         212.6         257.6         306.3         358.0         410.0         464           Impacts (at meter)         255         484         831         1,261         1,511         1,797         1,957         2,105         2,244         2,388         2,527         2,672         2,824         2,978         3,129           Codes, Standards & Regulations (at meter)         64         142         204         282         338         386         430         473         514         581         638         715         717         816         659           Codes, Standards & Regulations (at meter)         64         142         204         282         238         386         430         473         514         581         638         715         717         816         659         779         930         779         930         779         930         779         930         779         930         779         930         779         930         779         930         779         930         779         930         779         <	Commercial Variable Speed and Frequency Drives		-	0.1	0.6	1.1											4.2	5
Impacts (at meter) impacts (at generation)       255       484       831       1,261       1,541       1,797       1,057       2,105       2,244       2,388       2,527       2,672       2,824       2,978       3,159       3,527       3,527         Codes, Standards & Regulations (at generation)       64       142       204       282       338       386       430       473       514       581       638       715       771       816       859         Codes, Standards & Regulations (at generation)       319       626       1.035       1.543       1.879       2.182       2.387       2.578       626       738       615       679       979	OTHER EMERGING TECHNOLOGIES SI	UBTOTAL	-	- 0.2	- 0.7	- 1.3												
Impacts (at generation)         285         544         934         1,416         1,732         2,021         2,370         2,527         2,689         2,846         3,010         3,182         3,356         3,527         3,527           Codes, Standards & Regulations (at meter)         64         142         204         282         338         386         430         473         514         581         638         715         771         816         859           Codes, Standards & Regulations (at meter)         74         101         232         322         385         440         491         539         566         662         728         815         77         816         859           POWER SMART 2016 to 2030 Impacts (at meter)         319         6.26         1.035         1.543         1.879         2.182         2.387         2.578         2.968         3.165         3.387         3.956         3.74         3.988           POWER SMART 2016 to 2030 Impacts (at meter)         319         6.26         1.035         1.543         1.879         2.182         2.387         2.578         3.865         3.877         3.865         4.061         4.46         4.460         4.477         1.448         1.444		-		-														
Impacts (at generation)         285         544         934         1,416         1,732         2,021         2,201         2,270         2,527         2,689         2,846         3,010         3,182         3,356         3,527         3,527           Codes, Standards & Regulations (at meter)         64         142         204         282         338         386         430         473         514         581         638         715         771         816         859           Codes, Standards & Regulations (at meter)         74         112         232         322         385         440         491         559         642         728         815         77         816         859           POWER SMART 2016 to 2030 Impacts (at meter)         319         6.26         1.035         1.543         1.879         2.182         2.387         2.578         2.968         3.165         3.387         3.956         3.74         3.988           POWER SMART 2016 to 2030 Impacts (at meter)         319         6.26         1.035         1.543         1.879         2.162         2.387         2.578         2.968         3.165         3.387         3.956         3.74         3.988           POWER SMART 2016 to 2030 Impacts (at meter)	Impacts (at meter)		255	484	831	1.261	1.541	1.797	1.957	2.105	2 244	2.388	2 5 2 7	2 672	2 824	2 978	3 120	
Codes, Standards & Regulations (at generation)       74       161       222       322       385       440       491       539       585       662       728       815       879       930       979       970         POWER SMART 2016 to 2030 Impacts (at meter)       319       626       1.055       1.543       1.879       2.182       2.887       2.578       2.968       3.165       3.387       3.595       3.794       3.988         POWER SMART 2016 to 2030 Impacts (at generation)       359       706       1.166       1.738       2.118       2.460       2.692       2.090       3.112       3.31       3.575       3.827       4.061       4.266       4.506       4.506       4.506       4.506       4.506       4.506       4.506       4.506       4.506       4.506       4.506       4.506       1.566 </td <td></td> <td>_</td> <td></td> <td>3,356</td> <td></td> <td>3,527</td>		_														3,356		3,527
Codes, Standards & Regulations (at generation)       74       161       232       322       385       440       491       539       585       662       728       815       879       930       979       979         POWER SMART 2016 to 2030 Impacts (at meter)       319       626       1.035       1.543       1.879       2.182       2.387       2.578       2.788       2.968       3.165       3.387       3.595       3.794       3.988         POWER SMART 2016 to 2030 Impacts (at meter)       359       706       1.166       1.738       2.118       2.460       2.692       2.090       3.112       3.313       3.575       3.825       4.061       4.506       4.506       4.506       4.506       4.506       4.506       4.506       1.566	Cades Standards & Degulation - (-11)			142	201	202	200	201		472	F1 -	504	420		774	01/		
POWER SMART 2016 to 2030 Impacts (at meter) POWER SMART 2016 to 2030 Impacts (at meter)         319         6.26         1.035         1.543         1.879         2.182         2.387         2.578         2.968         3.165         3.387         3.595         3.744         3.988           POWER SMART 2016 to 2030 Impacts (at meter)         359         706         1.166         1.738         2.118         2.460         2.692         2.099         3.112         3.351         3.573         3.825         4.061         4.287         4.506         4.506           POWER SMART 2016 to 2030 Impacts (at meter)         1.448         1.447         1.430         1.501			74															979
POWER SWART SAVINOS TO DATE         359         706         1.166         1.738         2.118         2.460         2.692         2.099         3.112         3.351         3.573         3.825         4.061         4.287         4.506         4.506           POWER SWART SAVINOS TO DATE         Incentive Based Program Impacts (at meter)         1.448         1.448         1.448         1.448         1.447         1.436         1.426         1.416         1.394																		
POWER SMART SAVINGS TO DATE Incentive Based Program Impack (at neter)         1,448         1,448         1,448         1,447         1,436         1,426         1,416         1,394 <th1,394< th="">         1,394         1,394</th1,394<>	POWER SMART 2016 to 2030 Impacts (at meter) POWER SMART 2016 to 2030 Impacts (at appraction)								2,387									4 504
Incentive Based Program Impack (at meter)         1,448         1,448         1,448         1,447         1,447         1,426         1,416         1,394 <td></td> <td>_</td> <td>328</td> <td>/06</td> <td>1,100</td> <td>1,738</td> <td>2,118</td> <td>2,400</td> <td>2,092</td> <td>2,909</td> <td>3,112</td> <td>3,351</td> <td>3,5/3</td> <td>3,825</td> <td>4,061</td> <td>4,287</td> <td>4,506</td> <td>4,506</td>		_	328	/06	1,100	1,738	2,118	2,400	2,092	2,909	3,112	3,351	3,5/3	3,825	4,061	4,287	4,506	4,506
Incentive Based Program Impack (at meter)       1.448       1.448       1.448       1.447       1.447       1.426       1.416       1.394	POWER SMART SAVINGS TO DATE																	
Customer Service Initiatives Program Impacts (at meter)         29	Incentive Based Program Impacts (at meter)		1,448	1,448	1,448	1,448		1,447	1,436	1,426	1,416	1,394	1,394	1,394	1,394	1,394	1,394	
Customer Service Initiatives Program Impacts (al generation)         33 <td>Incentive Based Program Impacts (at generation)</td> <td></td> <td>1,566</td>	Incentive Based Program Impacts (at generation)																	1,566
Discontinued Pograms (at meter) Discontinued Pograms (generation) Discontinued Pograms (generation) Discontinued Pograms (generation) Total GMD and Targets of Codes & Standards (at generation) Standards (at generatio	Customer Service Initiatives Program Impacts (at generation)		33		33	33			33					33	33			33
Impacts of Codes & Standards (at generation)         731	Discontinued Programs (at meter)	_	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	
Impacts of Codes & Standards (at generation)         833	Discontinued Programs (at generation)																	417
TOTAL GW h (at meter) 2,895 3,202 3,611 4,119 4,454 4,757 4,951 5,132 5,302 5,490 5,686 5,908 6,116 6,315 6,509																		833
TOTAL GW.h (at meter) 2,895 3,202 3,611 4,119 4,454 4,757 4,951 5,132 5,302 5,490 5,686 5,908 6,116 6,315 6,509																		
10101 (30 b (st googration) 2 270 2 617 4 077 4 640 5 027 5 370 5 500 5 704 5 006 4 430 4 474 4 500 3 407 3 655 3 655	TOTAL GW.h (at meter) TOTAL GW.h (at generation)		2,895 3,270	3,202 3,617	3,611 4,077	4,119	4,454 5.027	4,757 5,370	4,951 5,589	5,132 5,794	5,302 5,986	5,490 6,199	5,686	5,908 6,674	6,116 6,909	6,315 7,135	6,509 7,355	7.355

ELECTR	IC DSM
--------	--------

#### 2016 Demand Side Management Plan Annual Utility Costs (000's \$)

APPENDIX A.3

						/unidal	•••••	ts (000's \$	,								
		2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Cumulative Total
DENTIAL ntive Based																	
New Homes Program		\$292	\$459	\$757	\$901	\$580	-	-	-	-	-	-	-	-	-		\$2,989
Home Insulation Program		\$1,679	\$1,493	\$1,429	\$1,355	\$1,251	\$1,168	\$1,130	\$1,012	\$977	\$956	\$818	\$174	-	-		\$13,443
Affordable Energy Program		\$2,096	\$2,033	\$2,019	\$2,020	\$1,534	\$1,527	\$1,524	\$1,525	\$1,530	\$1,515	\$1,424	\$1,435	\$1,448	\$1,462	\$1,478	\$24,570
Water and Energy Saver Program		\$1,199	\$1,353	\$1,242	-	-	-	-	-	-	-	-	-	-	-		\$3,794
Refrigerator Retirement Program		\$1,911	\$1,602	\$1,469	\$1,178	\$1,228	\$988	\$47	-	-	-	-	-	-	-		\$8,423
Drain Water Heat Recovery Initiative Residential LED Lighting Program		\$91 \$3,008	\$2,561	\$1,870	-	-	-	-	-	-		-	-	-	-	-	\$91 \$7,438
Community Geothermal Program		\$1,105	\$1,357	\$1,563	\$1,668	\$1,679	\$1,764	\$2,280	\$1,891	\$1,719	\$1,809	\$2,257	\$1,694	\$1,084	\$676		\$22,546
Appliances		\$363	-	-	-	-	-	-	-	-	-	-	-	-	-		\$363
HRV Controls		\$419	\$434	\$372	-	-	-	-	-	-	-	-	-	-	-		\$1,225
Power Bars		\$9	-	-	-	-	-	-	-	-	-	-	-	-	-		\$9
Smart Thermostats		\$53	-	-	-	-	-	-	-	-	-	-	-	-	-		\$53
Plug-in Timers		\$26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$26
Community Energy Plan	Subtotal	\$62 \$12,312	\$118 \$11,411	\$120 \$10,842	\$123 \$7,245	\$125 \$6,397	\$81 \$5,528	\$82 \$5,064	\$84 \$4,513	\$86 \$4,312	\$88 \$4,367	\$90 \$4,589	\$92 \$3,395	\$93 \$2,625	\$95 \$2,234	\$97 \$1,576	\$1,437 \$86,409
	Subtotal	\$12,512	\$11,411	\$10,042	\$7,245	\$0,377	\$3,320	33,004	44,010	94,512	\$4,307	34,507	43,373	92,025	92,234	\$1,570	\$00,407
ner Service Initiatives / Financial Loan Programs																	
Power Smart Residential Loan		-	-	-		-			-	-		-	-		-		-
Power Smart PAYS Financing		-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Residential Earth Power Loan	_	-	-	-	-	-		-	-	-	-	-	-				-
	Subtotal	-	-	-	-	-		-	-	-	-	-	-	-	-		
ERCIAL																	
ive Based																	
Commercial Lighting Program		\$8,257	\$8,145	\$8,209	\$8,499	\$8,227	\$8,085	\$8,291	\$8,224	\$7,851	\$7,787	\$7,842	\$8,124	\$8,568	\$8,853	\$8,304	\$123,265
LED Roadway Lighting Conversion Program		\$10,993	\$9,858	\$10,957	\$10,801	\$1,778	-	-		-	-	-	-	-	-		\$44,388
Commercial Building Envelope - Windows Program		\$501	\$483	\$512	\$564	\$603	\$643	\$657	\$671	\$685	\$759	\$811	\$833	\$850	\$868	\$887	\$10,326
Commercial Building Envelope - Insulation Program		\$799	\$722	\$664	\$709	\$724	\$738	\$754	\$775	\$791	\$808	\$825	\$848	\$865	\$884	\$902	\$11,808
Commercial Geothermal Program		\$461	\$569	\$622	\$785	\$983	\$1,028	\$1,099	\$1,169	\$1,212	\$1,274	\$1,384	\$1,423	\$1,518	\$1,563	\$1,617	\$16,705
Commercial HVAC Program - Chillers (Water-Cooled)		\$192 \$181	\$187	\$200	\$204	\$213	\$218	\$225	\$232	- \$2	\$192 \$1,675						
Commercial HVAC Program - CO2 Sensors Commercial HVAC Program - HRVs		\$181 \$475	\$187 \$768	\$200 \$888	\$204 \$957	\$213 \$1,023	\$218 \$1,093	\$225 \$1,168	\$232 \$1,340	\$2 \$1,433	\$2 \$1,533	\$2 \$1,735	\$2 \$1,840	\$2 \$1,951	\$2 \$2,201	\$2 \$2,312	\$1,675 \$20,716
Commercial HVAC Program - Air Cooled Chillers		-	\$463	\$605	\$655	\$708	\$763	\$820	\$879	\$940	\$960	\$980	\$1,001	\$1,022	\$1,043	\$1,066	\$11,903
Commercial Custom Measures Program		\$404	\$459	\$469	\$479	\$489	\$499	\$535	\$573	\$612	\$625	\$666	\$795	\$841	\$858	\$876	\$9,180
Commercial Building Optimization Program		\$158	\$174	\$206	\$217	\$228	\$233	\$244	\$250	\$262	\$268	\$281	\$287	\$301	\$329	\$336	\$3,772
New Buildings Program		\$1,049	\$1,770	\$1,267	\$1,570	\$1,884	\$2,261	\$549	\$561	-	-	-	-	-	-		\$10,911
Commercial Refrigeration Program		\$450	\$720	\$763	\$742	\$722	\$851	\$863	\$924	\$1,000	\$909	\$1,081	\$1,097	\$1,214	\$1,163	\$1,030	\$13,530
Commercial Kitchen Appliance Program		\$78	\$29	-	-	-	-	-	-	-	-	-	-		-		\$107
Network Energy Management Program Internal Retrofit Program		\$27 \$935	\$44 \$980	\$55 \$977	\$848	\$1,270	\$967	\$988	\$434	\$443	\$452	\$419	\$428	\$437	\$446	\$456	\$127 \$10,480
Power Smart Shops		\$674	\$619	\$632	\$635	\$649	\$240	3700	3434	\$443	3432	3417	3420	3437	3440	\$400	\$3,449
Power Smart Energy Manager		\$78	\$167	\$289	\$320	\$249	\$202	\$206	\$210	\$214	\$219	\$101	\$44				\$2,204
Race to Reduce		\$128	\$131	\$134	\$137	-	-	-	-	-	-	-	-	-	-		\$530
Parking Lot Controller		\$358	\$169	-	-	-	-		-	-		-	-				\$527
	Subtotal	\$26,200	\$26,457	\$27,449	\$28,122	\$19,748	\$17,820	\$16,399	\$16,240	\$15,445	\$15,595	\$16,126	\$16,720	\$17,553	\$18,171	\$17,748	\$295,795
er Service Initiatives / Financial Loan Programs Power Smart for Business PAYS Financing																	
Tower Smart for Business FATS Financing	Subtotal			-	-								-				
	Subtotal																
RIAL																	
Performance Optimization Program	_	\$3,310	\$5,129	\$6,592	\$7,359	\$8,154	\$8,327	\$8,502	\$8,682	\$8,865	\$9,053	\$9,244	\$9,439	\$9,639	\$9,842	\$10,050	\$122,187
	Subtotal	\$3,310	\$5,129	\$6,592	\$7,359	\$8,154	\$8,327	\$8,502	\$8,682	\$8,865	\$9,053	\$9,244	\$9,439	\$9,639	\$9,842	\$10,050	\$122,187
			* 10.00/		440 305		404 / 75	A00.0/F	****		400.045	***	400 555	400.047		400.074	
ENERGY EFFI	CIENCY SUBTOTAL	\$41,822	\$42,996	\$44,883	\$42,725	\$34,300	\$31,675	\$29,965	\$29,435	\$28,622	\$29,015	\$29,960	\$29,555	\$29,817	\$30,247	\$29,374	\$504,391
IANAGEMENT																	
Curtailable Rate Program		\$6.112	\$6,241	\$6,373	\$6,508	\$6,645	\$6,786	\$6,929	\$7,075	\$7,225	\$7,378	\$7,533	\$7,693	\$7,855	\$8,021	\$8,190	\$106,566
LOAD MANAG	GEMENT SUBTOTAL	\$6,112	\$6,241	\$6,373	\$6,508	\$6,645	\$6,786	\$6,929	\$7,075	\$7,225	\$7,378	\$7,533	\$7,693	\$7,855	\$8,021	\$8,190	\$106,566
ISPLACEMENT & ALTERNATIVE ENERGY																	
Bioenergy Optimization Program		\$848	\$1,664	\$2,702	\$3,942	\$10,120	\$10,733	\$7,475	\$8	\$9	\$9	\$9	\$9	\$9	\$10	-	\$37,547
Customer Sited Load Displacement LOAD DISPLACEMENT & ALTERNATIVE E	ENERGY SUPTOTAL	\$3,911	\$12,235	\$27,850	\$22,404	\$5,284	\$6,207	\$458	\$420	\$426	\$433	\$442	\$452	\$461	\$451	\$412	\$81,846
LUAD DISPLACEMENT & ALTERNATIVE E	LIVERGT SUBTUTAL	\$4,758	\$13,898	\$30,552	\$26,346	\$15,404	\$16,941	\$7,932	\$428	\$435	\$442	\$451	\$461	\$471	\$461	\$412	\$119,393
RVATION RATES																	
Conservation Rates - Residential		-	\$2,042	\$2,085	\$2,129	\$1,631	\$1,110	\$1,134	\$579	\$591	\$603	\$308	\$315	\$321	\$328		\$13,177
Conservation Rates - Commercial		-	\$1,532	\$2,085	\$2,662	\$2,718	\$1,110	\$1,134	\$1,158	\$1,182	\$1,207	\$616	\$629	\$643	\$656		\$17,331
CONSERVATION	RATES SUBTOTAL	-	\$3,574	\$4,171	\$4,791	\$4,349	\$2,220	\$2,267	\$1,736	\$1,773	\$1,810	\$924	\$944	\$964	\$984	-	\$30,509
HOICE			\$10.315	\$10.524	\$10.746	\$10.973	#11 00F										\$53,765
Fuel Choice		-					\$11,205	-	-	-	-	-	-	-		-	
FUEL	CHOICE SUBTOTAL	-	\$10,315	\$10,524	\$10,746	\$10,973	\$11,205	-	-	-	-	-	-	-	-		\$53,765
EMERGING TECHNOLOGIES																	
Residential Air Source Heat Pumps Program						\$40	\$116	\$158	\$185	\$206	\$223	\$252	\$289	\$314	\$347	\$354	\$2,485
Residential Future Opportunities		-	-	-	-	\$4,131	\$4,219	\$4,308	\$4,399	\$4,492	\$4,587	\$4,683	\$4,782	\$4,883	\$4,987	\$5,092	\$50,563
Residential Solar Photovoltaics Program (PV)		-	-	-	\$49	\$162	\$246	\$414	\$777	\$1,441	\$2,507	\$3,774	\$4,984	\$6,284	\$7,377	\$7,854	\$35,870
Residential Solar Thermal Program - Water Heating		\$5	\$51	\$50	\$53	\$57	\$58	\$24	-	-	-	-	-	-	-		\$299
Residential Solar Thermal Program - Pool Heating		\$2	\$19	\$19	\$20	\$22	\$22	\$24	\$26	\$28	\$30	\$33	\$35	\$40	\$43	\$48	\$410
Commercial Future Opportunities		-		-	-	\$4,458	\$4,552	\$4,648	\$4,746	\$4,846	\$4,949	\$5,053	\$5,160	\$5,269	\$5,380	\$5,494	\$54,554
Commercial Solar Photovoltaics Program (PV)		-	-	-	\$160	\$557	\$1,011	\$1,895	\$3,360	\$5,058	\$7,297	\$9,594	\$12,167	\$14,240	\$15,966	\$16,304	\$87,609
Commercial Variable Speed and Frequency Drives		\$8	\$142	\$187	\$191	\$191	\$193	\$192	\$196	\$198	\$200	\$197	\$201	\$205	\$209	\$214	\$2,723
Industrial Future Opportunities OTHER EMERGING TECHNO		- \$15	\$212	\$257	\$473	\$4,892 \$14,510	\$4,996 \$15,413	\$5,101 \$16,765	\$5,209 \$18,897	\$5,319 \$21,589	\$5,431 \$25,222	\$5,546 \$29,133	\$5,663 \$33,282	\$5,783 \$37,018	\$5,905 \$40,215	\$6,030 \$41,390	\$59,877 \$294,388
UTHER EMERGING TECHNO	LOGIES SUBIUIAL	\$10	\$212	320/	\$4/3	\$14,510	\$15,413	\$10,765	\$18,897	\$∠1,58A	\$20,222	\$29,133	\$33,282	\$37,018	\$40,215	\$41,39U	\$294,388
	ubtotal of Programs	\$52,708	\$77,237	\$96,760	\$91,590	\$86,182	\$84,240	\$63,858	\$57,573	\$59,644	\$63,867	\$68,001	\$71,934	\$76,124	\$79,928	\$79,365	\$1,109,011
2	and a second s	-02,700	411,201	\$10,100	<i></i>	400,102	001,210	000,000	201,010	207,044	\$00,007	000,001	471,701	0.0,121	****	\$77,000	1,107,511
Su			64.022	\$3,956	\$4,039	\$4,124	\$4,212	\$4,301	\$4,391	\$4,484	\$4,579	\$4,676	\$4,774	\$4,875	\$4,978	\$5,083	\$66,635
		\$4,129	\$4,033														
Program Support																	
Program Support	osts (2016 to 2030)		\$4,033	\$100,716	\$95,629	\$90,307	\$88,451	\$68,159	\$61,964	\$64,129	\$68,446	\$72,677	\$76,708	\$80,999	\$84,906	\$84,449	
Program Support Total Utility Co	· · · ·																\$1,175,646
Program Support Total Utility Co	osts (2016 to 2030)																\$1,175,646 \$509,592

ELECTRIC DSM

#### 2016 Demand Side Management Plan Annual Administration Costs (000's \$)

APPENDIX A.4

Norm         Norm <th< th=""><th></th><th></th><th></th><th></th><th></th><th>A</th><th>nnual Adm</th><th>inistration</th><th>Costs (00</th><th>J's \$)</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<>						A	nnual Adm	inistration	Costs (00	J's \$)								
			2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Cumulative Total
					2010/17			LOLIVEL		2020724			2020/21				2000/01	Total
	SIDENTIAL																	
	centive Based																	
			\$188	\$229	\$299	\$375	\$112	-	-	-	-	-	-	-		-	-	\$1,204
	Affectulation Program		\$/95							\$408	\$459	\$402	\$347	51/4	-	-		\$6,600
	Attordable Energy Program		\$1,037			\$1,044	\$1,005	\$1,026	\$1,048	\$1,070	\$1,092	\$1,104	\$1,081	\$1,104	\$1,127	\$1,151	\$1,175	\$16,091
Image: state	water and Energy saver Program					-	-	-	-		-	-	-	-	-	-	-	
Description         Dial	Refrigerator Retirement Program		\$1,461	\$1,244	\$1,164	\$939	\$983	\$798	\$47	-	-	-	-	-	-	-	-	
$ \frac{1}{1} \sum_{i=1}^{n_{i}} \sum_{$	Drain Water Heat Recovery Initiative		\$21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$21
	Residential LED Lighting Program					-	+101	-	-	-	-	- 6 405	-	-	-	-	-	
Image: Description of the proper series o	Community Geothermal Program			\$377	\$376	\$384	\$392	\$401	\$412	\$418	\$426	\$435	\$447	\$453	\$458	\$465	-	
bit				-	-	-	-	-	-		-	-	-	-	-	-	-	
$ \frac{1}{10000000000000000000000000000000000$			\$66	\$86	288	-			-		-	-	-	-	-	-	-	
$ \frac{1}{100} 1$			38	-	-	-	-	-	-		-	-	-	-	-	-	-	
$ \frac{1}{1000} \sum_{i=1}^{1000} \sum_{i=1}$	Smart Thermostats		\$18 ¢15	-	-	-	-	-	-		-	-	-	-	-	-	-	\$18
Max         No.00           Stars Difference         -	Plug-In Timers			-	-	-	e105	-	+00	-	-	-	-	-	-	- +05	-	
	Community Energy Plan	Subtotal	\$62 \$6.00E				\$125	\$81		\$84	\$86			\$92		\$95		
$ \frac{1}{12} + \frac{1}{12}$		Subtotal	\$0,095	30,001	\$3,023	\$3,001	\$3,233	\$2,072	32,147	\$2,040	\$2,002	\$2,009	31,704	\$1,022	31,079	\$1,712	\$1,275	\$44,014
$ \frac{1}{12} + \frac{1}{12}$	tomor Service Initiatives / Einangial Lean Dragrams																	
	Dower Smart Desidential Loan																	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Line         -        -         -         -			-		-	-	-				-	-	-	-		-	-	
	Residential Earth Fower Loan	Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Subtotal	-		-	-	-				-	-	-	-		-	-	
	MMERCIAL																	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $																		
$ \begin{aligned} \prod_{k=1}^{k=1} \sum_{j=1}^{k=1} \sum_{k=1}^{k=1} \sum_{j=1}^{k=1} \sum_{j=1}^{k=$	Commercial Lighting Program		\$2.398	\$2.673	\$2,729	\$2,797	\$2,846	\$2.906	\$2.967	\$3,030	\$3,094	\$3,159	\$3,226	\$3.294	\$3.364	\$3.435	\$3 508	\$45.417
moment profile         moment profile         100 <td>LED Roadway Lighting Conversion Program</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td>-</td> <td>-</td> <td></td> <td>-</td> <td>-</td> <td>+0,000</td> <td></td>	LED Roadway Lighting Conversion Program							-	-	-		-	-		-	-	+0,000	
Second process         Second	Commercial Building Envelope - Windows Program							\$334	\$341	\$348	\$355	\$363	\$372	\$381	\$389	\$397	\$405	\$5,220
	Commercial Building Envelope - Insulation Program																	
Second 2000 Micro 2000 M	Commercial Geothermal Program																	
Second Strippen 105 mm         113			\$125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$125
Second Mark Prior: Mark       No       No      <	Commercial HVAC Program - CO2 Sensors		\$124	\$112	\$116	\$117	\$121	\$122	\$124	\$127	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$977
Sector 1002         Total 1002 <thtotal 1002<="" th="">         Total 1002         Total 1</thtotal>	Commercial HVAC Program - HRVs		\$93		\$64			\$68									\$82	\$1 102
$ \frac{1}{10000000000000000000000000000000000$	Commercial HVAC Program - Air Cooled Chillers		-		\$79			\$83			\$89	\$91						\$1 255
$ \frac{1}{10000000000000000000000000000000000$	Commercial Custom Measures Program		\$109		\$113													
$\frac{1}{12} \frac{1}{12} \frac$	Commercial Building Ontimization Program																	
$ \begin{titrates} begin{titrates} begin{titr$	New Buildings Program										\$150	3101	\$105	3100	\$172	3175	\$177	
$ \frac{1}{10^{10}} \frac{1}{10^{10}}$											\$274	e202	\$200	\$200	\$ 407	\$414	6424	\$5,000
$ \frac{1}{10000000000000000000000000000000000$	Commercial Kitchen Appliance Program				2000	\$337	\$J44	4332	4337	\$307	\$374	9302	\$370	3377	3407	3410	3424	\$17
$ \frac{1}{10000000000000000000000000000000000$	Notwork Energy Management Program		¢20		e 26	-	-	-	-	-	-	-	-	-	-	-	-	\$47
$ \frac{1}{12} $	Internal Detrofit Dragram		\$20	\$22	\$20 ¢100	e204	¢105	e 190	¢102	e107	\$201	e 205	\$210	e 214	e 210	- *112	e	\$07
$ \frac{11}{1000000000000000000000000000000000$	Dower Smart Shops		\$104		\$200	\$195	\$190	\$107	\$195	3197	\$201	3205	3210	3214	3210	3223	\$220	\$3,433
$ \frac{h_{1}}{h_{2}} + \frac{h_{1}}{$	Power Smart Energy Manager								\$209	\$212	\$217	\$222	\$104	\$106	\$109	\$110		\$2 275
Partic circometry         Party circ         C	Pace to Paduce			\$121			\$200	9204	\$200	9215	φ <b>2</b> 17	3222	\$104	3100	\$100	3110	-	\$520
Sum         Source         Source <td></td> <td></td> <td></td> <td></td> <td>\$154</td> <td>\$157</td> <td></td>					\$154	\$157												
Pre- bar strateging     State     I     <	Tarking Lot Controller	Subtotal			\$6.146	\$6.089	\$5.981	\$5.801	\$5.816	\$5.957	\$5 371	\$5.490	\$5.507	\$5.602	\$5.720	\$5.854	\$5.852	
New Service Normality         -		Subtotal	\$5,771	00,770	\$0,140	\$0,007	45,701	\$5,001	00,010	40,707	00,071	\$5,175	00,007	00,002	00,720	00,004	\$0,00Z	000,740
New Service Normality         -	omer Service Initiatives / Financial Loan Programs																	
Static         O        O         O         O <td>Power Smart for Business PAYS Financing</td> <td></td> <td>-</td> <td>-</td> <td></td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td>-</td> <td>-</td> <td></td> <td>-</td> <td></td> <td>-</td> <td>-</td> <td>-</td>	Power Smart for Business PAYS Financing		-	-		-	-				-	-		-		-	-	-
THAN Provide P		Subtotal	-	-	-	-	-				-	-		-		-	-	-
Performance Optimization Program         11/98         11/46         11/97         11/75																		
Performance Optimization Program         11/98         11/46         11/97         11/75	USTRIAL																	
Subor         11.00         11.05         11.75         17.75 <th< td=""><td>Performance Optimization Program</td><td></td><td>\$1,198</td><td>\$1,645</td><td>\$1,679</td><td>\$1,715</td><td>\$1,751</td><td>\$1,788</td><td>\$1,826</td><td>\$1,864</td><td>\$1,904</td><td>\$1,944</td><td>\$1,985</td><td>\$2,027</td><td>\$2,070</td><td>\$2,114</td><td>\$2,158</td><td>\$27,668</td></th<>	Performance Optimization Program		\$1,198	\$1,645	\$1,679	\$1,715	\$1,751	\$1,788	\$1,826	\$1,864	\$1,904	\$1,944	\$1,985	\$2,027	\$2,070	\$2,114	\$2,158	\$27,668
NAME AND TAKEN AND AND AND AND AND AND AND AND AND AN		Subtotal	\$1,198	\$1,645	\$1,679	\$1,715	\$1,751	\$1,788	\$1,826	\$1,864	\$1,904	\$1,944	\$1,985	\$2,027	\$2,070	\$2,114	\$2,158	\$27,668
NAME AND TAKEN AND AND AND AND AND AND AND AND AND AN																		
Curlable Rile Rogam         44         54         54         54         54         54         54         55 <td>ENERGY EFFICIENCY S</td> <td>SUBTOTAL</td> <td>\$13,064</td> <td>\$13,485</td> <td>\$13,449</td> <td>\$11,355</td> <td>\$10,967</td> <td>\$10,460</td> <td>\$9,789</td> <td>\$9,861</td> <td>\$9,337</td> <td>\$9,523</td> <td>\$9,456</td> <td>\$9,451</td> <td>\$9,469</td> <td>\$9,679</td> <td>\$9,283</td> <td>\$158,628</td>	ENERGY EFFICIENCY S	SUBTOTAL	\$13,064	\$13,485	\$13,449	\$11,355	\$10,967	\$10,460	\$9,789	\$9,861	\$9,337	\$9,523	\$9,456	\$9,451	\$9,469	\$9,679	\$9,283	\$158,628
Curlable Rile Rogam         44         54         54         54         54         54         54         55 <td></td>																		
LIOD MANGGEMENT SUBTOTAL 54 54 54 54 54 54 54 55 55 55 55 55 55	AD MANAGEMENT																	
LIOD MANGGEMENT SUBTOTAL 54 54 54 54 54 54 54 55 55 55 55 55 55	Curtailable Rate Program		\$4	\$4	\$4	\$4	\$4	\$4	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$70
Bit statis         Stop         Sto	LOAD MANAGEMENT S	SUBTOTAL	\$4	\$4	\$4	\$4	\$4	\$4	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$70
Bit statis         Stop         Sto																		
Current Side Land Degregation methods         6641         6461         5461         5461         5461         5460         5420         5171         572         571         572         574         576         558         510         555.594           LDAD DISHACEMENT AL LERNATIVE ENERGY SUBTORIAL         576         5569         550         577         550         555.594         555         555         557         513         555.594           Conservation Raits - Commercial Com																		
Custom: Sted Load Displacement       5661       5481       5580       5523       5117       573       572       571       572       574       576       558       510       55.594         LDAD DISPLACEMENT ALLEMENT VERTERY SUBTORIA       576       5881       5500       5810       580       582       581       5500       5315       5321       5328       5315       5321       5328       5315       5321       5328       5315       5321       5328       5315       5321       5328       5305       5321       5328       5305       5315       5315       5315       5315       5315       5315       5315       5315       5315       5315       5315       5315       5316       53	Bioenergy Optimization Program											\$9					-	
ERVITON RATES         Conservation Rates - Residential discomentation Rates - Residential discomente Rates - Residential dis	Customer Sited Load Displacement	_												***				
Conservation Rates - Residential Conservation Rates - Semionatial Conservation Rates - Commercial Nates - Residential Conservation Rates - Commercial Nates - Residential Conservation Rates - Commercial Nates - Residential Rates - Conservation Rates - Commercial Nates - Residential Rates - Residential Arrow - Residential Residential Arrow - Residential Arrow - Residentia Arrow - Residential Arrow - Residential Arrow - Residential Ar	LOAD DISPLACEMENT & ALTERNATIVE ENERGY S	SUBTOTAL	\$976	\$689	\$861	\$590	\$793	\$665	\$450	\$81	\$80	\$80	\$82	\$83	\$85	\$67	\$10	\$5,594
Conservation Rates - Residential Conservation Rates - Semionatial Conservation Rates - Commercial Nates - Residential Conservation Rates - Commercial Nates - Residential Conservation Rates - Commercial Nates - Residential Rates - Conservation Rates - Commercial Nates - Residential Rates - Residential Arrow - Residential Residential Arrow - Residential Arrow - Residentia Arrow - Residential Arrow - Residential Arrow - Residential Ar																		
Conservation Rates - Commercial         -         51,522         52,085         52,062         52,718         51,110         51,134         51,182         51,203         52,203         51,733         51,810         52,220         52,237         51,733         51,810         52,24         59,44         59,64 <td>VSERVATION RATES</td> <td></td>	VSERVATION RATES																	
CONSERVATION RATES SUBTOTAL         -         \$3,574         \$4,171         \$4,791         \$4,39         \$2,20         \$2,27         \$1,73         \$1,80         \$724         \$744         \$764         \$764         \$764         \$764         \$764         \$764         \$764         \$764         \$764         \$764         \$777         \$1,810         \$724         \$773         \$1,810         \$724         \$764         \$764         \$764         \$777         \$734         \$7<         \$773         \$7.0	Conservation Rates - Residential		-	\$2,042	\$2,085	\$2,129	\$1,631	\$1,110	\$1,134			\$603	\$308	\$315	\$321	\$328	-	\$13,177
Child       Number of the transmission of transmissin transmission of transmission of transmission	Conservation Rates - Commercial		-														-	
Fuel Choice       - <th< td=""><td>CONSERVATION RATES S</td><td>SUBTOTAL</td><td>-</td><td>\$3,574</td><td>\$4,171</td><td>\$4,791</td><td>\$4,349</td><td>\$2,220</td><td>\$2,267</td><td>\$1,736</td><td>\$1,773</td><td>\$1,810</td><td>\$924</td><td>\$944</td><td>\$964</td><td>\$984</td><td>-</td><td>\$30,509</td></th<>	CONSERVATION RATES S	SUBTOTAL	-	\$3,574	\$4,171	\$4,791	\$4,349	\$2,220	\$2,267	\$1,736	\$1,773	\$1,810	\$924	\$944	\$964	\$984	-	\$30,509
Fuel Choice       - <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>																		
FUEL CHOICE SUBTOTAL         -         5684         5689         \$704         \$719         \$734         -         -         -         -         -         -         53,530           R EMERGING TECHNOLOGIES         -         -         -         540         \$83         \$84         \$966         \$92         \$94         \$96         \$98         \$100         \$19,951           Residential future Opportunities         -         -         -         \$1,631         \$1,665         \$1,700         \$1,736         \$1,773         \$1,810         \$1,849         \$1,888         \$1,928         \$1,948         \$2,010         \$19,959           Residential Solar Thermal Program - Valter Heating         \$52         \$13         \$42         \$43         \$44         \$2,4         -         -         -         -         \$226           Commercial Solar Thermal Program - Valter Heating         \$52         \$13         \$42         \$43         \$44         \$2,4         -         -         -         -         -         -         \$226           Commercial Solar Photovalutilis         -         -         -         \$160         \$163         \$177         \$17         \$171         \$120         \$123         \$12,2         \$10,630<	L CHOICE																	
ReteRCING TECHNOLOGIES         1			-	\$684	\$689	\$704	\$719	\$734	-	-	-	-	-	-	-	-	-	\$3,530
Residential Air Source Heat Pumps Program       -       -       -       -       -       540       \$83       \$84       \$86       \$87       \$90       \$92       \$94       \$96       \$98       \$100       \$19951         Residential future Opportunities       -       -       -       \$10,61       \$11,645       \$12,02       \$12,85       \$1,645       \$17,757       \$18,81       \$12,42       \$288       \$433       \$614       \$788       \$990       \$10,89       \$11,64       \$18,851       \$16,851       \$100       \$11,948       \$18,851       \$100       \$11,848       \$12,02       \$100       \$11,848       \$12,02       \$100       \$11,648       \$18,851       \$100       \$11,64       \$18,851       \$100       \$11,64       \$18,851       \$100       \$11,64       \$18,851       \$100       \$11,65       \$100       \$11,65       \$100       \$11,65       \$110       \$11       \$11       \$11       \$11       \$11       \$11       \$11,65       \$110       \$12,85       \$12,85	FUEL CHOICE S	SUBTOTAL	-	\$684	\$689	\$704	\$719	\$734	-	-	-	-	-	-	-	-	-	\$3,530
Residential Air Source Heat Pumps Program       -       -       -       -       -       540       \$83       \$84       \$86       \$87       \$90       \$92       \$94       \$96       \$98       \$100       \$19951         Residential future Opportunities       -       -       -       \$10,61       \$11,645       \$12,02       \$12,85       \$1,645       \$17,757       \$18,81       \$12,42       \$288       \$433       \$614       \$788       \$990       \$10,89       \$11,64       \$18,851       \$16,851       \$100       \$11,948       \$18,851       \$100       \$11,848       \$12,02       \$100       \$11,848       \$12,02       \$100       \$11,648       \$18,851       \$100       \$11,64       \$18,851       \$100       \$11,64       \$18,851       \$100       \$11,64       \$18,851       \$100       \$11,65       \$100       \$11,65       \$100       \$11,65       \$110       \$11       \$11       \$11       \$11       \$11       \$11       \$11,65       \$110       \$12,85       \$12,85																		
Residential future Opportunities       -																		
Residential future Opportunities       -	Residential Air Source Heat Pumps Program		-	-	-	-						\$90	\$92	\$94		\$98	\$100	
Residential Solar Phonovoltaics Program (VP)       -	Residential Future Opportunities		-	-	-	-						\$1,810	\$1,849	\$1,888		\$1,968	\$2,010	\$19,959
Residential Solar Thermal Program - Vold Heating       \$5       \$43       \$42       \$43       \$44       \$24	Residential Solar Photovoltaics Program (PV)		-	-	-					\$182	\$288	\$443	\$614	\$788	\$930	\$1,089	\$1,154	\$5,883
Residential Solar Thermal Program - Pool Heating       \$2       \$15       \$15       \$16       \$16       \$16       \$17       \$17       \$17       \$18       \$19       \$19       \$19       \$19       \$19       \$19       \$10       \$226         Commercial Solar Thermal Program (PU)       -       -       \$870       \$163       \$167       \$17       \$17       \$17       \$18       \$19       \$19       \$19       \$10, \$10         Commercial Solar Photovoltals Program (PU)       -       -       \$160       \$163       \$167       \$170       \$174       \$177       \$302       \$308       \$315       \$321       \$322       \$328       \$325       \$12, \$12       \$12       \$12       \$12       \$12       \$12       \$12       \$12       \$12       \$12       \$12       \$11 <t< td=""><td>Residential Solar Thermal Program - Water Heating</td><td></td><td></td><td>\$43</td><td></td><td></td><td>\$43</td><td></td><td></td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td>-</td><td>-</td><td></td></t<>	Residential Solar Thermal Program - Water Heating			\$43			\$43				-	-	-	-		-	-	
Commercial Future Opportunities         . <t< td=""><td>Residential Solar Thermal Program - Pool Heating</td><td></td><td>\$2</td><td>\$15</td><td>\$15</td><td>\$15</td><td>\$16</td><td>\$16</td><td></td><td>\$16</td><td>\$17</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Residential Solar Thermal Program - Pool Heating		\$2	\$15	\$15	\$15	\$16	\$16		\$16	\$17							
Commercial Solar Photovoltales Program (PV)       -       -       -       -       5160       \$163       \$177       \$174       \$177       \$302       \$308       \$315       \$321       \$328       \$335       \$2,919         Commercial Solar Photovoltales Program (PV)       -       -       -       \$1,631       \$170       \$174       \$177       \$302       \$308       \$315       \$321       \$328       \$335       \$2,919         Commercial Solar Photovoltales Program (PV)       -       -       -       \$1,631       \$106       \$108       \$10       \$113       \$115       \$118       \$120       \$123       \$125       \$128       \$12,919       \$102       \$131       \$11,965       \$1,773       \$1,736       \$1,773       \$1,810       \$1,849       \$1,888       \$19,28       \$1,948       \$2,010       \$19,959       \$102       \$131       \$11,955       \$1,968       \$2,010       \$19,959       \$19,959       \$102       \$10,303       \$4,967       \$5,174       \$5,553       \$5,833       \$6,16       \$6,637       \$6,645       \$6,2371       \$6,645       \$6,2371       \$6,645       \$6,2371       \$6,645       \$6,2371       \$6,645       \$6,635       \$6,645       \$6,635       \$6,645       \$6,645       <	Commercial Future Opportunities		-	-	-	-			\$907					\$1,007			\$1,072	\$10,645
Commercial Variable Speed and Frequency Drives         5<			-	-	-	\$160	\$163		\$170				\$308	\$315			\$335	\$2,919
Industrial Future Opportunities         - <t< td=""><td>Commercial Variable Speed and Frequency Drives</td><td></td><td>\$8</td><td>\$97</td><td>\$99</td><td></td><td>\$104</td><td></td><td>\$108</td><td>\$110</td><td>\$113</td><td>\$115</td><td>\$118</td><td>\$120</td><td>\$123</td><td>\$125</td><td>\$128</td><td>\$1.575</td></t<>	Commercial Variable Speed and Frequency Drives		\$8	\$97	\$99		\$104		\$108	\$110	\$113	\$115	\$118	\$120	\$123	\$125	\$128	\$1.575
OTHER EMERGING TECHNOLOGIES SUBTOTAL       \$15       \$155       \$156       \$308       \$4,057       \$4,833       \$4,967       \$5,174       \$5,53       \$5,833       \$6,116       \$6,272       \$6,645       \$6,282       \$6,271         Subtotal of Programs       \$14,058       \$18,592       \$19,330       \$17,813       \$21,437       \$18,836       \$17,344       \$16,650       \$16,370       \$16,972       \$16,300       \$16,600       \$16,894       \$17,381       \$16,126       \$260,702         Program Support       \$4,129       \$4,033       \$3,956       \$4,039       \$4,124       \$4,212       \$4,301       \$4,484       \$4,579       \$4,676       \$4,774       \$4,875       \$4,978       \$50,833       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,645       \$6,272       \$6,272       \$6,272       \$6,272       \$6,266       \$6,272       \$6,265       \$22,265       \$23,286       \$21,292 <td< td=""><td>Industrial Future Opportunities</td><td></td><td>-</td><td>-</td><td></td><td>-</td><td></td><td></td><td>\$1,700</td><td></td><td></td><td>\$1,810</td><td></td><td>\$1,888</td><td>\$1,928</td><td></td><td>\$2.010</td><td></td></td<>	Industrial Future Opportunities		-	-		-			\$1,700			\$1,810		\$1,888	\$1,928		\$2.010	
Subtrate of Programs         \$14,058         \$18,592         \$19,330         \$17,813         \$21,437         \$18,836         \$17,344         \$16,650         \$16,370         \$16,972         \$16,800         \$16,894         \$17,381         \$16,120         \$260,702           Program Support         \$4,129         \$4,033         \$3,956         \$4,039         \$4,124         \$4,212         \$4,301         \$4,484         \$4,579         \$4,676         \$4,774         \$4,875         \$4,978         \$5,083         \$66,635           Total Administration Costs (2016 to 2030)         \$18,187         \$22,625         \$23,286         \$21,852         \$25,562         \$23,047         \$21,644         \$21,550         \$20,975         \$21,374         \$21,707         \$22,359         \$21,209         \$22,626           Total Administration Costs (2016 to 2030)         \$18,187         \$22,625         \$23,286         \$21,852         \$23,047         \$21,644         \$21,550         \$20,975         \$21,374         \$21,707         \$22,359         \$21,209         \$22,359         \$21,209         \$22,626         \$22,626         \$23,047         \$21,644         \$21,650         \$20,975         \$21,374         \$21,707         \$22,359         \$21,209         \$22,626 <td>OTHER EMERGING TECHNOLOGIES S</td> <td>SUBTOTAL</td> <td>\$15</td> <td>\$155</td> <td>\$156</td> <td>\$368</td> <td></td>	OTHER EMERGING TECHNOLOGIES S	SUBTOTAL	\$15	\$155	\$156	\$368												
Program Support         \$4,129         \$4,033         \$3,956         \$4,039         \$4,124         \$4,212         \$4,301         \$4,891         \$4,676         \$4,774         \$4,875         \$4,978         \$5,083         \$66,635           Total Administration Costs (2016 to 2030)         \$18,187         \$22,625         \$23,266         \$21,852         \$25,562         \$23,047         \$21,042         \$20,854         \$21,550         \$20,975         \$21,374         \$21,770         \$22,359         \$21,026         \$22,656         \$21,856         \$21,042         \$20,854         \$21,550         \$20,975         \$21,374         \$21,770         \$22,359         \$21,026         \$22,856         \$21,856         \$20,854         \$21,550         \$20,975         \$21,374         \$21,770         \$22,359         \$21,850         \$22,856	OTTER ENERGING TECHNOLOGIES 3		0.0	4.00	\$150	4000	\$1,000	\$1,701	0.000	\$1,707	00,174	40,000	40,000	40,110	40,072	\$0,040	\$0,020	002,077
Program Support         \$4,129         \$4,033         \$3,956         \$4,039         \$4,124         \$4,212         \$4,301         \$4,891         \$4,676         \$4,774         \$4,875         \$4,978         \$5,083         \$66,635           Total Administration Costs (2016 to 2030)         \$18,187         \$22,625         \$23,266         \$21,852         \$25,562         \$23,047         \$21,042         \$20,854         \$21,550         \$20,975         \$21,374         \$21,770         \$22,359         \$21,026         \$22,656         \$21,856         \$21,042         \$20,854         \$21,550         \$20,975         \$21,374         \$21,770         \$22,359         \$21,026         \$22,856         \$21,856         \$20,854         \$21,550         \$20,975         \$21,374         \$21,770         \$22,359         \$21,850         \$22,856	Subtotal of	Programs	\$14.058	\$18 592	\$19.330	\$17.813	\$21 437	\$18.836	\$17.344	\$16.650	\$16.370	\$16.972	\$16.300	\$16.600	\$16.894	\$17.381	\$16.126	\$260.702
Total Administration Costs (2016 to 2030) \$18,187 \$22,625 \$23,286 \$21,852 \$25,562 \$23,047 \$21,644 \$21,042 \$20,854 \$21,550 \$20,975 \$21,374 \$21,770 \$22,359 \$21,209 \$327,337 Total Committed to Date \$226,268	Subtotal of	. ogranis	÷.4,000	φ10,372	\$17,550	\$17,013	921,437	\$10,030	317,344	\$10,000	910,370	910,772	910,300	\$10,000	\$10,074	\$17,301	\$10,120	\$200,702
Total Administration Costs (2016 to 2030) \$18,187 \$22,625 \$23,286 \$21,852 \$25,562 \$23,047 \$21,644 \$21,042 \$20,854 \$21,550 \$20,975 \$21,374 \$21,770 \$22,359 \$21,209 \$327,337 Total Committed to Date \$226,268	Program Support		\$4,129	\$4,033	\$3,956	\$4,039	\$4,124	\$4,212	\$4,301	\$4,391	\$4,484	\$4,579	\$4.676	\$4,774	\$4,875	\$4,978	\$5.083	\$66.635
Total Committed to Date			27,127	÷1,000	40,700	\$1,007	¥1,124	¥7,212	\$1,001	ψ4,071	\$1,101	φ-1,077	\$1,070	\$1,774	01,070	\$1,770	\$5,005	000,000
Total Committed to Date	Total Administration Costs (2016	6 to 2030)	\$18,187	\$22.625	\$23.286	\$21.852	\$25.562	\$23.047	\$21.644	\$21.042	\$20.854	\$21,550	\$20.975	\$21.374	\$21.770	\$22.359	\$21,209	\$327,337
				,320	,200		,002				,004	+= .,500	,//0					1127,007
	Total Committe	ed to Date																\$226,268
TOTAL ADMINISTRATION COSTS (1989 to 2030) \$18,187 \$22,625 \$23,286 \$21,852 \$25,562 \$23,047 \$21,644 \$21,042 \$20,854 \$21,550 \$20,975 \$21,374 \$21,770 \$22,359 \$21,270																		
	TOTAL ADMINISTRATION COSTS (1989 to 2030)		\$18,187	\$22,625	\$23,286	\$21,852	\$25,562	\$23,047	\$21,644	\$21,042	\$20,854	\$21,550	\$20,975	\$21,374	\$21,770	\$22,359	\$21,209	\$553,605

ELECTRIC DSM

#### 2016 Demand Side Management Plan Annual Incentive Costs (000's \$)

APPENDIX A.5

							Annual Ir	ncentive C	osts (000's	\$)								
		201	6/17 2	017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Cumulative Total
	DENTIAL																	
Market Note:         Mark	tive Based																	
	New Homes Program							-	-	-	-	-	-	-	-	-	-	
	Affordable Epergy Program													\$331	\$320	\$311	\$303	
Barket of the sector         Barket of	Water and Energy Saver Program					-	-	-	-	-	-	-	-	-	-	-	-	
	Refrigerator Retirement Program			\$358	\$305	\$240	\$245	\$190	-		-		-					
Characterization				-		-	-	-	-	-	-	-	-	-	-	-	-	
Image         Image <th< td=""><td></td><td></td><td></td><td></td><td></td><td>\$1.294</td><td>- \$1.296</td><td>- \$1.262</td><td>e1 969</td><td>- \$1.472</td><td>- \$1.202</td><td>- \$1.274</td><td>- \$1.911</td><td>e1 242</td><td>- \$625</td><td>\$211</td><td>-</td><td></td></th<>						\$1.294	- \$1.296	- \$1.262	e1 969	- \$1.472	- \$1.202	- \$1.274	- \$1.911	e1 242	- \$625	\$211	-	
				-	-	-	-	-	-	-	-	-	-	-	-	-		
minimum       10 <t< td=""><td></td><td>\$3</td><td>354</td><td>\$348</td><td>\$284</td><td></td><td></td><td></td><td>-</td><td></td><td>-</td><td></td><td>-</td><td></td><td></td><td></td><td></td><td>\$985</td></t<>		\$3	354	\$348	\$284				-		-		-					\$985
Name         10         . <td></td> <td></td> <td></td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td>-</td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td>-</td> <td></td>				-	-				-		-		-				-	
Channel Train         Build		5. c	35	-	-	-		-	-	-	-		-		-		-	\$35
Same         Kult         Kult <th< td=""><td></td><td>а</td><td>-</td><td></td><td>-</td><td>-</td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td>-</td><td></td><td></td><td></td><td>-</td><td>-</td></th<>		а	-		-	-		-	-	-	-		-				-	-
	S	ubtotal \$6,	,217 \$	\$5,560	\$5,219	\$3,693	\$3,162	\$2,656	\$2,917	\$2,473	\$2,249	\$2,279	\$2,625	\$1,573	\$946	\$522	\$303	\$42,395
	r Service Initiatives / Financial Loan Programs																	
	Power Smart Residential Loan		-	-			-				-		-			-		-
$ \frac{1}{10000000000000000000000000000000000$			-	-	-				-		-		-				-	-
		ubtotal	-		-	-	-	-	-	-	-	-	-	-		-	-	-
bit         bit <td></td> <td>dbtotai</td> <td></td>		dbtotai																
Characterization provide state structure provide stru	RCIAL																	
$ \begin{array}{c                                    $	Commercial Lighting Program	\$5	950	\$5.470	\$5.490	\$5 712	\$5.201	\$5.170	\$5.222	\$5.104	\$4 757	\$4.627	\$4.616	\$4.920	\$5.204	\$5.419	\$4 706	\$77 947
domental biology       101 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td>								-	-	-	-	-	-	-	-	-	-	
Dimensional Register         127         131         134         130	Commercial Building Envelope - Windows Program	\$2	228	\$178	\$199	\$244	\$276											\$5,106
$ \frac{1}{12} \sum_{k=1}^{k=1} \sum_{k$																		
Demonstrative Parts (17)         Total         Tot	Commercial Beotherman Program Commercial HVAC Program - Chillers (Water-Cooled)			ə334 -	8066	\$537	\$/12	ə/55 -	\$828 -	38/5	\$¥23	94/3	\$1,056 -	\$1,110	\$1,198	\$1,223	\$1,283 -	
Converted Line Properties           193               193           193           193           193           193           193           193           193           193           193           193           193           193           193           193           193                       193           193           193           193           193           193           193           193           193           193           193				\$75	\$84	\$88	\$92	\$96	\$101	\$105	-	-	-	-	-	-	-	
Conversion         Stop          Stop         St	Commercial HVAC Program - HRVs	\$3	382	\$703			\$956											\$19,614
Consisting divide di divide di di divide divide divide divide divide divide divide d																		
here barger organ more of scale barger more of																		
Chance displayed in Yung         Ling         Ling         Hole         H		\$4	460 \$	\$1,321	\$809	\$1,102	\$1,407		-	-	-	-	-	-	-	-	-	\$6,823
$\frac{1}{12} \sum_{k=1}^{k+1} \sum_{k=$	Commercial Refrigeration Program	\$3	332	\$397					\$504	\$557	\$626	\$527	\$691	\$698	\$807	\$748	\$606	\$8,208
Internet beingen bein beingen b									-		-		-				-	
New marking in stars         44.0         64.01         60.0         69.0         69.00	Network Energy Management Program					- 6EE 4	- 61.00E	- ¢770	- \$705	-	-	- \$247	- \$210	- 6014	-	-	-	
member berug hange         i		54	480	\$441	\$451		\$459	\$143	3/93	3237	3242		\$210	3214		3223		\$2,425
$ \frac{1}{1000} \frac{1}{100$	Power Smart Energy Manager																	
Saturd         BLO29         B28.40         B28.40         B28.00         B28.00         B10.70         B10.70 </td <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td>-</td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td>-</td> <td></td>			-	-	-				-		-		-				-	
					\$21 303	\$22.033	\$13,768	\$12,020	\$10,582	\$10,283	\$10.074	\$10,104	\$10.620	\$11 119	\$11,833	\$12 317	\$11,896	
New The Durbanes NVS Funding         .		dbtotai \$20	7,427 J	20,407	\$21,303	\$22,033	\$13,700	\$12,020	310,302	\$10,205	\$10,074	\$10,104	310,020	\$11,117	\$11,033	\$12,517	\$11,070	\$200,047
Setup         Setup <th< td=""><td>r Service Initiatives / Financial Loan Programs</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	r Service Initiatives / Financial Loan Programs																	
		ubtotal	-	-		-						-		-			-	
Partomaze Gennance Gennace Gennace Gennance Gennance Gennance Gennance Gennance Gennance		abtotal																
Sector         52,112         53,44         54,913         55,54         56,673         56,871         57,90         57,20         57,70         57,80         57,60         55,01         57,00         57,80	RIAL Performance Ontimization Program	\$2	112	\$2.494	\$4.012	\$5.644	\$6.402	\$6.529	\$6.677	\$6.919	\$6.962	\$7.100	\$7.250	\$7.412	\$7.560	\$7 720	\$7.902	\$94 519
Net the second s																		
Net the second s																		
Currantiable Bate Program       54,108       54,227       56,369       56,264       56,441       56,781       56,225       57,711       57,220       57,273       57,388       57,468	ENERGY EFFICIENCY SUE	STOTAL \$28	8,758 \$	29,511	\$31,435	\$31,370	\$23,333	\$21,215	\$20,176	\$19,574	\$19,285	\$19,492	\$20,504	\$20,104	\$20,348	\$20,568	\$20,091	\$345,763
Curratable Bate Program       54,108       54,227       58,287       45,204       56,441       56,781       56,225       57,711       57,204       57,273       57,288       57,488       57,480       58,016      <	ANAGEMENT																	
Participant and provide integration in the provi	Curtailable Rate Program																	
Biomegraph         533         51,455         52,424         53,833         59,765         510,391         57,142         - <td>LOAD MANAGEMENT SUE</td> <td>STOTAL \$6,</td> <td>,108 \$</td> <td>\$6,237</td> <td>\$6,369</td> <td>\$6,504</td> <td>\$6,641</td> <td>\$6,781</td> <td>\$6,925</td> <td>\$7,071</td> <td>\$7,220</td> <td>\$7,373</td> <td>\$7,528</td> <td>\$7,688</td> <td>\$7,850</td> <td>\$8,016</td> <td>\$8,185</td> <td>\$106,496</td>	LOAD MANAGEMENT SUE	STOTAL \$6,	,108 \$	\$6,237	\$6,369	\$6,504	\$6,641	\$6,781	\$6,925	\$7,071	\$7,220	\$7,373	\$7,528	\$7,688	\$7,850	\$8,016	\$8,185	\$106,496
Customers Hed Land Displacement 132.60 \$11,754 \$27,264 \$71,923 \$4,829 \$5,884 \$340 \$347 \$355 \$422 \$170 \$378 \$386 \$394 \$402 \$172,797 \$78 \$386 \$394 \$402 \$172,797 \$78 \$386 \$394 \$402 \$172,797 \$78 \$386 \$394 \$402 \$172,797 \$78 \$386 \$394 \$402 \$172,797 \$78 \$386 \$394 \$402 \$172,797 \$78 \$386 \$394 \$402 \$172,797 \$78 \$386 \$394 \$402 \$172,797 \$78 \$386 \$394 \$402 \$172,797 \$78 \$386 \$394 \$402 \$172,797 \$78 \$386 \$394 \$402 \$172,797 \$78 \$386 \$394 \$402 \$172,797 \$178 \$396 \$172,797 \$178 \$396 \$178,797 \$178 \$396 \$178,797 \$178 \$396 \$198,994 \$192 \$172,797 \$18 \$192 \$192 \$172,797 \$18 \$192 \$192 \$172,797 \$18 \$192 \$192 \$112,797	ISPLACEMENT & ALTERNATIVE ENERGY																	
LOAD DISPLACEMENT & ALTERNATIVE ENERGY SUBTORAL         \$3,783         \$13,299         \$29,691         \$25,76         \$14,611         \$16,275         \$7,462         \$347         \$355         \$3,62         \$370         \$378         \$386         \$394         \$402         \$113,799           Conservation Rates - Construction Rates - Constructi	Bioenergy Optimization Program		533 \$	\$1,455						-	-	-	-		-		-	
ATION RATES Conservation Rates - Residential Conservation Rates -	Customer Sited Load Displacement	\$3,																
Conservation Rates - Residential Conservation Rates - Conservation Rates - Conserva	LOAD DISPLACEMENT & ALTERNATIVE ENERGY SUE	STUTAL \$3,	,783 \$	13,209	\$29,091	\$20,700	\$14,011	\$10,275	\$7,482	\$347	\$300	\$302	\$370	\$378	\$380	\$394	\$402	\$113,799
Convervation Rates - Commercial         -        -         - <th< td=""><td>VATION RATES</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	VATION RATES																	
CONSERVATION RATES SUBTORAL         ·        ·         ·         · </td <td>Conservation Rates - Residential</td> <td></td> <td>-</td>	Conservation Rates - Residential		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Puel Choice       - <th< td=""><td>CONSERVATION PATER CUR</td><td></td><td>-</td><td>-</td><td></td><td>-</td><td>-</td><td>-</td><td></td><td>-</td><td></td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></th<>	CONSERVATION PATER CUR		-	-		-	-	-		-			-	-	-	-	-	-
Full Choice       - <th< td=""><td>CONSERVATION RATES SUE</td><td>TOTAL</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></th<>	CONSERVATION RATES SUE	TOTAL	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
FUEL CHOICE SUBTOTAL         -         59,631         \$9,835         \$10,043         \$10,255         \$10,471         -         -         -         -         -         -         -         -         550,235           MERCING TECHNOLOGIES         -         -         -         -         -         -         -         52,501         \$2,553         \$2,007         \$2,662         \$2,719         \$2,776         \$2,835         \$2,996         \$3,018         \$3,082         \$30,602         \$30,018         \$3,082         \$30,602         \$29,986         \$29,986         \$29,986         \$29,986         \$29,986         \$218         \$24,98         \$53,84         \$6,228         \$5,334         \$6,208         \$29,986         \$29,986         \$29,986         \$29,986         \$29,986         \$29,986         \$29,986         \$20,833         \$1,154         \$2,204         \$3,160         \$1,195         \$2,29,986         \$2,29,986         \$2,29,986         \$2,29,986         \$2,29,986         \$2,29,986         \$2,29,986         \$2,29,986         \$2,29,986         \$2,29,986         \$2,196         \$3,180         \$3,081         \$5,62,238         \$5,534         \$2,29,986         \$2,1183         \$1,183         \$1,183         \$1,183         \$1,183         \$1,183         \$1,183 <td>IOICE</td> <td></td>	IOICE																	
MERCING TECHNOLOGIES         1									-	-	-			-	-	-		
esciential Ar Source Heat Pumps Program       -       -       -       -       -       -       -       -       533       574       598       \$118       \$133       \$1400       \$195       \$218       \$249       \$255       \$1534         Residential future Opportunities       -       -       -       52,501       \$22,507       \$2,605       \$2,181       \$2,776       \$2,835       \$52,966       \$53,086       \$52,9966       \$53,086       \$52,9966       \$53,086       \$57       \$14       \$14       -	FUEL CHOICE SUE	TOTAL	- 3	97,031	\$4,830	\$10,043	\$10,200	\$10,471	-	-	-	-	-	-	-	-	-	\$50,235
Residential future Opportunities       -       -       -       \$2,001       \$2,620       \$2,607       \$2,6262       \$2,776       \$2,835       \$2,965       \$3,108       \$3,008       \$3,006       \$29,966       \$3,018       \$3,008       \$20,966       \$5,345       \$6,2965       \$1,164       \$2,0461       \$5,108       \$5,000       \$29,966       \$5,118       \$3,108       \$3,008       \$20,966       \$5,345       \$5,028       \$5,020       \$5,020       \$5,025       \$1,164       \$2,0461       \$5,108       \$5,018       \$5,020       \$5,020       \$5,025       \$5,118       \$3,108       \$3,018       \$3,006       \$5,020	EMERGING TECHNOLOGIES																	
esciential solar Photovoltaics Program (PV)       -       -       -       55       \$12       \$292       \$595       \$11       \$14       \$2,04       \$3,160       \$4,196       \$5,534       \$6,288       \$6,008       \$29966         Residential solar Phoma Program - Water Heating       -       \$54       \$56       \$7       \$8       \$9       \$11       \$13       \$15       \$18       \$21       \$24       \$29       \$174       \$3500       \$4,196       \$4,153       \$4,145       \$4,29       \$174       \$3500       \$4,196       \$4,153       \$4,145       \$4,29       \$174       \$4,307       \$4,153       \$4,145       \$4,490       \$4,			-	-	-	-		\$33	\$74			\$133	\$160	\$195		\$249	\$255	\$1,534
Residential Solar Thermal Program: Water Heating       -       S8       S9       \$11       \$14       \$14       -       -       -       -       555         Residential Solar Thermal Program: Water Heating       -       54       \$54       \$55       \$56       \$77       \$58       \$57       \$58       \$59       \$51       \$51       \$51       \$51       \$54       \$4, 320       \$51, 421       \$54, 320       \$53, 901       \$53, 901       \$59, 905       \$51, 650       \$51, 650       \$51, 852       \$51, 854       \$54, 320       \$53, 901       \$53, 901       \$59, 905       \$51, 850       \$53, 901       \$50, 905       \$51, 850       \$51, 950       \$53, 951       \$53, 951       \$53, 951       \$53, 951       \$53, 950       \$51, 750 <t< td=""><td></td><td></td><td>-</td><td></td><td>-</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>			-		-	-												
Residential Solar Thermal Program - Pool Heating       -       S4       S4       S5       S6       S7       S8       S9       S11       S13       S15       S18       S21       S24       S24       S34       S4       S4       S5       S6       S7       S8       S9       S11       S13       S15       S18       S21       S24       S24       S3429       S1442       S43.968       S6       S5       S6       S7       S8       S9       S11       S13       S15       S18       S21       S24       S34.923       S44.22       S43.910       S3.983       S4.067       S4,153       S13,918       S15,638       S14,64       S4,660       S65       S9       S81       S18       S24       S3.981       S4,81       S66       S9       S3.985       S3.64       S14,640       S3.741       S3.546       S3.671       S3.987       S3.997       S3.198       S14,640       S3.997       S3.997<			-	58	59	\$11			\$Z92	\$0 <b>4</b> 2	\$1,154 -	\$2,064 -	ə3,16U	\$4,190	\$0,354 -	\$0,288 -	\$0,7UU	
Commercial Future Opportunities       -       -       -       33,864       \$3,711       \$3,820       \$3,901       \$3,903       \$4,067       \$4,153       \$4,241       \$4,330       \$4,422       \$43,910         Commercial Future Opportunities       -       -       \$394       \$844       \$1,725       \$3,191       \$4,807       \$4,813       \$4,421       \$4,430       \$4,422       \$43,910         Commercial Variable Spectority Protovalities       -       \$394       \$844       \$1,725       \$3,815       \$79       \$81       \$82       \$84       \$8,690       \$3,71       \$3,847       \$3,847       \$3,855       \$79       \$81       \$82       \$84       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,901       \$3,001       \$3,171       \$3,860       \$31,901       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001       \$3,001	Residential Solar Thermal Program - Pool Heating		-				\$6		\$8	\$9	\$11	\$13	\$15	\$18	\$21	\$24		
Commercial Variable Speed and Frequency Drives         -         S48         S48         S90         S87         S87         S84         S86         S85         S79         S81         S82         S84         S86         S1,148           Industrial Future Opportunities         - <t< td=""><td>Commercial Future Opportunities</td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>\$3,588</td><td>\$3,664</td><td>\$3,741</td><td>\$3,820</td><td>\$3,901</td><td>\$3,983</td><td>\$4,067</td><td>\$4,153</td><td>\$4,241</td><td>\$4,330</td><td>\$4,422</td><td>\$43,910</td></t<>	Commercial Future Opportunities		-	-	-	-	\$3,588	\$3,664	\$3,741	\$3,820	\$3,901	\$3,983	\$4,067	\$4,153	\$4,241	\$4,330	\$4,422	\$43,910
Industrial Future Opportunities       -	Commercial Solar Photovoltaics Program (PV)		-	- ¢ 4E	-	-												
OTHER EMERGING TECHNOLOGIES SUBTOTAL         \$56         \$101         \$105         \$9,905         \$10,661         \$11,922         \$13,930         \$16,415         \$19,669         \$23,300         \$27,165         \$30,646         \$33,570         \$34,562         \$232,017           Subtotal of Programs         \$38,649         \$58,645         \$77,430         \$73,777         \$64,745         \$66,404         \$46,515         \$40,922         \$43,275         \$46,896         \$51,702         \$55,334         \$59,229         \$62,547         \$63,239         \$848,309           Program Support	Industrial Future Opportunities		-	\$40 -	999	÷ 240												
Subtrail of Programs         \$38,649         \$58,645         \$77,430         \$73,777         \$64,745         \$66,515         \$40,922         \$43,275         \$46,896         \$51,702         \$55,334         \$59,229         \$62,547         \$63,299         \$848,309           Program Support         - <td< td=""><td>OTHER EMERGING TECHNOLOGIES SUE</td><td>BTOTAL</td><td></td><td>\$56</td><td>\$101</td><td>\$105</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	OTHER EMERGING TECHNOLOGIES SUE	BTOTAL		\$56	\$101	\$105												
Program Support																		
Total Incentive Costs (2016 to 2030)       \$38,649       \$58,645       \$77,430       \$73,777       \$64,745       \$65,404       \$46,515       \$40,922       \$43,275       \$46,896       \$51,702       \$55,334       \$59,229       \$62,547       \$63,239       \$848,309         Total Committed to Date	Subtotal of Pro	ograms \$38	5,649 \$	58,645	\$77,430	\$73,777	\$64,745	\$65,404	\$46,515	\$40,922	\$43,275	\$46,896	\$51,702	\$55,334	\$59,229	\$62,547	\$63,239	\$848,309
Total Incentive Costs (2016 to 2030)       \$38,649       \$58,645       \$77,430       \$73,777       \$64,745       \$46,515       \$40,922       \$43,275       \$46,896       \$51,702       \$55,334       \$59,229       \$62,547       \$63,239       \$848,309         Total Committed to Date	Program Support		-		-		-	-	-		-	-		-	-	-	-	-
Total Committed to Date \$282,990		- 2020)		50 / 45		*70 777					640.075			err				
	Total Incentive Costs (2016 to	5 2030) \$38	5,649 \$	58,645	\$77,430	\$73,777	\$64,745	\$65,404	\$46,515	\$40,922	\$43,275	\$46,896	\$51,702	\$55,334	\$59,229	\$62,547	\$63,239	\$848,309
	Total Committed	to Date																\$282,990
TOTAL INCENTIVE COSTS (1989 to 2030) \$38,649 \$58,645 \$77,430 \$73,777 \$64,745 \$65,404 \$46,515 \$40,922 \$43,275 \$46,896 \$51,702 \$55,334 \$59,229 \$62,547 \$63,239 \$1,131,299																		
	TOTAL INCENTIVE COSTS (1989 to 2030)	\$38	,649 \$!	od,645	\$77,430	\$13,777	\$64,745	\$65,404	\$46,515	\$40,922	\$43,275	\$46,896	\$51,702	\$55,334	\$59,229	\$62,547	\$63,239	\$1,131,299

Demand Side Management Plan 2016/17

SUPPLEMENTAL REPORT: 15 yr (2016 to 2031)

# **APPENDIX B - HISTORICAL SAVINGS & COSTS - ELECTRIC**

- Appendix B.1 Annual Capacity Savings (MW)
- Appendix B.2 Annual Energy Savings (GW.h)
- Appendix B.3 Annual Utility Costs
- Appendix B.4 Annual Program Administration Costs
- Appendix B.5 Annual Program Incentive Costs

#### 2016 Demand Side Management Plan Annual Capacity Savings (MW) (Savings to Date) (1989/90 - 2015/16)

	1090/0	0 1000/01	1001/02	1002/02	1002/04	1004/05	1005/04	1006/07	1007/09	1009/00	1000/00	2000/01	2001/02 2	002/03 2003	104 2004/0	E 2005/04	2006/07	2007/09	2008/00	2000 /10	2010/11	2011/12	2012/12	2012/14	2014/15	Interim Estimate	Benchmark	At Genera
RESIDENTIAL	1989/91	- 1990791	1991792	1772793	1993/94	1774795	1775/96	1996/91	1771/98	1776799	1999700	2300701	2301702 2	aarius 200.	<del>7-64</del> 2004/0	-2005706	2006/07	2007708	2005/09	2009710	2010/11	2011/12	2012/13	20113/14	2014715	2015/16	2030/31	2030/3
RESIDENTIAL Incentive Based																												
Home Insulation Program															0.8	2.0	5.2	8.0	10.7	13.8	16.4	18.8	22.1	24.5	26.9	29.1	29.1	33 10
Affordable Energy Program						-			-			-			-	-	-	0.1	0.4	0.7	1.5	3.0	4.1	5.1	6.9	9.1	9.1	10
Refrigerator Retirement Program						-			-			-			-	-	-	-	-		-	0.7	1.7	2.7	3.8 0.4	5.1 1.0	1.0	:
Community Geothermal Program Water and Energy Saver Program		-			-		-			-	-	-	-					-			0.7	1.3	2.0	2.6	3.2	3.9	3.9	4
Drain Water Heat Recovery Program					-													-			-	-	-	-	0.0	0.0	0.0	ō
Residential LED Lighting Program	Subtotal -														-	- 2.0	5.2	- 81	- 11.0	- 14.5	- 18.6	- 23.9	- 29.9	- 35.0	3.1	7.2	7.2	8 57
	Subtotal -				-	-			-	-			-		0.8	2.0	5.2	8.1	11.0	14.5	18.6	23.9	29.9	35.0	44.2	55.4	50.2	57
ustomer Service Initiatives																												
Power Smart Residential Loan Program					-							-	0.5	0.8 1.		1.6	2.0	2.7	3.0	3.9	4.2	4.4	4.7	5.0	5.2	5.4	5.4	6
Residential Earth Power Loan Program		-	-	-	-		-			-	-	-	-	0.1 0.	2 0.6	1.1	1.4	2.1	2.5	3.0	3.3	3.8	3.9	3.9	3.9	4.0	4.0	5
ecoEnergy Residential PAYS		-	-	-	-		-			-	-	-	-		-	-		-	-			-	0.0	0.3	0.4	0.4	0.4	-
Commercial PAYS					-		-			-		-	-					-				-	0.0	0.0	0.4	0.4	0.4	0
Solar Water Heater Program					-					-		-						-						-	-	-		
Power Smart Energy Manager					-		-			-		-	0.1	0.1 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
R-2000	· · · · ·												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
	Subtotal -					-			-			-	0.5	1.0 1.	j 2.2	2.9	3.6	5.0	5.7	7.1	7.7	8.4	8.8	9.4	9.7	10.0	10.0	11
DISCONTINUED/COMPLETED																												
Residential Appliance Program																	0.5	1.0	1.6	17	17	17	17	17	17	17	17	2
Residential Appliance Program New Homes Program			-	-	-	-			-	-					0.0	0.2	0.4	0.7	1.0	1.2	1.5	1.6	1.6	1.6	1.6	1.6	1.6	2
Seasonal LED Program			-	-	-	-		-	-	-		-	-		-	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
Outdoor Timer Program	0.3	0.5	0.9	1.2	1.5	1.9	2.0	2.3	2.4	2.4	2.4	2.4	2.4	2.4 2.	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3
Residential Hot Water Program		-	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.		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
Water Tank Rental Program Residential Thermostats Program					-			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	0.0	0.0	0.0	0.0	0.0	0
Residential Retrofit Program							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	0.0	0.0	0.0	0.0	0.0	0.0	0
Residential Applaince Buy Back Program			0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-			-	-	-	-	-	-							
Residential Applaince Buy Back Program High Efficiency Furnace and Boiler Program			-	-	-	-	-	-										-		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0
Energy Efficient Light Fixtures Program					-							-				-	0.0	0.2	0.3	0.4	0.6	0.7	0.7	0.7	0.7	0.7	0.7	1
Compact Fluorescent Lighting Program	Subtotal 0.3	- 0.5	1.0	1.3	1.6	-	2.1	2.4	2.5	2.5	- 2.6	2.6	2.6	2.6 2.	1.6 5 4.2	3.1 5.9	4.2	5.7 10.3	10.2	19.4 25.8	24.4 31.4	24.4 31.7	24.4 31.7	24.4	24.4 31.7	24.4 31.7	24.4 31.7	28 36
	Subtotal 0.3	U.5	1.0	1.3	1.0			2.4	2.0	2.5	2.0	2.0																
RESIDENTIAL TOTAL	0.3	0.5	1.0	1.3	1.6	1.9	2.1	2.4	2.5	2.5	2.6	2.6	3.1	3.6 4.	) 7.2	10.8	16.5	23.4	32.5	47.4	57.7	63.9	70.3	76.0	85.6	97.0	91.9	105
COMMERCIAL																												
COMMERCIAL ncentive Based																												
Commercial Lighting Program				0.5	2.6	5.7	9.2	10.8	11.6	15.1	16.4	17.4	18.5	19.7 21	7 24.2	27.7	31.1	34.1	38.5	42.3	45.7	48.8	56.5	65.5	73.9	84.2	84.2	96
Commercial Earth Power Program				-	-	-	-	0.1	0.8	1.1	1.5	1.7	2.0	2.4 3.		5.4	7.4	8.7	9.3	10.3	11.2	11.9	12.4	13.6	14.3	14.5	14.5	17
Commercial Insulation Program					-		-						-			-	0.2	0.7	1.8	3.2	4.8	6.2	7.4	10.2	11.8	14.4	14.4	16
Commercial Windows Program		-	-	-	-	-	-	0.1	0.2	0.3	0.3	0.4	0.5	0.6 0.	8 1.1	1.5	1.7	1.8	2.1	3.0	4.0	4.8	5.6	6.3	7.0	7.2	7.2	8
Internal Retrofit Program		-	-	0.0	0.3	0.6	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4 1.		2.4	2.8	3.0	3.2	5.4	8.3	11.7	11.9	12.2	12.3	12.6	12.6	14
Commercial Custom Measures Program			-	-	-	-	-	0.0	0.0	0.1	0.4	0.5	0.5	0.5 0.	0.9	0.9	1.0	1.1	1.2	1.2	1.4	1.7	1.7	1.8	1.8	1.8	1.8	2
Commercial Refrigeration Program HVAC Program		-	-	-	-		-			-	-	-	-		-	-	0.1	0.8	1.3	1.6	1.9	2.1	3.5	4.5	5.9	6.6	6.6	8
Commercial Kitchen Appliances Program			-	-		-			-	-				0.0				-	0.0	0.1	0.1	0.2	0.2	0.2	0.7	0.9	0.9	1
Power Smart Shops Program			-	-	-	-			-	-							-	-		0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	o i
Commercial Building Optimization Program		-	-	-	-	-	-	-	-	-	-	-	-		-		-	-	-	-	0.0	0.0	0.0	0.4	0.4	0.4		
Network Energy Manager Program		-	-	-	-		-			-	-	-	-			-		-		0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0
New Buildings Program		-	-	-	-		-			-	-	-	-		-	-		-	-			0.4	1.5	2.0	4.4	6.2	6.2	7
LED Roadway Lighting Conversion Program HVAC - CO2 Sensors Program		-	-	-	-		-			-	-	-	-		-	-		-	-			-		-	0.1	1.4	1.4	2
HVAC - CO2 Selsors Program																												
	Subtotal -		-	0.5	2.9	6.3	9.8	11.8	13.5	17.6	19.7	21.1	22.7	24.6 28	8 32.5	37.8	44.3	50.2	57.6	67.2	77.8	88.0		0.0		0.2		172
	Subtotal -		-	0.5	2.9	6.3	9.8	11.8	13.5	17.6	19.7	21.1	22.7	24.6 28	8 32.5	37.8	44.3	50.2	57.6	67.2	77.8	88.0	101.0	117.0	133.1		150.5	0 172
	Subtotal -		-	0.5	2.9	6.3	9.8	11.8	13.5	17.6	19.7	21.1	22.7	24.6 28	8 32.5	37.8	44.3	50.2	57.6	67.2	77.8	88.0						0 172
	Subtotal -																						101.0	117.0	133.1	150.9	150.5	0 172
Commercial Comprehensive Program Infared Heat Lamos Program	Subtotal -		0.2 0.6	0.2	0.2	6.3 0.2 0.6	9.8 0.2 0.6	0.2 0.6	13.5 0.2 0.6	0.2	0.2	0.2	0.2	0.2 0.	2 0.2	0.2 0.6	44.3 0.2 0.6	50.2 0.2 0.6	57.6 0.2 0.6	67.2 0.2 0.6	77.8 0.2 0.6	88.0 0.2 0.6					0.2	0 172 0 1
Commercial Comprehensive Program Infared Heat Lamos Program	Subtotal -	-	0.6	0.2		0.2	0.2	0.2	0.2					0.2 0.	2 0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	150.5	0 172 0 1
Commercial Comprehensive Program Infared Heat Lamps Program Livestock Waterer Program Street Light Program	Subtotal -		0.6	0.2 0.6 - 3.1	0.2 0.6 - 5.4	0.2 0.6 0.0 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0. 0.6 0. 0.1 0. 7.0 7.	2 0.2 5 0.6 0.1 0 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.0 7.0	0.2 0.6 0.0 7.0	0.2 0.6 .7.0	0 172 0 1 - 8
Infared Heat Lamps Program Livestock Waterer Program Street Light Program Sentinel Light Program	Subtotal -	-	0.6	0.2	0.2	0.2 0.6 0.0	0.2 0.6 0.1	0.2 0.6 0.1	0.2 0.6 0.1	0.2 0.6 0.1	0.2 0.6 0.1	0.2 0.6 0.1	0.2 0.6 0.1	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1.	2 0.2 5 0.6 1 0.1 0 7.0 8 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.0 7.0 1.8	0.2 0.6 0.0 7.0 1.8	0.2 0.6 - 7.0 1.8	0 172 0 1 - 8 2
Commercial Comprehensive Program Infared Heat Lamps Program Livestock Waterer Program Street Light Program Sentinel Light Program	Subtotal -	-	0.6	0.2 0.6 - 3.1	0.2 0.6 - 5.4	0.2 0.6 0.0 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0. 0.6 0. 0.1 0. 7.0 7.	2 0.2 5 0.6 1 0.1 0 7.0 8 1.8	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.0 7.0 1.8	0.2 0.6 0.0 7.0 1.8	0.2 0.6 - 7.0 1.8	0 172 0 1 - 8 2 3
Commercial Comprehensive Program Infared Heat Lamps Program Livestock Waterer Program Street Light Program Sentinei Light Program Citly Of Winnipeg Power Smart Agreement Program Commercial Collines Washers Program	Subtotal -		0.6	0.2 0.6 - 3.1	0.2 0.6 - 5.4	0.2 0.6 0.0 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0.	2 0.2 5 0.6 1 0.1 1 0 7.0 8 1.8 1 0.3	0.2 0.6 0.1 7.0 1.8 1.6	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1	0.2 0.6 0.1 7.0 1.8 2.2 0.0	0.2 0.6 0.1 7.0 1.8 2.4 0.2	0.2 0.6 0.1 7.0 1.8 2.5 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4	0.2 0.6 0.1 7.0 1.8 2.6 0.4	0.2 0.6 0.1 7.0 1.8 2.6 0.5	0.2 0.6 0.0 7.0 1.8 2.6 0.5	0.2 0.6 0.0 7.0 1.8 2.6 0.5	0.2 0.6 - 7.0 1.8 2.6 0.5	0 172 0 1 - 8 2 3 1
Commercial Comprehensive Program Infrard Heat Lamps Program Livestock Waterer Program Stereit Light Program City Of Winninge Proves Snart Agreement Program Commercial Calmes Washers Program Commercial Calmes Washers Program Adricit and Demand Control Program	Subtotal -		0.6	0.2 0.6 - 3.1	0.2 0.6 - 5.4	0.2 0.6 0.0 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0.6 0.1 7.0	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1.	2 0.2 5 0.6 1 0.1 0 7.0 8 1.8 1 0.3 8 0.3	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.0 7.0 1.8	0.2 0.6 0.0 7.0 1.8	0.2 0.6 - 7.0 1.8	0 172 0 1 - - 8 2 3 1 0 1
Commercial Comprehensive Program Infrard Heat Lamps Program Livestock Waterer Program Stereit Light Program City Of Winninge Proves Snart Agreement Program Commercial Calmes Washers Program Commercial Calmes Washers Program Adricit and Demand Control Pronom	Subtotal		0.6	0.2 0.6 3.1 1.1	0.2 0.6 5.4 1.8 -	0.2 0.6 0.0 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 	2 0.2 5 0.6 1 0.1 0 7.0 8 1.8 1 0.3 8 0.3	0.2 0.6 0.1 7.0 1.8 1.6 - 0.3	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 7.0 1.8 2.6 0.5 0.3	0 172 0 1 - - 8 2 3 1 0 1 -
Commercial Comprehensive Program Infrared Heat Lamps Program Livestock Watterer Program Street Light Program City of Winnieg Power Schutz Agricement Program City of Winnieg Power Schutz Agricement Program Commercial Art Barriers Program Agricitutal Demark Controller Program HYAC - Chillers	Subtotal		0.6	0.2 0.6 3.1 1.1	0.2 0.6 5.4 1.8 -	0.2 0.6 0.0 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 	2 0.2 5 0.6 1 0.1 0 7.0 8 1.8 1 0.3 8 0.3	0.2 0.6 0.1 7.0 1.8 1.6 - 0.3	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 7.0 1.8 2.6 0.5 0.3	0 172 0 1 - 8 2 3 1 0 1 -
Commercial Comprehensive Program Infrared Heat Lamps Program Livestock Waterer Program Street Lippt Program City Of Winnipeg Prover. Smart Agreement Program Commercial Art Barries Program Agricultural Colmen. Waterers Program Agricultural Chemist Charolise Program HVDC - Chillios HVDC - Chillios	Subtotal		0.6	0.2 0.6 3.1 1.1	0.2 0.6 5.4 1.8 -	0.2 0.6 0.0 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 	2 0.2 5 0.6 1 0.1 0 7.0 8 1.8 1 0.3 8 0.3	0.2 0.6 0.1 7.0 1.8 1.6 - 0.3	0.2 0.6 0.1 7.0 1.8 2.0 .3	0.2 0.6 0.1 7.0 1.8 2.1 -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 -	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 1.0 -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 7.0 1.8 2.6 0.5 0.3	0 172 0 1 - 8 2 3 1 0 1 - - -
Commercial Comprehensive Program Infrared Heat Lamps Program Livestock Waterer Program Strette Light Program City of Winnieg Power Smart Agreement Program Commercial Collines Washers Program Agricultural Demark Controllers Program HMAC - chillers HMAC - chillers Aboriginal Commercial Program Commercial Pranting Lot Controllers Commercial Spray Valves Program	Subtotal		0.6	0.2 0.6 3.1 1.1	0.2 0.6 5.4 1.8 -	0.2 0.6 0.0 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 	2 0.2 5 0.6 1 0.1 0 7.0 8 1.8 1 0.3 8 0.3	0.2 0.6 0.1 7.0 1.8 1.6 - 0.3	0.2 0.6 0.1 7.0 1.8 2.0 .3	0.2 0.6 0.1 7.0 1.8 2.1 -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3	0.2 0.6 0.1 7.0 1.8 2.5 0.3 1.0 - - 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 7.0 1.8 2.6 0.5 0.3	0 172 0 1 - - - - -
Commercial Comprehensive Program Infrard Heat Lamps Program Develock Waterer Program Street Uppt Program City of Winnjeeg Prover Smart Agreement Program Commercial Air Barries Program Agricultural Dehmard Controller Program HVAC - Chilles HVAC - Chilles		-	0.6 - 0.9 0.5 - - - - - - - - -	0.2 0.6 3.1 1.1 - - - - - - - -	0.2 0.6 5.4 1.8	0.2 0.6 0.0 7.0 1.8 - - 1.0 - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.2 1.0	0.2 0.6 0.1 7.0 1.8 - 0.2 1.0 - - - - 1.6	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 0.2 0. 1.0 1.           	2 0.2 5 0.6 0.1 0 7.0 8 1.8 0.3 - - - - - 2 2.6	0.2 0.6 0.1 7.0 1.8 1.6 - 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.0 -	0.2 0.6 0.1 7.0 1.8 2.1 - - - - - - - - - - - - - - - 3.2	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 - - - - - 3.6	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.3 1.0 - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 - 7.0 1.8 2.6 0.5 0.3 1.0 - - - 6.0	0 1 3 1 0 1 - - 7
Commercial Comprehensive Program Infrared Heat Lamps Program Service Light Program Sentifiel Light Program Commercial Art Brayres Smart Agreement Program Commercial Art Brarries Program Agricultural Demand Controller Program HVMC - Chillers Aborging Commercial Program Commercial Prataries Program Commercial Prataries Program Commercial Spray Valves Program Agricultural Heat Pads Program	Subtotal	-	0.6	0.2 0.6 - - 3.1 1.1 - - - - - - - - - - - - - - - - -	0.2 0.6 - 5.4 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8 0.1 1.0	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - 1.0 1.8	0.2 0.6 0.1 7.0 1.8 0.2 1.0 1.2 1.2	0.2 0.6 0.1 7.0 1.8 - 0.2 1.0 - - - - - 1.6 12.5	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 0.2 0. 1.0 1. 	2 0.2 6 0.6 1 0.1 0 7.0 8 1.8 1 0.3 - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 1.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 - - 0.3 3.6 17.4	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 1.0 - - - 0.3 3.9 17.9	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - 4.3 18.3	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3 1.0 - - - 4.6 18.7	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - 6.0 20.0	0.2 0.6 - - 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0 1 8 2 3 1 0 1 - - - 7 23
Commercial Comprehensive Program Infrared Heat Lamps Program Livestock Waterer Program Sentinel Light Program City Of Winniegi Power Smart Agreement Program Commercial Cubines Washess Program Agricultural Demand Controllers Program HVAC - Chillers Aboriginal Commercial Program Commercial Paralla Organia Commercial Paralla Jongram Commercial Paralla Jongram		-	0.6 - 0.9 0.5 - - - - - - - - -	0.2 0.6 3.1 1.1 - - - - - - - -	0.2 0.6 5.4 1.8	0.2 0.6 0.0 7.0 1.8 - - 1.0 - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.2 1.0 1.2 1.2	0.2 0.6 0.1 7.0 1.8 - 0.2 1.0 - - - - - 1.6 12.5	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 0.2 0. 1.0 1.           	2 0.2 6 0.6 1 0.1 0 7.0 8 1.8 1 0.3 - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 1.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.0 -	0.2 0.6 0.1 7.0 1.8 2.1 - - - - - - - - - - - - - - - 3.2	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 - - - - - 3.6	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.3 1.0 - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3	0.2 0.6 - 7.0 1.8 2.6 0.5 0.3 1.0 - - - 6.0	0 1 8 2 3 1 0 1 - - - 7 23
Commercial Comprehensive Program Infrard Heat Lamps Program Livestock Waterer Program Sentitel Light Program Oct Of Working Prevaines: Rogram Oct Of Working Prevaines: Rogram Commercial Art Barriers: Program Agricultural Demand Controller Program HWAC - Chillers Aborignal Commercial Program Commercial Prairing Lot Controllers Commercial Spray Values Program Agricultural Heat Pads Program		-	0.6	0.2 0.6 - - 3.1 1.1 - - - - - - - - - - - - - - - - -	0.2 0.6 - 5.4 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8 0.1 1.0	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - 1.0 1.8	0.2 0.6 0.1 7.0 1.8 0.2 1.0 1.2 1.2	0.2 0.6 0.1 7.0 1.8 - 0.2 1.0 - - - - - 1.6 12.5	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 0.2 0. 1.0 1. 	2 0.2 6 0.6 1 0.1 0 7.0 8 1.8 1 0.3 - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 1.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 - - 0.3 3.6 17.4	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 1.0 - - - 0.3 3.9 17.9	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - 4.3 18.3	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3 1.0 - - - 4.6 18.7	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - 6.0 20.0	0.2 0.6 - - 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0 1 8 2 3 1 0 1 - - - 7 23
Commercial Comprehensive Program Infrared Heat Lamps Program Subsets Valence Program Street Light Program Commercial Air Barries Program Commercial Air Barries Program Commercial Air Barries Program Net All Demark Controller Program HVNC - Chillies Commercial Spray Usabes Program Agricultural Heat Plads Program Agricultural Heat Plads Program Commercial Spray Valves Program		-	0.6	0.2 0.6 - - 3.1 1.1 - - - - - - - - - - - - - - - - -	0.2 0.6 - 5.4 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 1.8 - - 0.1 1.0 - - - 1.0 11.8 31.5	0.2 0.6 0.1 7.0 1.8 - 0.2 1.0 - 1.2 12.0 33.2	0.2 0.6 0.1 7.0 1.8	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 0.2 0. 1.0 1. 	2 0.2 5 0.6 1 0.1 0 700 8 1.8 1 0.3 - - - 2 26 3 13.9 1 46.4	0.2 0.6 0.1 7.0 1.8 1.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.1 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 - - 0.3 3.6 17.4 84.6	0.2 0.6 0.1 7.0 1.8 2.5 0.3 1.0 - - - 3.9 17.9 95.6	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - 4.3 18.3 119.3	117.0 0.2 0.6 0.1 1.8 2.6 0.5 0.3 1.0	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.3 1.0	150.9 0.2 0.6 0.0 7.0 1.8 2.6 0.3 1.0 - - - - 6.0 20.0 170.9	0.2 0.6 - - 7.0 1.8 2.6 0.3 1.0 - - - - - - - 0.3 1.0 - 20.0 - - 170.5	0 1 - 8 2 3 3 1 0 1 - - - 7 23 - 7 23
Commercial Comprehensive Program Infrared Heat Lumps Program Street Light Program Call (Light Program Call) (Of Winniges) Power Smart Agreement Program Commercial AIT Barriers Program Commercial AIT Barriers Program Adrigitati Colmes Waters Program Adrigitati Colmes Waters Program HVAC - Onliers Absorging Commercial Jarogram Adrigitati Commercial Jarogram Agricultural Heat Pads Program Agricultural Heat Pads Program Commercial Spray Valves Program Commercial Spray Valves Program		-	0.6	0.2 0.6 - - 3.1 1.1 - - - - - - - - - - - - - - - - -	0.2 0.6 - 5.4 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - 1.0 1.8	0.2 0.6 0.1 7.0 1.8 0.2 1.0 1.2 1.2	0.2 0.6 0.1 7.0 1.8 - 0.2 1.0 -	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 0. 0.2 0. 0. 0.2 0. 0. 0. 2.0 2. 12.9 13 37.5 42 52.9 54	2 0.2 5 0.6 1 0.1 0 7.0 8 0.3 1 0.3 1 1.8 - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 1.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.3 1.0 - - - 0.3 3.6 17.4 17.4 84.6	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 1.0 - - - 0.3 3.9 9 5.6	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - 4.3 18.3	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3 1.0 - - - 4.6 18.7	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - -	150.9 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - 6.0 20.0 170.9 94.7	150.5 0.2 0.6 - 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0 1 - 8 2 3 1 1 - - - - 7 7 2 3 194
Commercial Comprehensive Program Infrared Heat Lamps Program Livestock Water Program Strent Livestock Water Program Carly Cd Winnipeg Power Smart Agreement Program Commercial At Barries Program Adschular Dismat Controller Program Adsorginal Commercial Program Commercial Parking Loc Controllers Commercial Parking Loc Parking Parking Parking Parkin	Subtotal	-	0.6	0.2 0.6 - - 3.1 1.1 - - - - - - - - - - - - - - - - -	0.2 0.6 1.8 1.0	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 1.8	0.2 0.6 0.1 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 1.0 - - 0.1 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - 1.0 11.8 31.5 39.1	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - - - 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0. 0. 0. 0. 1.0 1. 1.0 1. 0. 0. 1.0 1. 1.0 1. 0. 0. 1.0 2. 1.0 2. 1.2 1. 1.2 1. 1.2 2. 2.0 5. 2.0 5. 2.	2 0.2 5 0.6 1 0.1 5 7.0 8 1.8 1 0.3 8 0.3 9 1.0 - - - 2 2.6 3 13.9 1 46.4 1 57.6	0.2 0.6 0.1 7.0 1.8 1.6	0.2 0.6 0.1 7.0 1.8 2.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.1	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 0.2	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 - - - 0.3 <u>3.6</u> 17.4 84.6 72.0	0.2 0.6 0.1 7.0 1.8 2.5 0.3 1.0 - - - 0.3 3.9 17.9 95.6 75.5	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - 4.3 18.3 119.3 87.6 87.6	117.0 0.2 0.6 0.1 7.0 1.8 2.6 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0	150.9 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - 6.0 20.0 170.9 94.7	150.5 0.2 0.6 7.0 1.8 2.6 0.5 0.3 1.0	0 1 - 8 2 3 3 1 0 1 - - - 7 23 - 7 23
Commercial Comprehensive Program Infrared Heat Lamps, Program Livestock Watter Program Commercial Codes Watter Program Commercial Codes Watters Program Commercial Codes Watters Program Agricultural Demand Controller Program Advisitural Demand Controller Program Aboriginal Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Codes Controllers Deformance Optimization Program Discont Program	Subtotal	-	0.6	0.2 0.6	0.2 0.6 5.4 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - 0.7 11.4 29.1 37.4 37.4 0.0	0.2 0.6 0.1 7.0 1.8 - - - - - 10 11.8 31.5 39.1 39.1 0.0	0.2 0.6 0.1 7.0 1.8 - - 0.2 1.0 - - - - 1.2 12.0 33.2 39.5 0.0	0.2 0.6 0.1 7.0 1.8 0.2 1.0 0.2 1.0 1.6 12.5 35.2 48.4 48.4 0.0	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 0.2 0. 1.0 1. 0 2.0 2. 2.0 2. 1.9 13 37.5 42 52.9 54 52.9 54 5.0 0.	2 0.2 5 0.6 1 0.1 7.0 3 1.8 1 0.3 - 5 0.3 0 1.0 - - 2.6 3 1.39 1 46.4 1 57.6 0 57.6 0 0.0 0	0.2 0.6 0.1 7.0 1.8 1.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 1.2 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 - - - 3.6 17.4 84.6 72.0 72.0 0.0	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 0.3 1.0 - - - 0.3 3.9 17.9 95.6 75.5 75.5 0.0	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - 4.3 18.3 119.3 119.3	0.2 0.6 0.1 7.0 1.8 2.6 0.3 1.0 - - - - - - - - - - - - - - - - - - -	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	150.9 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - 20.0 170.9 94.7 94.7 0.0	150.5 0.2 0.6 - - 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0 1 - 8 2 3 1 1 - - - - 7 7 2 3 194
Commercial Comprehensive Program Infrared Heat Lumps Program Street Lipt Program Street Lipt Program Commercial Arbitection Program Commercial Arbitection Control Program Agricultural Dennard Controller Program Hoto: - Cratter Monte - Cratter Monte - Cratter Commercial Parling Loci Controllers Commercial Parling Loci Parling Parling Discont Parling Loci Program	Subtotal	-	0.6 0.9 0.5	0.2 0.6 	0.2 0.6 - - 5.4 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 1.8 - - - 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - 0.7 11.4 29.1 37.4 37.4 0.0 4.3	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0. 0.6 0. 0.1 0. 1.0 0. 0.2 0. 1.0 1. 0. 0. 0.2 0. 1.0 1. 0. 0. 0. 0.2 0. 1.0 1. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	2 0.2 5 0.6 1 0.1 1 0.1 1 0.3 1.0 - - 2 2.6 3 13.9 1 46.4 1 57.6 0 0.0 8 4.3 3	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 3.5 1.0 - - - 0.2 3.5 16.9 74.5 68.7 68.7 68.7	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 - - 0.3 3.6 17.4 84.6 72.0 72.0 0.0 4.3	0.2 0.6 0.1 7.0 1.8 2.5 0.3 1.0 - - 0.3 3.9 75.5 75.5 75.5 75.5 0.0 4.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	117.0 0.2 0.6 0.1 7.0 1.8 2.6 0.3 1.0 - - - - - - - - - - - - - - - - - - -	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	150.9 0.2 0.6 0.0 0.0 1.0 - - - - - - - - - - - - -	150.5 0.2 0.6 7.0 1.8 2.6 0.5 0.3 1.0	0 1 - 8 2 3 1 0 0 1 - - - 7 7 2 3 194
Commercial Comprehensive Program Infrared Heat Lamps Program Livestock Watter Program Commercial (Jupt Program Commercial Jupt Program Commercial Ar Barries Program Commercial Prairies Program High: Collies Haborginal Commercial Program Commercial Prairing LtC Controllers Commercial Prairing LtC Controllers Commercial Prairing LtC Controllers Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program	Subtotal	-	0.6	0.2 0.6	0.2 0.6 5.4 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - 0.7 11.4 29.1 37.4 37.4 0.0	0.2 0.6 0.1 7.0 1.8 - - - - - 10 11.8 31.5 39.1 39.1 0.0	0.2 0.6 0.1 7.0 1.8 - - 0.2 1.0 - - - - 1.2 12.0 33.2 39.5 0.0	0.2 0.6 0.1 7.0 1.8 0.2 1.0 0.2 1.0 1.6 12.5 35.2 48.4 48.4 0.0	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0.0 0. 0.2 0. 1.0 1. 0 2.0 2. 2.0 2. 1.9 13 37.5 42 52.9 54 52.9 54 5.0 0.	2 0.2 5 0.6 1 0.1 1 0.1 1 0.3 1.0 - - 2 2.6 3 13.9 1 46.4 1 57.6 0 0.0 8 4.3 3	0.2 0.6 0.1 7.0 1.8 1.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 1.2 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 - - - 3.6 17.4 84.6 72.0 72.0 72.0	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 0.3 1.0 - - - 0.3 3.9 17.9 95.6 75.5 75.5 0.0	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - 4.3 18.3 119.3 119.3	0.2 0.6 0.1 7.0 1.8 2.6 0.3 1.0 - - - - - - - - - - - - - - - - - - -	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	150.9 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - 20.0 170.9 94.7 94.7 0.0	150.5 0.2 0.6 - - 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0 1 - 8 2 3 1 0 0 1 - - - 7 7 2 3 194
Commercial Comprehensive Program Infrard Heat Lamps Program Street Light Program Commercial American Program Commercial American Program Commercial American Program Commercial American Program Adjustutal Demand Controller Program HVDC - Chilles Commercial Spring La Controllers Commercial Controllers Controllers Commercial Co	Subtotal	-	0.6 0.9 0.5	0.2 0.6 	0.2 0.6 5.4 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 1.8 - - - 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - 0.7 11.4 29.1 37.4 37.4 0.0 4.3	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0. 0.6 0. 0.1 0. 1.0 0. 0.2 0. 1.0 1. 0. 0. 0.2 0. 1.0 1. 0. 0. 0. 0.2 0. 1.0 1. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	2 0.2 5 0.6 1 0.1 1 0.1 1 0.3 1.0 - - 2 2.6 3 13.9 1 46.4 1 57.6 0 0.0 8 4.3 3	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 3.5 1.0 - - - 0.2 3.5 16.9 74.5 68.7 68.7 68.7	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 - - 0.3 3.6 17.4 84.6 72.0 72.0 0.0 4.3	0.2 0.6 0.1 7.0 1.8 2.5 0.3 1.0 - - 0.3 3.9 75.5 75.5 75.5 75.5 0.0 4.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	117.0 0.2 0.6 0.1 7.0 1.8 2.6 0.3 1.0 - - - - - - - - - - - - - - - - - - -	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	150.9 0.2 0.6 0.0 0.0 1.0 - - - - - - - - - - - - -	150.5 0.2 0.6 7.0 1.8 2.6 0.5 0.3 1.0	0 1 - 8 2 3 1 1 - - - - 7 7 2 3 194
Commercial Comprehensive Program Infrared Heat Lamps Program Livestock Water Program Commercial And Program City Of Winniege Prover Smart Agreement Program Commercial And Brain'ss Program Commercial And Brain'ss Program High Collings Aborginal Commercial Program Commercial Praving Lot Controllers Commercial Praving Lot Controllers Commercial Praving Lot Controllers Commercial Stars Program Commercial Stars Program Commercial Stars Program Commercial Stars Program Performance Optimization Program Performance Optimization Program Industrial (Bies) Program High Efficiency Motors Program	Subtotal		0.6 0.9 0.5	0.2 0.6 	0.2 0.6 5.4 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8 0.1 1.0	0.2 0.6 0.1 7.0 1.8 - - - 1.0 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - 12 12.0 33.2 39.5 0.0 4.3 3.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0. 0.6 0. 0.7 0. 7.0 7. 1.0 0. 0.2 0. 0.2 0. 1.0 1. 0.2 0. 1.0 1. 1.0 1.	2 0.2 5 0.6 1 0.1 1 0.1 1 0.3 1 0.3 1 0.3 0 1.0 0 1.0 0 1.0 0 - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 1.6	0.2 0.6 0.1 7.0 1.8 2.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.1 0.3 1.0	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.3 1.0 - - - - - - 3.6 17.4 84.6 72.0 72.0 0.0 4.3 3.8 - - -	0.2 0.6 0.1 7.0 1.8 2.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.4 0.4 0.4 0.4 0.4 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3 1.0 - - - - 4.6 18.7 135.7 91.0 91.0 0.0 4.3 8.7	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	150.9 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - 6.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0	150.5 0.2 0.6 7.0 1.8 2.6 0.3 1.0	0 1 - 8 2 3 1 1 - - - - 7 7 2 3 194
Commercial Comprehensive Program Infrard Heat Lamps Program Servet Upt Trogram Servet Upt Trogram Commercial At Branks Strogram Commercial At Branks Strogram Commercial Attransfer Strogram Adjust Demark Controller Program Adoruginal Commercial Program Commercial Straffic Joc Controllers Commercial Parking Lot Controllers Commercial Straffic Joc Controllers Commercial Strogram Commercial Strogram Commercial Strogram Commercial Strogram Commercial Strogram Commercial Strogram Commercial Strogram Commercial Strogram Commercial Strogram Commercial Strogram Efficient (SSL) Program Industrial (SSL) Program Emergency Preparedness Program Emergency Preparedness Program Emergency Preparedness Program	Subtotal		0.6 0.9 0.5 - - - - - - - - - - - - -	0.2 0.6 	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - 1.0 - - - - - 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.1 1.0	0.2 0.6 0.1 7.0 1.8 - - - 1.0 1.0 - - - - - 1.0 1.0 1.0 - - - - - 3.0 1.0 1.1 3.1.5 39.1 39.1 39.1 3.8 - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 0.2 1.0	0.2 0. 0.6 0. 0.1 0. 0.1 0. 0.7 7. 1.0 0. 0.2 0. 0.2 0. 0.2 0. 1.0 1. 0.2 0. 0.2 0.	2 0.2 5 0.6 0.1 0 7.0 1.8  2 2.6 3 13.9        	0.2 0.6 0.1 7.0 1.8 1.6	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 0.3 1.0	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - 0.2 3.5 16.9 74.5 68.7 68.7 0.0 4.3 3.8 - - 8.2	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 3.6 7.0 84.6 72.0 72.0 0.0 4.3 3.8 - 72.0 72.0 0.0 4.3 8.2	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 1.0 1.0 0.3 0.3 9 75.5 75.5 75.5 75.5 0.0 4.3 3.8 2 .2	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - 1.0 - - - - - 1.7,9 105,9 78,9 0.0 4.3 8,2	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - 18.3 119.3 87.6 87.6 0.0 4.3 3.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3 1.0 - - - - 4.6 18.7 91.0 91.0 91.0 0.0 4.3 8.2	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	150.9 0.2 0.6 0.0 1.8 2.6 0.5 0.3 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.5 0.2 0.6 - - 0.5 0.5 0.3 - - - - - - - - - - - - -	0 1 8 2 3 1 0 1 - - - - - - - - - - - - - - - - -
Commercial Comprehensive Program Infrard Heat Lamps Program Street Light Program Commercial Art Branch Program Commercial Art Braries Program Commercial Art Braries Program Adjicultural Benard Controller Program HWC - Chilles Commercial Parking Lot Controllers Commercial Spray Valves Program Adjicultural Heat Pads Program COMMERCIAL TOTAL NEUSTRIAL Performance Optimization Program SISCONTINED; (COMPLETED Indicating (BioD) Program High Efficiency Molors Program	Subtotal		0.6    2.2  0.1 	0.2 0.6 	0.2 0.6 5.4 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8 -	0.2 0.6 0.1 7.0 1.8 0.1 1.0	0.2 0.6 0.1 7.0 1.8 - - - 1.0 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - 12 12.0 33.2 39.5 0.0 4.3 3.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.2 1.0	0.2 0. 0.6 0. 0.7 0. 7.0 7. 1.0 0. 0.2 0. 0.2 0. 1.0 1. 0.2 0. 1.0 1. 1.0 1.	2 0.2 5 0.6 0.1 0 7.0 1.8  2 2.6 3 13.9        	0.2 0.6 0.1 7.0 1.8 1.6	0.2 0.6 0.1 7.0 1.8 2.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.1 0.3 1.0	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.3 1.0 - - - - 0.3 3.6 17.4 84.6 72.0 72.0 0.0 4.3 3.8 - -	0.2 0.6 0.1 7.0 1.8 2.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.4 0.4 0.4 0.4 0.4 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3 1.0 - - - - 4.6 18.7 135.7 91.0 91.0 0.0 4.3 8.7	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	150.9 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - 6.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0	150.5 0.2 0.6 7.0 1.8 2.6 0.3 1.0	0 1 - 8 2 3 1 0 0 1 - - - 7 7 2 3 194
Commercial Comprehensive Program Infrared Heat Lamps Program Street Light Program Commercial At Burgh Street City of Winniege Prover Smart Agreement Program Commercial At Barries Program Agricultural Demard Context Rev Program Agricultural Demard Context Rev Program Agricultural Demard Context Rev Program Agricultural Heat Pads Program Agricultural Heat Pads Program Agricultural Heat Pads Program Commercial Spray Valves Program Agricultural Heat Pads Program Commercial Spray Valves Program Industrial (Stat) Program Industrial (Stat) Program Engengency Program Bartises Program Efficiency Motors Program Efficiency Motors Program Efficiency Motors (MRI) Program	Subtotal -		0.6 0.9 0.5 - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 0.1 1.0 -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	02 0. 06 0. 01 0. 70 7. 1.8 1. 0. 0. 0. 0. 0. 0. 0. 0. 1.0 1. 0. 0. 0. 0. 0. 0. 1.0 1. 1. 0. 0. 0. 0. 0. 1.0 1. 0. 0. 0. 0. 1.0 1. 0. 0. 0. 0. 0. 0. 0. 0. 0.	2 0.2 5 0.6 1 0.1 1 0.1 1 0.3 1 0.3 1 0.3 1 0.3 2 2.6 2 4.3 1 57.6 1 57.6 1 57.6 1 57.6 0 0 2 4.3 3 3.8 3 4.3 3 .8 2 .2 6 .2 2 .6 5 .8 2 .2 6 .2 2 .2 5 .2 2 .2 5 .2 2 .2 2 .2 5 .2 2 .2	0.2 0.6 0.1 7.0 1.8 1.6	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 0.3 0.3 0.3 0.3 10.0 7.0 72.0 72.0 0.0 4.3 3.8	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - 1.0 - - - - 1.0 - - - - - - 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - 4.3 18.3 119.3 119.3 87.6 87.6 0.0 4.3 3.8 3.8 2 95.7	0.2 0.6 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.0 0.3 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.9 0.2 0.6 0.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.5 0.2 0.6 - - 0.6 - - - - - - - - - - - - -	0 1 - - - - - - - - - - - - - - - - - -
Commercial Comprehensive Program Infrared Heat Lamps Program Street Light Program Commercial At Burgh Street City of Winniege Prover Smart Agreement Program Commercial At Barries Program Agricultural Demard Context Rev Program Agricultural Demard Context Rev Program Agricultural Demard Context Rev Program Agricultural Heat Pads Program Agricultural Heat Pads Program Agricultural Heat Pads Program Commercial Spray Valves Program Agricultural Heat Pads Program Commercial Spray Valves Program Industrial (Stat) Program Industrial (Stat) Program Engengency Program Bartises Program Efficiency Motors Program Efficiency Motors Program Efficiency Motors (MRI) Program	Subtotal	-	0.6 0.9 0.5 - - - - - - - - - - - - -	0.2 0.6	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - 1.0 - - - - - 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.1 1.0	0.2 0.6 0.1 7.0 1.8 - - - 1.0 1.0 - - - - - 1.0 1.0 1.0 - - - - - 3.0 1.0 1.1 3.1.5 39.1 39.1 39.1 3.8 - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0. 0.6 0. 0.1 0. 0.1 0. 0.7 7. 1.0 0. 0.2 0. 0.2 0. 0.2 0. 1.0 1. 0.2 0. 0.2 0.	2 0.2 5 0.6 1 0.1 1 0.1 1 0.3 1 0.3 1 0.3 1 0.3 2 2.6 2 4.3 1 57.6 1 57.6 1 57.6 1 57.6 0 0 2 4.3 3 3.8 3 4.3 3 .8 2 .2 6 .2 2 .6 5 .8 2 .2 6 .2 2 .2 5 .2 2 .2 5 .2 2 .2 2 .2 5 .2 2 .2	0.2 0.6 0.1 7.0 1.8 1.6	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 0.3 1.0	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - 0.2 3.5 16.9 74.5 68.7 68.7 0.0 4.3 3.8 - - 8.2	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 3.6 7.0 84.6 72.0 72.0 0.0 4.3 3.8 - 72.0 72.0 0.0 4.3 8.2	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 1.0 1.0 0.3 0.3 9 75.5 75.5 75.5 75.5 0.0 4.3 3.8 2 .2	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - 1.0 - - - - - 1.7,9 105,9 78,9 0.0 4.3 8,2	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - 18.3 119.3 87.6 87.6 0.0 4.3 3.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3 1.0 - - - - 4.6 18.7 91.0 91.0 91.0 0.0 4.3 8.2	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	150.9 0.2 0.6 0.0 1.8 2.6 0.5 0.3 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.5 0.2 0.6 - - 0.5 0.5 0.3 - - - - - - - - - - - - -	0 1 - - - - - - - - - - - - - - - - - -
Commercial Comprehensive Program Infrared Heal Lamps Program Section 2014 Section 2014 Commercial Conference Program Commercial Conference Program Commercial Conference Program Adjustitural Demand Conference Adjustitural Demand Conference Adjustitural Demand Conference Adjustitural Demand Conference Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Conference Commercial Conference Program Commercial Conference Program Program Commercial Conference Program Program Commercial Conference Program P	Subtotal -		0.6 0.9 0.5 - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 0.1 1.0 -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	02 0. 06 0. 01 0. 70 7. 1.8 1. 0. 0. 0. 0. 0. 0. 0. 0. 1.0 1. 0. 0. 0. 0. 0. 0. 1.0 1. 1. 0. 0. 0. 0. 0. 1.0 1. 0. 0. 0. 0. 1.0 1. 0. 0. 0. 0. 0. 0. 0. 0. 0.	2 0.2 5 0.6 1 0.1 1 0.1 1 0.3 1 0.3 1 0.3 1 0.3 2 2.6 2 4.3 1 57.6 1 57.6 1 57.6 1 57.6 0 0 2 4.3 3 3.8 3 4.3 3 .8 2 .2 6 .2 2 .6 5 .8 2 .2 6 .2 2 .2 5 .2 2 .2 5 .2 2 .2 2 .2 5 .2 2 .2	0.2 0.6 0.1 7.0 1.8 1.6	0.2 0.6 0.1 7.0 1.8 2.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.1 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.2 0.0 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 0.3 0.3 0.3 3.6 17.4 84.6 72.0 72.0 0.0 4.3 3.8	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - 1.0 - - - - - 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - 4.3 18.3 119.3 119.3 87.6 87.6 0.0 4.3 3.8 3.8 2 95.7	0.2 0.6 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.0 0.3 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.9 0.2 0.6 0.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.5 0.2 0.6 - - 0.6 - - - - - - - - - - - - -	0 1 8 2 3 1 0 1 - - - - - - - - - - - - - - - - -
Commercial Comprehensive Program Infrared Heat Lamps Program Series Lings Program Commercial Anter Program Commercial Att Barries Program Commercial Atternies Program Adjacularial Bonard Controllers Program Adjacularial Bonard Controllers Commercial Parking Lot Controllers Commercial Spray Valves Program Adjacularial Heat Pales Program Commercial Spray Valves Program Commercial Spray Valves Program Economercial (Basis) Program Heat Control (Control Parking Lot Controllers Commercial Spray Valves Program Heat Control (Control Parking Lot Control Parking Lot Control Parking Lot Control Industrial (Basis) Program Industrial (Basis) Program Enders Metors (Collin) Program Enders Metors (Collin) Program Enders Metors (Collin) Program Enders Metors (Collin) Program INDUSTRIAL TOTAL FICIENCY PROGRAMS SUBITOTAL USID MER SELF-CARLENTION PROGRAMS	Subtotal -	-	0.6 0.9 0.5 - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 0.1 1.0 -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8	02 0. 06 0. 01 0. 70 7. 1.8 1. 0. 0. 0. 0. 0. 0. 0. 0. 1.0 1. 0. 0. 0. 0. 0. 0. 1.0 1. 1. 0. 0. 0. 0. 0. 1.0 1. 0. 0. 0. 0. 1.0 1. 0. 0. 0. 0. 0. 0. 0. 0. 0.	2 02 0 6 0 70 0 70 0 0 0 0 0 0 0	0.2 0.6 0.1 7.0 1.8 1.6 0.3 0.3 0.3 0.3 0.3 0.3 0.3 53.1 53.1 53.1 53.1 61.7 0.0 4.3 3.8 8.2 8.2 69.8 69.8	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 0.2 0.0 0.3 1.0 - - 0.2 3.5 16.9 74.5 68.7 68.7 68.7 68.7 0.0 4.3 3.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 1.8 2.4 0.3 1.0 - - - - - - - - - 72.0 72.0 0.0 4.3 3.8 - - 72.0 0.0 4.3 3.8 - - - 72.0 72.0 72.0 72.0 72.0 72.0 72.0 72.0	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - - - 1.0 - - - - - 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 - - - 4.3 18.3 119.3 119.3 87.6 87.6 0.0 4.3 3.8 3.8 2 95.7	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.9 0.2 0.6 0.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.5 0.2 0.6 - - 0.6 - - - - - - - - - - - - -	0 1 2 2 3 3 1 0 0 1 - - - 7 7 2 3 1 1 9 9 9 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1
Commercial Comprehensive Program Infrared Heal Lamps Program Section 2014 Section 2014 Commercial Conference Program Commercial Conference Program Commercial Conference Program Adjustitural Demand Conference Adjustitural Demand Conference Adjustitural Demand Conference Adjustitural Demand Conference Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Conference Commercial Conference Program Commercial Conference Program Program Commercial Conference Program Program Commercial Conference Program P		-	0.6 0.9 0.5 - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - - 10.8 24.2 5.8 5.8 0.0 4.3 3.8 - - 13.9 40.6	0.2 0.6 0.1 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.2 1.0 1.2 12.0 33.2 39.5 0.0 4.3 8.8 47.6 83.4	0.2 0.6 0.7 0.7 7.0 7.0 7.0 7.0 1.0 1.0 1.6 1.5 1.5 35.2 35.2 35.2 35.2 35.2 3.8 3.8 3.8 3.8 3.8 5.6 6 94.9	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0. 0. 1.0 1. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 0.	2 02 0 6 0 70 0 70 0 0 0 0 0 0 0	0.2 0.6 0.6 1.0 1.8 1.8 1.8 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.6 1.1 7.0 1.8 2.1 0.3 1.0 0. - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 0.2 2.2 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 16.9 74.5 68.7 68.7 68.7 0.0 4.3 8.2 8.2 76.9 183.8	0.2 0.6 0.1 1.8 2.4 0.3 1.0	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.3 0.3 0.0 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.6 0.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	117.0 0.2 0.6 0.1 7.0 1.8 0.5 0.3 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.9 0.2 0.6 0.0 0.0 1.8 2.6 0.3 0.5 0.3 0.5 0.3 0.5 0.5 0.3 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.5 0.2 0.6 - 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	0 1 1 2 2 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1
Commercial Comprehensive Program Intraced Net Lamps Program Sentited I Lamps Program Commercial Art Barries Program Commercial Art Barries Program Commercial Art Barries Program Commercial Parking Lico Contellers Commercial Parking Lico Program Agricultural Hast Yeak Program Enderstein Motors (CMR) Program High Efficient Motors Rogram Efficient Motors Rogram Efficient Motors Study Program Efficient Motors Study Program	Subtotal -	-	0.6 0.9 0.5 - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - - 10.8 24.2 5.8 5.8 0.0 4.3 3.8 - - 13.9 40.6	0.2 0.6 0.1 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.2 1.0 1.2 12.0 12.0 12.0 12.0 12.0 12	0.2 0.6 0.7 0.7 7.0 7.0 7.0 7.0 1.0 1.0 1.6 1.5 1.5 35.2 35.2 35.2 35.2 35.2 3.8 3.8 3.8 3.8 3.8 5.6 6 94.9	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0. 0. 1.0 1. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 0.	2 02 0 6 0 70 0 70 0 0 0 0 0 0 0	0.2 0.6 0.1 7.0 1.8 1.6 0.3 0.3 0.3 0.3 0.3 0.3 0.3 53.1 53.1 53.1 53.1 61.7 0.0 4.3 3.8 8.2 8.2 69.8 69.8	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.1 7.0 1.8 2.1 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 0.2 0.0 0.3 1.0 - - 0.2 3.5 16.9 74.5 68.7 68.7 68.7 68.7 0.0 4.3 3.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 1.8 2.4 0.3 1.0 - - - - - - - - - 72.0 72.0 0.0 4.3 3.8 - - 72.0 0.0 4.3 3.8 - - - 72.0 72.0 72.0 72.0 72.0 72.0 72.0 72.0	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.3 0.3 0.3 0.3 1.6	0.2 0.6 0.6 0.1 7.0 1.8 2.6 0.4 0.3 1.0 0. - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	133.1 0.2 0.6 0.0 0.0 1.8 1.8 2.6 0.5 0.3 1.0	150.9 0.2 0.6 0.0 7.0 0.5 0.3 1.0 - - - - - - - - - - - - -	150.5 0.2 0.6 - - - - - - - - - - - - - - - - - - -	0 1 1 2 2 3 3 1 0 0 1 - - - - - - - - - - - - -
Commercial Comprehensive Program Infrared Net Lamps Program Sentinel Light Program Commercial Dight Program Commercial Dight Program Commercial Dight Program Commercial Dight Program Aborginal Commercial Program Commercial Parking Lic Cottollers Commercial Parking Lic Cottollers Cottollers Parking Lic Cottollers Enders Makers Call Program Emdicine Makers Qubin Program Customer Steel Laad Displacement		-	0.6 0.9 0.5 - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - 1.0 - - - 1.0 - - - - 10.8 24.2 5.8 5.8 0.0 4.3 3.8 - - - 13.9 40.6	0.2 0.6 0.1 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.2 1.0 1.2 12.0 12.0 12.0 12.0 12.0 12	0.2 0.6 0.7 0.7 7.0 7.0 7.0 7.0 1.0 1.0 1.6 1.5 1.5 35.2 35.2 35.2 35.2 35.2 3.8 3.8 3.8 3.8 3.8 5.6 6 94.9	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0. 0. 1.0 1. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 0.	2 02 0 6 0 70 0 70 0 0 0 0 0 0 0	0.2 0.6 0.6 1.0 1.8 1.8 1.8 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.6 1.1 7.0 1.8 2.1 0.3 1.0 0. - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 0.2 2.2 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 16.9 74.5 68.7 68.7 68.7 0.0 4.3 8.2 8.2 76.9 183.8	0.2 0.6 0.1 1.8 2.4 0.3 1.0	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.3 0.3 0.0 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.6 0.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	117.0 0.2 0.6 0.1 7.0 1.8 0.5 0.3 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.9 0.2 0.6 0.0 0.0 1.8 2.6 0.3 0.5 0.3 0.5 0.3 0.5 0.5 0.3 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.5 0.2 0.6 - 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	0 1 1 2 3 3 3 3 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1
Commercial Comprehensive Program Infrared Heat Lamps Program Service Lamps Program Commercial Ar Barry Program Commercial Lamps Program Commercial Ar Barriers Program Commercial Parking Lot Controllers Commercial Spray Julies Program Agricultural Heat Pack Program Commercial Spray Julies Program Commercial Spray Julies Program Efficient Motors (Lottorlers Industrial (Baik) Program Industrial (Baik) Program Efficient Motors (Lodd) Program Efficient Motors Viculty Program Efficient Motors Viculty Program Efficient Motors Studio Tal. UNDUSTRIAL TOTAL FFICIENCY ProgramStation Program Customers State Load Ebpacement		-	0.6 0.9 0.5 - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	02 06 07 0 70 10 - - - - - - - - - - - - - - - - - -	02 06 06 17,0 18 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	02 06 07 07 07 07 07 07 07 07 07 07 07 07 07	02 0.6 0.1 1.0 - - 0.7 11.4 20.1 27.4 37.4 37.4 37.4 37.4 37.4 37.4 37.4 3	0.2 0.6 0.1 1.0 0.1 1.0 0.1 0.1 0.0 0.0 0.0 0.0	0.2 0.6 0.1 7.0 1.8 0.2 1.0 1.0 1.2 1.2 1.2 1.2 339.5	0.2 0.6 0.1 7.0 1.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	02 0. 0.6 0. 0.70 7. 1.8 1. 0.2 0. 0.2 0. 0.2 0. 0.2 0. 1.0 1. 2. 2. 2.0 2. 2.0 2. 2.2 2. 3.7.5 42 52.9 54 3.8 3. 3.7.5 42 52.9 54 3.8 3. 3.7.5 42 52.9 54 3.8 3. 3.7.5 42 52.9 54 3.8 3. 3.7.5 42 5.2 9 54 3.8 3. 3.7.5 42 5.2 9 54 3.8 3. 3.7.5 42 5.2 9 54 5.2 9 54 5.4 54	2 0.2 5 0.6 1 0.1 3 1.8 4 0.3 5 0.3 1 0.4 1 57.6 1 57.	02 04 06 17 00 1.8 1.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.3 1.0	0.2 0.6 0.6 1.7 0 1.8 2.1 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 1 2.2 2.2 0.3 1.0 - - - 0.2 1.6 9 74.5 68.7 68.7 68.7 0.0 4.3 3.8 2	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 0.3 3.6 17.4 84.6 72.0 72.0 72.0 72.0 72.0 72.0 72.0 72.0	0.2 0.6 1.0 1.0 2.5 0.3 1.0 7.5 75.5 75.5 75.5 75.5 75.5 8.2 8.2 8.2 8.2 14.3 14.3	0.2 0.6 0.6 0.4 0.3 0.1 0.0 - - - - - - - - - - - - - - - - - -	101.0 0.2 0.1 10.1 1.8 2.6 0.4 0.3 1.8 2.6 0.4 0.3 1.8 1.8 2.6 0.4 0.4 0.3 1.8 8.7 6 0.0 0.0 4.3 8.2 8.2 95.7 285.3 9.4 9.4	117.0 0.2 0.1 0.1 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.9 0.2 0.6 0.0 0.0 1.8 2.6 0.3 0.3 1.8 0.3 0.3 0.3 0.3 0.3 0.2 20.0 20	150.5 0.2 0.6 - 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	0 1 1 2 2 3 3 1 0 0 1 - - - - - - - - - - - - -
Commercial Comprehensive Program Infrared Net Lamps Program Sentinel Light Program Commercial Dight Program Commercial Dight Program Commercial Dight Program Commercial Dight Program Aborginal Commercial Program Commercial Parking Lic Cottollers Commercial Parking Lic Cottollers Cottollers Parking Lic Cottollers Enders Makers Call Program Emdicine Makers Qubin Program Customer Steel Laad Displacement		-	0.6 0.9 0.5 - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	0.2 0.6 0.1 7.0 1.8 - - 0.1 1.0 - - - - - 10.8 24.2 5.8 5.8 0.0 4.3 3.8 - - 13.9 40.6	0.2 0.6 0.1 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.2 1.0 1.2 12.0 12.0 12.0 12.0 12.0 12	0.2 0.6 0.1 7.0 1.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	0.2 0. 0.6 0. 0.1 0. 7.0 7. 1.8 1. 0. 0. 1.0 1. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 1. 1.0 0. 1.0 0.	2 0.2 5 0.6 1 0.1 3 1.8 4 0.3 5 0.3 1 0.4 1 57.6 1 57.	02 04 06 17 00 1.8 1.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.0	0.2 0.6 0.6 1.1 7.0 1.8 2.1 0.3 1.0 0. - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 0.2 2.2 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 16.9 74.5 68.7 68.7 68.7 0.0 4.3 8.2 8.2 76.9 183.8	0.2 0.6 0.1 1.8 2.4 0.3 1.0	0.2 0.6 0.1 7.0 1.8 2.5 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	0.2 0.6 0.1 7.0 1.8 2.6 0.3 1.8 0.3 0.1	0.2 0.6 0.6 0.6 0.4 0.3 1.0 - - - - - - - - - - - - - - - - - - -	117.0 0.2 0.6 0.1 7.0 1.8 0.5 0.3 1.8 0.5 0.3 1.6 1.8 .7 1.6 1.8 .7 1.0 91.0 91.0 91.0 91.0 91.0 91.0 9.0 0.0 4.3 3.8 8.2 99.2 310.9	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.9 0.2 0.6 0.0 0.0 1.8 2.6 0.3 0.5 0.3 0.5 0.3 0.5 0.5 0.3 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.5 0.2 0.6 - 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	0 1 1 2 2 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1
Commercial Comprehensive Program Infrared Heat Lamps Program Livestusk Molaret Program Commercial Comprehensive Program Commercial Comprehensive Program Commercial Comprehensive Program Abarginal Commercial Program Abarginal Commercial Program Commercial Praking Lot Contellen Abarginal Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program Commercial Program HWC-Contellence Agricultural Heat Place Proformance Optimization Program Heat Heat Place Industrial (GSL) Program Heat Heat Place Industrial (GSL) Program Heat Heat Place Industrial (GSL) Program Heat Heat Place Industrial (GSL) Program Heat Heat Heat Place Industrial (GSL) Place Industrial (GSL) Program Heat Heat Place Industrial (GSL) Program Heat Heat Place Industrial (GSL) Place Industrial (			0.6 0.9 0.5	02 06 31 11 07 57 57 57 03 07 0 30 7 0 30 7 0 7 0 30 7 0 7 0 7	0.2 0.6 5.4 1.8 - - - - - - - - - - - - - - - - - - -	02 06 00 70 18 - - - - - - - - - - - - - - - - - -	02 06 06 10 10 10 0 0 0 0 0 0 0 0 0 0 0 0	02 06 01 70 18 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	02 06 01 70 18 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - -	02 03 01 10 10 10 10 10 10 10 10 10 10 10 10	02 06 01 1.8	0.2 0. 0.6 0. 0.6 0. 0.7 0. 1.8 1. 0.0 0. 0.2 0. 0.1 0. 0.2 0. 0.1 0. 1.0 1. 0.2 0. 0.2 0. 0.0 0. 0.4 3. 8.2 8.2 8.8 3. 0.2 0. 0.2 0.	2 0.2 5 0.6 1 0.1 0 7,0 1 1.8 1 0.3 0 1.0  2 2.6 3 13.9 1 57.6 1 57.6 1 57.6 1 57.6 2 62.8  2 65.8 4 119.4  5 153.8	0.2 0.6 0.1 7.0 1.8 1.6 3.0 3.0 0 3.0 5.1 5.3 5.1 5.3 5.1 5.3 5.1 61.7 61.7 61.7 61.7 61.7 61.7 61.7 10.3 8.2 69.8 133.7 14.3 14.3 159.1	02 04 05 05 07 07 07 07 07 07 07 07 07 07 07 07 07	02 06 01 10 03 03 10 0 0 0 0 0 0 0 0 0 0 0 0	0.2 0.6 0.7 10 2.2 0.0 0.3 0.2 3.5 0.2 3.5 16.9 74.5 74.5 74.5 74.5 76.6 76.0 163.8 163.8 163.8 163.8 163.8	02 06 01 70 18 24 02 03 36 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 1.8 2.5 0.3 0.0 1.0 0.3 3.9 95.6 75.5 75.5 0.0 0.3 3.8 75.5 75.5 75.5 75.5 75.5 75.5 75.5 75	0.2 0.6 0.6 7.0 1.8 2.6 0.4 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	101.0 0.2 0.6 0.1 7.0 1.8 2.6 0.3 1.8 2.6 0.3 18.3 119.3 119.3 119.3 119.3 119.3 2.6 0.0 0.3 2.6 7.5 2.6 5.7 2.85.3 2.85.	117.0 0.2 0.6 0.1 7.0 1.8 2.6 0.3 0.1 1.8 2.6 0.3 0.1 1.8 2.6 0.3 0.1 1.8 2.6 0.3 0.1 1.8 2.6 0.3 0.3 0.1 1.8 2.6 0.3 0.1 1.8 2.6 0.3 0.1 1.8 2.6 0.3 0.1 1.8 2.6 0.3 0.1 1.8 2.6 0.3 0.1 1.8 2.6 0.3 0.1 1.8 2.6 0.3 0.1 2.7 0.0 1.8 2.6 0.3 0.1 2.7 0.0 1.8 2.6 0.3 0.3 0.1 2.7 0.0 1.8 2.6 0.3 0.3 0.3 0.1 2.7 0.0 1.8 0.3 0.3 0.0 1.8 0.3 0.3 0.0 1.8 0.3 0.3 0.0 0.1 0.0 1.8 0.3 0.0 0.1 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0	133.1 0.2 0.6 0.0 1.0 1.0 0.0 1.0 0.0 1.0 0.0 0	150.9 0.2 0.6 0.0 1.0 1.0 0.5 0.3 1.0 1.0 2.0 0.0 1.0 0.0 1.0 1	150.5 0.2 0.6 - 70 126 0.5 0.3 100 170.5 170.5 04.7 0.0 4.3 3.8 - - 102.8 3.6 20.0 170.5 170.	0 1 8 2 3 1 1 0 1 - - - - - - - - - - - - -
Commercial Comprehensive Program Linkrad Hait Lamps Program Livestock Water Program Commercial Hait Lamps Program City of Winnjeeg Power Smart Agreement Program Commercial Lights Waters Program Agricultural Distance Controllers Program Aborignal Commercial Program Aborignal Commercial Program Commercial Parking Lot Controllers Commercial Parking Lot Controllers Commercial Strapy Valves Program Agricultural Heat Plash Program Commercial Strapy Valves Program Commercial Strapy Valves Program Commercial Strapy Valves Program Commercial Strapy Valves Program Industrial (Baish) Program Lindustrial Displacement			0.6 0.9 0.5 - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 - - - - - - - - - - - - - - - - - - -	02 06 07 0 70 10 - - - - - - - - - - - - - - - - - -	02 06 06 17,0 18 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	02 06 07 07 07 07 07 07 07 07 07 07 07 07 07	02 0.6 0.1 1.0 - - 0.7 11.4 20.1 27.4 37.4 37.4 37.4 37.4 37.4 37.4 37.4 3	0.2 0.6 0.1 1.0 0.1 1.0 0.1 0.1 0.0 0.0 0.0 0.0	0.2 0.6 0.1 7.0 1.8 0.2 1.0 1.0 1.2 1.2 1.2 1.2 339.5	02 06 01 1.8	02 0. 0.6 0. 0.70 7. 1.8 1. 0.2 0. 0.2 0. 0.2 0. 0.2 0. 1.0 1. 2. 2. 2.0 2. 2.0 2. 2.2 2. 3.7.5 42 52.9 54 3.8 3. 3.7.5 42 52.9 54 3.8 3. 3.7.5 42 52.9 54 3.8 3. 3.7.5 42 52.9 54 3.8 3. 3.7.5 42 5.2 9 54 3.8 3. 3.7.5 42 5.2 9 54 3.8 3. 3.7.5 42 5.2 9 54 5.2 9 54 5.4 54	2 0.2 5 0.6 1 0.1 0 7,0 1 1.8 1 0.3 0 1.0  2 2.6 3 13.9 1 57.6 1 57.6 1 57.6 1 57.6 2 62.8  2 65.8 4 119.4  5 153.8	02 04 06 17 00 1.8 1.6 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.3 1.0	0.2 0.6 0.6 1.7 0 1.8 2.1 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 1 2.2 2.2 0.3 1.0 - - - 0.2 1.6 9 74.5 68.7 68.7 68.7 0.0 4.3 3.8 2	0.2 0.6 0.1 7.0 1.8 2.4 0.2 0.3 1.0 0.3 3.6 17.4 84.6 72.0 72.0 72.0 72.0 72.0 72.0 72.0 72.0	0.2 0.6 1.0 1.0 2.5 0.3 1.0 7.5 75.5 75.5 75.5 75.5 75.5 8.2 8.2 8.2 8.2 14.3 14.3	0.2 0.6 0.6 0.4 0.3 0.1 0.0 - - - - - - - - - - - - - - - - - -	101.0 0.2 0.2 0.1 10 1.8 2.6 0.4 0.3 1.8 2.6 0.4 0.4 0.4 1.0 - - - - - - - - - - - - -	117.0 0.2 0.1 0.1 1.8 2.6 0.5 0.3 1.0 - - - - - - - - - - - - - - - - - - -	133.1 0.2 0.6 0.0 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	150.9 0.2 0.6 0.0 0.0 1.8 2.6 0.3 0.3 1.8 0.3 0.3 0.3 0.3 0.3 0.2 20.0 170.9 94.7 94.7 0.0 4.3 3.8 2.5 170.9 1	150.5 0.2 0.6 - 7.0 1.8 2.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	0 1 8 2 3 1 1 0 1 - - - - - - - - - - - - -
Commercial Comprehensive Program Infrared Heat Lamps Program Senter Light Program City of Winniege Prover Smart Agreement Program Commercial Art Barries Program Commercial Artification Program Haber Collins Macro Collins Commercial Prating Loc Cortelles Commercial Spray Values Program Agriculture Heat Pass Program Agriculture Heat Pass Program Proformance Optimization Program Emergency Preparations Program Customer Shot Load Displacement ExterLoc Manage Optimization Program Customer Shot Load Displacement ENTELION MANAGEMENT PROGRAMS Cartalities Enter Sprayam			0.6 0.9 0.5	02 06 31 11 07 57 57 57 03 07 0 7 03 07 0 7 0 10 0 10 0 10 0 1	0.2 0.6 5.4 1.8 - - - - - - - - - - - - - - - - - - -	02 06 00 70 18 - - - - - - - - - - - - - - - - - -	02 06 06 10 10 10 0 0 0 0 0 0 0 0 0 0 0 0	02 06 01 70 18 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8	02 06 01 70 18 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - -	02 03 01 10 10 10 10 10 10 10 10 10 10 10 10	02 06 01 1.8	0.2 0. 0.6 0. 0.6 0. 0.7 0. 1.8 1. 0.0 0. 0.2 0. 0.1 0. 0.2 0. 0.1 0. 1.0 1. 0.2 0. 0.2 0. 0.0 0. 0.4 3. 8.2 8.2 8.8 3. 0.2 0. 0.2 0.	2 0.2 0 0.6 0 0.6 0 7.0 0	0.2 0.6 0.1 7.0 1.8 1.6 3.0 3.0 0 3.0 5.1 5.3 5.1 5.3 5.1 5.3 5.1 61.7 61.7 61.7 61.7 61.7 61.7 61.7 10.3 8.2 69.8 133.7 14.3 14.3 159.1	02 04 05 05 07 07 07 07 07 07 07 07 07 07 07 07 07	02 06 01 10 03 03 10 0 0 0 0 0 0 0 0 0 0 0 0	0.2 0.6 0.7 10 2.2 0.0 0.3 0.2 3.5 0.2 3.5 16.9 74.5 74.5 74.5 74.5 76.6 76.0 163.8 163.8 163.8 163.8 163.8	02 06 01 70 18 24 02 03 36 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.0 1.8 2.5 0.3 0.0 1.0 0.3 3.9 95.6 75.5 75.5 0.0 0.3 3.8 75.5 75.5 75.5 75.5 75.5 75.5 75.5 75	0.2 0.6 0.6 7.0 1.8 2.6 0.4 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	101.0 0.2 0.6 0.1 7.0 1.8 2.6 0.3 1.8 2.6 0.3 119.3 11	117.0 02 04 01 7.0 1.8 2.6 05 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 0.5 0.1 1.8 0.5 0.1 0.1 0.1 0.1 1.8 0.5 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	133.1 0.2 0.6 0.0 1.0 1.0 0.0 1.0 0.0 1.0 0.0 0	150.9 0.2 0.6 0.0 1.0 1.0 0.5 0.3 1.0 1.0 2.0 0.0 1.0 0.0 1.0 1	150.5 0.2 0.6 - 7.0 18 26 26 26 0.5 0.3 10. - - - - - - - - - - - - -	0 1 2 3 1 1 2 3 1 1 2 3 1 1 1 2 3 1 1 1 2 3 1 1 1 2 3 1 1 1 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1
Commercial Comprehensive Program Infrared Heat Lamps Program Livestock Water Program City of Winniege Program City of Winniege Prover Smart Agreement Program Commercial Arts Barnes Program WHZ- Onlines Aboriginal Commercial Program Commercial Parking Lof Controllers Commercial Parking Lof Program High Efficient Motors (MRI) Program High Efficient Motors Rogram Efficient Motors Rogram Efficient Motors Rogram Customer Shed Laad Displacement Customer Shed Laad Displacement PROGRAM IMPACTS Control Program	Subtotal Subtotal Subtotal Subtotal Subtotal Subtotal C Subtotal C C C C C C C C C C C C C C C C C C C	- - - - - - - - - - - - - - - - - - -	0.6 0.9 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.7 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	02 06 3.1 1.1	02 06 54 18 10 - - - 90 119 - - - - - - - - - - - - - - - - - -	02 06 00 07 18 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.0 0.1 205 205 205 205 205 205 2.	02 06 01 70 18 - - - - - - - - - - - - - - - - - -	02 06 01 70 18 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 0.1 1.0 0.1 1.0 0.1 0.1 0.1 0.1 0.1	0.2 0.6 0.1 7.0 1.8 0.1 1.0 0.1 1.0 0.0 1.1 99.1 0.0 3.15 3.15 3.15 3.15 3.15 3.15 3.15 3.15	02 04 05 07 07 18 02 02 02 10 12 10 12 12 10 12 12 12 12 12 12 12 12 12 12	02 06 05 01 12 02 02 12 12 12 12 12 12 12 12 12 12 12 12 12	0.2 0. 0.6 0. 0.6 0. 0.1 0. 0.2 0. 0.0 0.	2 0.2 0 0.6 0 0.6 0 7.0 0 1.0 0 3 0 0.3 0 1.0 0 3 0 1.0 0 3 0 1.0 0 3 0 1.0 0 3 0 1.0 0 3 0 1.0 0 3 0 3 0 3 0 3 0 3 0 3 0 3 0	02 04 03 03 03 03 03 03 03 03 03 03 03 03 03	02 06 01 70 18 20 02 03 03 01 00 01 03 03 03 03 03 03 03 03 03 03 03 03 03	0.2 0.6 0.1 1.8 0.3 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	0.2 0.6 0.1 1.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 0	02 06 01 70 18 22 02 36 70 70 70 70 70 70 720 720 82 82 82 82 82 82 82 82 82 82 82 82 82	0.2 0.6 0.1 1.8 2.5 0.3 0.1 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	0.2 0.6 0.1 7.0 1.8 2.6 0.4 0.1 0.0 1.0 1.7 9 78.9 0.0 4.1 1.7 9 78.9 0.0 4.1 1.7 9 78.9 0.0 4.1 1.7 9 78.9 0.0 4.1 1.7 9 78.9 0.0 0.0 1.8 8.2 8.2 8.2 8.2 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	101.0 0.2 0.6 0.1 7.0 118.3 119.5 119	117.0 0.2 0.6 0.1 1.8 2.5 0.3 1.0 0. - - - - - - - - - - - - - - - - -	133.1 0.2 0.6 0.0 0.0 0.0 0.0 15.3 10 10.1 1	150.9 0.2 0.6 0.0 0.0 1.8 2.6 0.5 0.3 1.0 2.0 0.7 0.4.7 0.4.7 0.4.7 0.4.7 0.4.7 0.4.7 0.4.7 0.0 4.3 8.2 102.8 102.8 102.8 102.8 12.1 12.0 22.4 145.0 530.9 172.7	150.5 0.2 0.6 - 7.0 0.5 0.3 1.0 - - - - - - - - - - - - -	0 1 2 2 3 3 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1
Commercial Comprehensive Program Infrared Heat Lamps Program Carbon Marker Program City of Winnikeg Program Commercial Idah Program Commercial Cohes Waters Program Commercial Cohes Waters Program Aborignal Commercial Program Aborignal Commercial Program Commercial Parking Lof Controllers Commercial Spray Values Program Commercial Spray Values Program Commercial Spray Values Program Commercial Spray Values Program Commercial Spray Values Program Parking Commercial Program Commercial Marking Program Emergency Preparentess Program Emergency Preparentess Program Emergency Preparentess Program Emergency Preparentess Program Emergency Preparentess Program Customer Stel Load Explacement Customer Stel Load Explacement Customer Stel Load Explacement Customer Stel Load Explacement Customer Stel Load Explacement			0.6 0.9 0.5	02 0.6 3.1 1.1	0.2 0.6 5.4 1.8 - - - - - - - - - - - - - - - - - - -	02 06 00 18 - - - - - - - - - - - - - - - - - -	02 06 01 7.0 1.8	02 06 01 70 18 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 - - - - - - - - - - - - - - - - - - -	02 06 01 70 18 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.1 1.0 0.1 1.0 0.0 1.1 99.1 0.0 3.15 3.15 3.15 3.15 3.15 3.15 3.15 3.15	02 04 05 07 07 07 02 02 07 07 07 07 07 07 07 07 07 07	02 06 05 01 12 02 02 12 12 12 12 12 12 12 12 12 12 12 12 12	0.2 0. 0.6 0. 0.6 0. 0.7 0. 0.7 0. 0.7 0. 0.2 0. 0.1 0. 0.2 0. 0.1 0. 0.2 0. 0.1 0. 0.2 0. 0.1 0. 0.2 0. 0.1 0. 0.2 0. 0.4 3. 0.8 0. 0.1 0. 0.2 0. 0.0 0.	2 0.2 0 0.6 0 0.6 0 7.0 0 1.0 0 3 0 0.3 0 1.0 0 3 0 1.0 0 3 0 1.0 0 3 0 1.0 0 3 0 1.0 0 3 0 1.0 0 3 0 3 0 3 0 3 0 3 0 3 0 3 0	02 04 03 03 03 03 03 03 03 03 03 03 03 03 03	0.2 0.6 0.1 7.0 7.0 7.0 1.8 0.2 0.0 1.5 8 15.8 60.1 60.1 60.1 60.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.2 0.6 0.1 7.0 1.8 1.1	0.2 0.6 0.0 1.8 2.2 0.0 0.3 1.0 7.5 7.5 7.5 68.7 0.0 0.2 3.5 7.6 9 74.5 7.6 9 74.5 8.2 7.6 9 183.8 14.3 14.3 17.2 8 14.3	02 06 01 70 18 22 03 36 70 18 40 70 10 - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 2.3 0.3 1.0 - - - - - - - - - - - - - - - - - - -	0.2 0.6 0.1 7.0 1.8 0.4 0.4 0.4 0.4 0.4 0.4 0.4 1.0 0.4 0.4 1.0 0.4 0.4 1.0 0.4 0.4 1.0 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0	101.0 0.2 0.6 0.1 1.0 1.8 2.6 0.3 1.8 2.6 0.3 1.8 1.8 0.3 0.1 1.8 2.6 0.3 1.8 0.3 1.8 0.3 0.1 1.8 2.6 0.3 1.8 0.3 0.1 1.8 0.3 0.1 1.8 0.3 0.3 0.1 1.8 0.3 0.3 0.1 1.8 0.3 0.1 1.8 0.3 0.1 1.8 0.3 0.1 1.8 0.3 0.1 1.8 0.3 0.1 1.8 0.3 0.1 1.8 0.3 0.1 1.8 0.3 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	117.0 02 04 01 7.0 1.8 2.6 05 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 2.6 0.1 1.8 0.5 0.1 1.8 0.5 0.1 0.1 0.1 0.1 1.8 0.5 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	133.1 0.2 0.6 0.0 0.0 0.0 0.0 0.0 1.8 2.4 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.0	150.9 0.2 0.6 0.0 0.0 1.8 2.6 0.3 1.0 2.0 0.1 2.0 0.1 2.0 0.0 4.3 3.8 - - 0.0 4.7 94.7 94.7 94.7 94.7 94.7 94.7 94.7 94.7 94.7 94.7 94.7 94.7 94.7 92.0 102.8 - 3.8 2.8 2.8 2.8 2.9 102.	150.5 0.2 0.6 - 7.0 18 26 26 26 0.5 0.3 10. - - - - - - - - - - - - -	0 1 2 2 2 3 3 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1

#### 2016 Demand Side Management Plan Annual Energy Savings (GW.h) (Savings to Date) (1989/90 - 2015/16)

Unity Uni									Interim Estimat	n :e Benchmark	At Generation 2030/31
Note that is a set of the se	7 2007/08 2008/0	2007/08	2008/09	2009/10 2	2010/11 201	11/12 201	012/13 20	013/14 201	014/15 2015/1	6 2030/31	2030/31
	16.5 22.1 0.6 1.1   17.0 23.2	0.6	1.1 - - -	2.0	4.2 6 - 1 - - -	6.4 9 10.9 1 9.5 1:	9.3 19.6 12.6	11.8 1 29.3 3 - 1 15.7 1 - 0 - 1	53.8         58.1           15.0         19.2           38.9         51.8           1.6         2.6           18.8         22.7           0.1         0.1           12.9         26.0           141.0         180.5	58.1 19.2 2.6 22.7 0.1 26.0 128.7	66 22 - 3 26 0 30 147
Research quick from the proper service of t	4.6 5.2 8.8 10.2 0.8 0.8  2.8 2.8 0.2 0.2 17.2 19.1	8.8 0.8 - -	10.2 0.8 - -	6.9 11.2 0.8 - - 2.8 0.2 21.9	11.8 1. 0.8 0 - - 2.8 2 0.2 0	12.8 1: 0.8 0 - 0.1 0 2.8 2 0.2 0	13.3 0.8 0.0 0.1 2.8	13.2 1 0.8 0 1.3 1 0.1 0 0.1 0 2.8 2	9.3         9.6           13.3         13.7           0.8         0.8           1.4         1.5           0.1         0.1           0.2         0.2           27.9         28.8	9.6 13.7 0.8 1.5 0.1 0.1 2.8 0.2 28.8	11 16 1 2 0 0 3 0 33
Science 1	7.6         12.1           2.9         3.7           2.3         3.1           36.5         36.5           0.6         0.6           0.5         0.5           0.4         0.4           0.0         0.0           -         -           1.0         2.1           28.1         49.9           79.8         108.8	2.9 2.3 36.5 0.6 0.5 0.4 0.0 - - 1.0 28.1 79.8	3.7 3.1 36.5 0.6 0.5 0.4 0.0 - - 2.1 49.9 108.8		5.0 5 3.2 3 36.5 3 0.6 0 0.4 0 0.0 0 - 1.3 1 3.7 4 107.5 10 171.3 17	5.5 5 5 3.2 3 36.5 3 0.6 0 0.5 0 0.0 0 - 1.3 1 4.5 4 107.5 10 172.6 17	5.5 3.2 36.5 0.6 0.5 0.4 0.0 - 1.3 4.5 107.5 1 172.6 1	5.5 5 3.2 3 3.6.5 3 0.6 0 0.4 0 0.0 0 - 1.3 1 4.5 4 107.5 10 172.6 17	12.7 12.7 5.5 5.5 3.2 3.2 3.6.5 3.6.5 0.6 0.5 0.5 0.4 0.4 0.0 0.0 - - 1.3 1.3 1.5 4.5 107.5 107.5 172.6 172.6	12.7 5.5 3.2 36.5 0.6 0.5 0.4 0.0 - 1.3 4.5 107.5 172.6	15 6 4 1 1 1 0 0 - 1 5 122 197
Nome:         Nome: <th< td=""><td>114.0 151.1</td><td>114.0</td><td>151.1</td><td>200.1</td><td>232.3 26</td><td>262.5 28</td><td>284.4 3</td><td>306.1 34</td><td>341.6 381.9</td><td>330.0</td><td>376</td></th<>	114.0 151.1	114.0	151.1	200.1	232.3 26	262.5 28	284.4 3	306.1 34	341.6 381.9	330.0	376
Commercial Compresention Program       -       -       1.4	193.9 218.9 18.6 20.2 1.9 4.1 4.5 5.2 18.0 19.8 15.4 15.9 3.0 4.3 4.3 4.3 4.3 4.3 4.3 4.3 . 0.2 . 0.5       	18.6 1.9 4.5 18.0 15.4 3.0 4.3 - - -	20.2 4.1 15.2 19.8 15.9 4.3 4.8 0.2 0.5	23.6 6.6 7.3 29.5 17.4 5.5 0.5 0.5 0.3 0.6 0.0	26.0         2           9.7         1           9.7	27.8 2 12.5 11 11.7 11 11.7 2 20.2 2 8.7 2 8.7 2 0.7 0 0.7 0 0.9 1 0.2 0 2.3 6 - 0.1 0	29.9 3 15.6 3 13.9 5 55.2 3 21.0 2 21.2 3 9.4 7 0.7 1.0 0.7 1.0 0.2 6.4 - 0.1	34.8         3           22.6         2           15.5         1           57.4         5           21.3         2           30.0         4           10.2         1           0.8         1           0.7         2           0.7         2           0.7         2           0.7         0           8.1         1           0.2         9           2.9         2           0.7         0           0.1         0	371.8         423.8           37.7         38.1           26.8         31.8           17.3         18.4           58.4         59.7           21.4         22.2           41.8         47.5           12.5         15.8           0.7         1.2           9.8         0.8           0.7         2.9           2.9         2.9           0.8         0.8           0.3         0.3           607.5         694.7	423.8 38.1 31.8 18.7 59.7 22.2 47.5 15.8 2.6 1.2 0.8 20.0 9.4 0.3 691.8	483 43 36 21 68 25 54 18 3 1 - 1 23 1 23 11 0 789
INDUSTRAL Performance Optimization Program Discontinues Configuration Discontin	1.4         1.4           3.7         3.7           0.4         0.4           29.9         29.9           7.5         7.5           10.1         10.3           -         0.0           0.3         0.3           -         30.5           32.4         2.9           2.9         4.8           109.2         115.9	3.7 0.4 29.9 7.5 10.1 - 0.3 - 30.5 2.9 21.8 109.2	3.7 0.4 29.9 7.5 10.3 0.0 0.8 32.4 4.8 24.3 115.9	7.5 10.8 0.3 0.8 - 34.9 5.2 25.4 120.6	3.7 3 0.4 0 29.9 2 7.5 7 11.1 1 0.4 0 0.8 0 - - 38.1 3 5.2 28.4 3 127.2 12	3.7 3 0.4 0 29.9 2 <sup>2</sup> 7.5 7 11.5 1 0.5 0 0.8 0 - 0.3 0 - 39.4 3 <sup>3</sup> - 30.2 3 125.6 12	3.7 0.4 29.9 7.5 11.6 0.6 0.8 - 0.3 - 39.4 32.0 3127.7	3.7 3 0.4 C 29.9 2 7.5 7 11.6 1 0.7 C 0.8 C - 39.4 3 - 34.5 4 130.3 14	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1.4 3.7 - 29.9 7.5 11.6 0.7 0.8 - 39.4 - 39.4 - 45.3 140.7	2 4 - 34 9 13 1 1 - 0 - 45 - 52 160
Performance Optimization Program         -         -         -         2         4         7         2         4         5         8         9         1077         110.8         14/2         105         115         2074         28.6         244         72         35.1         43.5         85.9         1077         110.8         14/2         105         115         2074         28.6         249         100         14/2         105         115         2074         28.6         249         249         205         116         2074         28.6         249         203         203         203         0.0         0.0         100         100         100         0.	368.9 409.8	368.9	409.8	456.7	508.0 55	554.3 61	611.9 6	676.9 74	748.4 835.5	832.5	949
EFFICIENCY PROGRAMS SUBTOTAL 5.0 8.9 27.4 5.2 87.5 133.3 185.6 230.5 25.2 32.5 36.2 4 37.0 418.4 459.2 49.3 56.2 649.1 725.3 CONTRACTOR PROGRAMS Bioenergy Opinization Program Castomer Side Law Department of the second structure of the second stru	276.4 294.9 276.4 294.9 0.0 0.0 33.0 33.0 21.5 21.5	276.4 0.0 33.0 21.5	294.9 0.0 33.0 21.5 -	319.6 0.0 33.0 21.5 -	347.9 37 0.0 0 33.0 3 21.5 2	0.0 0 33.0 3 21.5 2	441.8 4 0.0 33.0 3 21.5 3	471.4 48 0.0 0 33.0 3 21.5 2	485.9         500.4           0.0         0.0           33.0         33.0           21.5         21.5           54.5         54.5	500.4 500.4 0.0 33.0 21.5 54.5	550 550 0 36 24 - - 60
CUSTOMER SELF-GENERATION PROGRAMS Biomergy Optimization Program Customers Side Liza Displacement Subtotal Subtotal Su	330.9 349.3	330.9	349.3	374.1	402.4 42	427.6 49	496.3 5	525.9 54	540.4 554.9	554.9	610
Bioenergy Optimization Program         Image: Constraints	813.8 910.3	813.8	910.3	1,030.9	1,142.7 1,2	,244.4 1,3	1,392.6 1,	1,508.9 1,6	,630.4 1,772.2	1,717.4	1,936
	84.2 94.0	-	-				-	-	120.7 72.7 - 70.0 120.7 142.7	72.7	80 - 80
venues regues											_
PROGRAM IMPACTS 5.0 8.9 27.4 52.3 87.5 133.3 185.6 230.5 253.2 323.5 362.4 373.0 418.4 459.2 493.6 562.0 659.4 845.4	898.0 1.004.3	-		- 1,111.0	-	.314.7 1.4	-			1,790.1	- 2,016
PROGRAM IMPACIS 5.0 8.9 27.4 52.3 87.5 135.3 185.6 2.40.5 25.2 322.5 362.4 37.0 418.4 459.2 493.6 562.0 659.4 845.4 (2005) 55.5 81.5 110.1 137.3 166.5 200.7 217.6 240.5 261.9 284.3	309.1 335.2								665.7 731.2	731.2	833
	7 1,207.1 1,339.5 3 1,358.8 1,508.7	1.207.1				800.6 2.0	.026.6 2	2.222.6 2.4	416.8 2.646		

Note: May not add up due to rounding. \* Includes savings for Downtown Office project based on planning assumptions

#### 2016 Demand Side Management Plan Annual Utility Costs (1989/90 - 2015/16) (000's \$)

	1989/9	90 1990/91	1 1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	3 2013/14	2014/15	Estimate 2015/16	G
ENTIAL Na Basart																												
Ve Based Home Insulation Program			-		\$180	\$279	\$179	\$171	\$313	\$35	\$4	\$37	\$60	\$61	\$119	\$676	\$1,031	\$1,793	\$1,474	\$1,665 \$1,131	\$1,664	\$1,356	\$1,258	\$1,268	\$1,109	\$1,791 \$1,984 \$199	\$1,933	
Affordable Energy Program Lower Income First Nations Program										-			1				\$40 \$5	\$96 \$13	\$203 \$2	\$1,131 \$6	\$1,900 \$39	\$671 \$57	\$802 \$142	\$929 \$185	\$746 \$190	\$1,984 \$199	\$5,017	
Lower including regulation regulation Refrigerator Retirement Program Community Geothermal Program Behaviora Energy Efficiency Program Drain Water Heat Recovery Water and Energy Saver Program																					\$11	\$79	\$1,482	\$1,603	\$1.620	\$1.693	\$2,241	
Community Geothermal Program Behavioral Energy Efficiency Program															1.1										\$443	\$621	\$677	
Drain Water Heat Recovery																										\$60 \$438	\$32 \$627	
Water and Energy Saver Program Solar Water Heater Program										-					\$1	\$0	\$17			\$78	\$49	\$454 \$0	\$440 \$0	\$777 \$0	\$410 \$0	\$438 \$2	\$627	
New Homes Program (Re-design)																						30		\$27	\$1	\$33	\$96	
Residential LED Lighting Program	5. sktotel				£190	\$279	\$179	\$171	\$313	- 62E		- #27			\$120		£1.002	\$1.002	£1.670	£2.990		\$2.617		£4.700	E4 E10	\$2,662	\$2,510 \$13,134	_
	Subtotai -				\$100	32/7	31/7	\$171	\$313	\$30	34	337	300	301	\$120	3070	\$1,072	\$1,702	\$1,079	\$2,000	\$3,003	32,017	34,124	34,707	34,317	37,404	\$13,134	
r Service Initiatives Power Smart Residential Loan Program												\$45	\$76	\$20	\$9	\$0	\$1	\$9	-\$1	-\$6	-\$73	-\$37	-\$29	-\$72	-\$63	-\$45	\$64	
													\$2	\$20 \$47	\$9 \$97	\$343	\$872	\$9 -\$92	\$71	\$207	\$160	\$102	-\$29 \$85	\$125	\$258	-\$46	\$64 \$8	
Residential Earth Power Loan Program ecoEnergy Residential PAYS P. 2000												\$0	\$0	\$0	\$0	-\$10	-\$42	\$71	\$163	-\$19	\$141	\$101	\$112 \$27	-\$29 \$229	\$1 \$43	\$0 \$27	\$130	
R-2000																												
	Subtotal -											\$45	\$78	\$66	\$105	\$333	\$831	-\$12	\$232	\$182	\$229	\$166	\$196	\$252	\$239	-\$64	\$203	
nued/Completed Residential Appliance Program New Homes Program														\$17	\$12	\$9	\$88	\$1,452	\$1.881	\$1,709	\$394	\$12	\$1	\$1	\$0	\$0		
Residential Appliance Program				\$27	\$108	\$69	\$160	\$93	\$49	\$26	\$1	\$15	s111	\$17 \$251	\$12 \$194	\$9 \$272	\$88 \$558	\$1,452 \$851	\$1,881 \$622	\$1,709 \$631	\$394 \$571	\$12 \$209	\$1 \$250	\$1 \$45	\$0 \$12	\$0 \$11		
Aboriginal Residential Program				-	-	-	-	-		-							\$5 \$78	\$13 \$368				-	-	-		-		
Seasonal LED Program	\$124	\$189	\$168	- \$133	- \$67	- \$40	\$14	\$2	\$7		- \$0						\$78	\$368	\$348	\$337	\$23					-	-	
Outdoor Timer Program Residential Hot Water Program	\$124	\$189	\$168 \$119	\$133	\$67	\$40	\$1	\$47	\$20	\$12	\$3																	
Water Tank Rental Program		-					\$14	\$302	\$304	\$59	\$4							-								-		
Residential Thermostats Program Residential Retrofit Program		- \$43	\$18	\$84			\$3								\$8	\$4 \$12	\$7 \$43	\$66	\$33	\$10	\$0							
Residential Applaince Buy Back Program		-	\$36	\$8			-							\$14	\$25	\$5	\$61 \$3	\$23								-		
High Efficiency Furnace and Boiler Program																	\$3	- \$146	\$478	\$378	\$184	\$241	\$311					
Residential Applaince Buy Back Program High Efficiency Furnace and Boller Program Energy Efficient Light Fixtures Program Compact Fluorescent Lighting Program															\$18	\$711	- \$943	\$769	3478 \$898	\$1,264	\$1,568	\$241 \$997	\$2					
	Subtotal \$124	\$232	\$341	\$253	\$175	\$109	\$193	\$445	\$379	\$99	\$8	\$15	\$111	\$283	\$256	\$1,013	\$1,785	\$3,688	\$4,260	\$4,329	\$2,739	\$1,458	\$564	\$46	\$12	\$11		1
al Exploratory Programs																												
LED Light Fixtures Program																					\$0			\$0	\$0			
Residential Solar Power Program Residential Air Source Heat Pumps										-		-										\$2	\$2			\$13		
Residential Air Source Heat Pumps Residential Conservation Rates							-			-																\$13 \$0		
New Home Program (Re-design)																										-		
Community Energy Plan										-																	\$12	
Smart Thermostats			-							-										-				-			\$150	
Set Top Boxes Program Exploratory Programs							-			-			-	-		-			-		\$20	\$3	\$2	\$0	\$0	\$13	\$162	+
RESIDENTIAL TOTAL	\$124	\$232	\$341	\$253	\$355	\$388	\$372	\$615	\$692	\$135	\$12	\$97	\$249	\$410	\$481	\$2.022	\$3.708	\$5.570	\$6.172	\$7.301	\$6.651	\$4.244	\$4.99F	\$5.088	\$4,771	\$9.444	\$13,498.6	+
	3124	46.36	4391	دلامي	ورومه	**00	4414	610	4372	e.30	414	4/1	4447	4410	4401	44,362	40,100	eu, 117	ere, 172	71,171	1 60,00	47,244	44,000	eu,uod	49,111	#7,999	410,470.0	-
CIAL Based																												
Commercial Lighting Program Commercial Earth Power Program			\$74	\$803	\$1,764 \$10	\$2,113 \$35	\$2,126	\$905 \$50	\$782 \$172	\$1,571	\$717 \$107	\$538 \$90	\$852 \$141	\$1,033 \$245	\$2,354 \$557	\$4,761 \$246	\$5,881 \$471	\$6,878 \$595	\$7,242 \$342	\$7,678 \$220	\$7,204 \$380	\$6,604 \$296	\$6,349 \$291	\$7,772	\$6,642	\$7,194	\$8,029	
		-			\$10	\$35	\$58	\$50	\$172	\$91	\$107	\$90	\$141	\$245	\$557	\$246	\$471	\$595 \$203	\$342 \$248	\$220 \$236	\$380 \$227	\$296 \$264	\$291 \$233	\$265 \$452	\$168 \$517	\$192 \$586	\$230 \$432	
Commercial Windows Program					\$5	\$19	\$31	\$97	\$130	\$48	\$35 \$91	\$62	\$57	\$133	\$104	\$216	\$294	\$372	\$369	\$438	\$1,001 \$2,120		\$987 \$745		\$813 \$760	\$815	\$484	
Commercial Windows Program Internal Retrofit Program Commercial Custom Messures Program Commercial Refrigeration Program		-	\$80	\$193	\$330	\$404 \$48	\$120 \$79	\$159	\$130 \$134	\$179 \$170	\$91 \$422	\$239 \$108	\$115 \$123	\$133 \$242 \$70	\$538 \$136	\$216 \$630 \$10	\$294 \$550 \$7 \$217	\$372 \$4,556 \$113 \$293	\$369 \$4,253 \$182 \$285	\$438 \$2,609	\$2,120	\$1,210 \$1,852		\$927 \$812		\$710	\$484 \$707 \$79 \$515	
Commercial Custom Measures Program Commercial Refrigeration Program					\$14	\$48	\$/9	\$60		\$1/0	\$422	\$108	\$123	\$70	\$136	\$10	\$7	\$113 \$293	\$182 \$285	\$237 \$173	\$208 \$182	\$229 \$169	\$237 \$335	\$56 \$614	\$14 \$651	\$17 \$905	\$79	
		-															\$163	\$192	\$69	\$210	\$159	\$311	\$210	\$149	\$193	\$374	\$420	
Commercial HVAC Program - HRVs		-					-			-								-		\$90	\$82	\$35	\$31	\$12	\$4	\$18	\$2 \$71	
riviko Früglam Commercial Kilchen Appliances Program Power Smart Shops Program Commercial Building Optimization Program																			\$1	\$90	\$240	\$35	\$31 \$46			\$18	\$225	
Commercial Building Optimization Program		-								-				\$0			\$168	\$55	\$1 \$38	\$60 \$28	\$240 \$26	\$141 \$36	\$46 \$39	\$0 \$92	\$6 \$125	\$40 \$33	\$225 \$330	
										-								\$2	\$2 \$135	\$20 \$95	\$68 \$161	\$82 \$288	\$23 \$298	\$6 \$116	\$55 \$593	\$15 \$1,346	\$2	
New Buildings Program LED Roadway Lighting Program HVAC - CO2 Sensors Program																		32	3135	375	-	3200	3270	-	\$11	\$726	\$1,443 \$13,699	
HVAC - CO2 Sensors Program	Subtotal -		\$154	\$996	\$2,123	\$2,619	\$2,414	\$1,272	\$1,219	\$2,060	\$1,372	\$1,037	- \$1,289	\$1,724	\$3,690	\$5,863	\$7,749	\$13,257	\$13,167	\$1 \$12,094	\$1 \$12,059	\$2 \$11,519	\$2 \$9,827	\$2 \$11,276	\$1 \$10,554	\$7 \$12,979	\$58 \$26,726	-
r Service Initiatives																												
Commercial PAYS																								\$123	\$76	\$131		
ued/Completed																								\$123	\$76	\$131		
Commercial Comprehensive Program		\$43	\$82	\$24	\$3	\$87																				-	-	
Power Smart Energy Manager Infared Heat Lamps Program		\$12	\$195	\$23	\$4		-			-								\$1	\$77	\$115	\$86	\$108	\$22	\$0	\$0	\$0	\$13	
Infared Heat Lamps Program		\$12	\$195	\$23	\$4	\$111	\$98	\$70	\$18	\$3																-		
Livestock Waterer Program Street Light Program Sentinel Light Program		\$74	\$1,015	\$1,459	\$1,364	\$1,053	\$13	-	\$36	-	-				-													
Sentinel Light Program		\$21	\$895	\$764	\$803					-		-			en 107	-	-		-					-				
City Of Winnipeg Power Smart Agreement Program										-			1	\$4	\$2,487	\$1,749	\$4,284	\$1,728	\$194 \$53	\$62 \$43	\$44 \$135	\$79 \$64	\$63	\$59	\$1 \$48	\$2		
Commercial Air Barriers Program Agricultural Demand Controller Program					\$6	\$20	\$33	\$74	\$60	\$3	\$8	\$27	\$18	\$15	\$16	\$6	\$4		\$5									
Agricultural Demand Controller Program			\$22	\$436	\$152 \$0	\$1	\$2	\$61	\$58	-			\$4	- \$46		\$122	s10			-				\$1	- \$1	- \$1		
HVAC - Chillers Aboriginal Commercial Program Commercial Parking Lot Controllers								30 I \$0	206 \$0	\$0	\$0	\$0	3-0 \$0		\$0		\$0	- \$0	\$0	3-J \$0	\$0	1			a1 -			
Commercial Parking Lot Controllers					\$28	\$96	\$0 \$158	\$0 \$86	\$0 \$78	\$149	\$17	\$0 \$43	\$171	\$0 \$95	\$0 \$250	\$0 \$324	\$0 \$984	\$867	\$0 \$568	\$375	\$505	\$526	\$282	\$9	÷	\$1		
Commercial Spray Valves Program Agricultural Heat Pads Program				1		1	\$2	\$51	\$27	\$71	\$72	\$39	\$51	\$59	\$53	\$116	\$67	\$36 \$62	\$27 \$58	\$22 \$42	\$9 \$114	\$5 \$98	\$0 \$8	\$0 \$1	\$0 \$2	\$3		
=	Subtotal -	\$149	\$2,209	\$2,705	\$2,359	\$1,367	\$306	\$343	\$277	\$225	\$97	\$109	\$245	\$218	\$2,806	\$2,318	\$5,350	\$2,695	\$983	\$659	\$894	\$879	\$330		\$52	\$6	\$13	٦
ial Exploratory Programs																												
Race To Reduce Program Heat Recovery Ventilation Program			-							-										-				-			\$7	
Heat Recovery Ventilation Program							-						-	-		-			-		-	\$0	\$1			\$6	\$7	-
COMMERCIAL TOTAL		\$140	\$2,363	\$3,701	\$4,482	\$3,986	\$2,720	\$1,614	\$1,497	\$2,285	\$1,469	\$1,147	\$1,534	\$1,942	\$6,496	\$8,180	\$13,099	\$15,952	\$14,150	\$12 752	\$12,953	\$12,398	\$10,157	\$11,349	\$10,681	\$13,121	\$26,746	
		\$197	\$2,303	\$3,701	34,402	\$3,700	32,120	\$1,014	\$1,97/	34,400	\$1,407	\$1,197	41,034	\$1,742	30,970	40,10U	#13,077	¥10,702	#19,100	#14,100	#12,723	≠12,37Ö	\$10,157	311,349	\$10,061	#13,141	320,740	-
AL Performance Optimization Program	-		\$59	\$130	\$170	\$356	\$369	\$341	\$504	\$310	\$211	\$334	\$861	\$2.783	\$1.056	\$1,469	\$1.569	\$1,026	\$3.127	\$2.489	\$2.890	\$2.749	\$2.938	\$2,746	\$2.173	\$1.962	\$1.945	
	Subtotal -		\$59	\$130	\$170	\$356	\$369	\$341	\$504	\$310	\$211	\$334 \$334	\$861	\$2,783	\$1,056	\$1,469	\$1,569	\$1,026	\$3,127 \$3,127	\$2,489	\$2,890	\$2,749	\$2,938	\$2,746	\$2,173	\$1,962	\$1,945	-
Industrial (Basic) Program Industrial (GSL) Program																												
Industrial (GSL) Program			\$43	\$221	\$242	\$443	\$780	\$271	\$252	\$66	\$9	\$4						\$35						-				
		\$15	\$211	\$522	\$428	\$346	\$325	\$361	\$494	\$36	\$2									\$0 \$80		\$7	\$1	\$0	so	\$0		
				\$16	\$37	\$14	\$3			-			1	1				1.1		280	\$69	\$/	51	20	20	\$0		
	Subtotal -	\$15	\$254	\$759	\$708	\$803	\$1,107	\$632	\$746	\$102	\$11	\$4						\$35		\$81	\$69	\$7	\$1	\$0	\$0	\$0	· · ·	П
High Efficiency Motors Program Emergency Preparedness Program Efficient Motors (OMR) Program		\$15	\$314	\$889	\$878	\$1,158	\$1,476	\$972	\$1,251	\$413	\$222	\$337	\$861	\$2,783	\$1,056	\$1,469	\$1,569	\$1,062	\$3,127	\$2,570	\$2,959	\$2,756	\$2,939	\$2,746	\$2,173	\$1,962	\$1,945	+
High Efficiency Motors Program Emergency Preparedness Program Efficient Motors (OMR) Program			\$3,018	\$4,843	\$5,714	\$5,533	\$4,568	\$3,202	\$3,439	\$2,832	\$1 703	\$1,581	\$2,645	\$5,135					\$23,449				\$17.981		\$17,625		\$42,190	-
High Efficiency Motors Program Emergency Preparedness Program Efficient Motors (OMR) Program		\$395	\$3,018	\$4,843	\$5,/14	\$5,533	\$4,568	\$3,202	\$3,439	\$2,832	\$1,703	\$1,581	\$2,645	\$5,135	\$8,033	\$11,672	\$18,375	\$22,592	\$Z3,449	\$22,/14	\$22,563	\$19,399	\$17,981	\$19,183	\$17,625	\$24,527	\$42,190	+
High Elliciency Motors Program Emergency Preparedness Program Efficient Motors (QMR) Program INDUSTRIAL TOTAL CY PROGRAMS SUBTOTAL	\$124																	44 7/4	44.554			A4 (05	44 70/	0.045		\$552	\$448	
High Hilden/Y Molos Hrogann Emilgency Preparations: Program Efficient Molos: (OMR) Program INDUSTRIAL TOTAL CY PROGRAMS SUBTOTAL IS SELF-CENERATION PROGRAMS	\$124																		\$1,556			\$1,605	\$1,721	\$348	\$698	\$552 \$674 \$1,226	\$448 \$4,750 \$5,198	
High Elliciency Motors Program Emergency Preparedness Program Efficient Motors (QMR) Program INDUSTRIAL TOTAL CY PROGRAMS SUBTOTAL		:																\$1,764	\$1,556	\$1,718	\$1,488	\$1,605	\$1,721	\$348	\$698	\$1,226	\$5,198	П
High Liferion Malos Hogam Emergency Prevendense Rogam Efficient Malos (QMR) Pregram INDUSTRIAL TOTAL 2Y PROGRAMS SUBTOTAL R SELF-GENERATION PROGRAMS Biomergry Optimization Program																												
High Induced King Regular High Induced King Regular Elificiant Moders (CMR) Program INDUSTRIAL TOTAL CY PROGRAMS SUBTOTAL IS SLIF-GRENATION PROGRAMS Beenergy Optimization Program Customer Ster Load Diplocament Customer Ster Load Diplocament			:																									_
Figs Tutors For Motors First Program Efficient Motors (CMR) Program INOUSTRIAL TOTAL CY PROCEMUS SUBTOTAL ES SELF-GRAMING PROCEANIS Biomergy Optimization Program Customer Sted Laad Displacement			-	\$60	\$451	\$1,124	\$1,037	\$1,042	\$916	\$1,187	\$1,502	\$1,974	\$2,656	\$4,097	\$5,418	\$5,574	\$6,364	\$6,351	\$6,416	\$6,345	\$5,728	\$5,702	\$5,799	\$5,762	\$5,971	\$5,945	\$6,112	4
High Inflorency Motors Hoggam Employer by Peoplan IRIGent Motors (2008) Program INDUSTRIAL TOTAL CY PROGRAMS SUBTOTAL Els SELF-GENERATION PROCENAIS Electropy Optimization Program Customer Sele Cau Displacement No MANAGEMENT PROGRAMS Curtaliable Rates Program			-	- \$60	\$451		\$1,037	\$1,042	\$916	\$1,187	\$1,502	\$1,974	\$2,656	\$4,097	\$5,418	\$5,574	\$6,364	\$6,351	\$6,416	\$6,345	\$5,728	\$5,702	\$5,799	\$5,762	\$5,971			
Hegh Informsty Motion Hoggins Efficient Motions / Hoggins Efficient Motions (CMMR) Program INDUSTRIAL TOTAL ICY PROGRAMS SUBTOTAL ER SELF-GRANTING PROGRAMS Benergy Optimized in Program Contomer Stret Load Deplecement Contomer Stret Load Deplecement		\$235	\$2,346	\$60 \$2,872	\$451 \$2,089	\$1,124	\$1,037 \$1,438	\$1,042 \$1,184	\$916 \$957	\$1,187 \$1,260	\$1,502 \$1,835	\$1,974 \$2,533	\$2,656 \$2,288	\$4,097 \$2,997	\$5,418 \$3,055	\$5,574 \$3,286	\$6,364 \$3,108	\$6,351 \$6,538	\$6,416 \$6,399	\$6,345 \$5,805	\$5,728 \$5,003	\$5,702 \$3,775	\$5,799 \$6,870	\$5,762 \$4,859	\$5,971 \$3,984	\$5,945 \$4,374	\$6,112 \$3,429	

#### 2016 Demand Side Management Plan Annual Administration Costs (1989/90 - 2015/16) (000's \$)

	198	89/90 1990/	91 1991/92	2 1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	Interim Estimate 2015/16	- Cu 2
NTIAL ve Based						\$279	\$179	\$171	\$313						\$119													
Home Insulation Program Affordable Energy Program Lower Income First Nations Program		1 I.			\$180	\$279	\$179	\$171	\$313	\$35	\$4	\$37	\$60	\$61	\$119	\$245	\$395 \$40	\$270	\$205 \$164 \$2	\$210 \$835	\$186 \$1,154	\$212 \$79 \$57	\$242 \$738 \$142	\$441 \$840 \$185	\$422 \$683 \$190	\$658 \$685 \$199	\$885 \$1,306	
Lower Income First Nations Program							-						-				\$5	\$13	\$2	\$6	\$39 \$11	\$57 \$79	\$142 \$1,163	\$185 \$1,242	\$190	\$199	\$1,705	
Refrigerator Retirement Program Community Geothermal Program Behavioral Energy Efficicency Program																					-	-		31,242	\$1,262 \$198	\$1,323 \$385	\$468	
Behavioral Energy Efficiency Program Drain Water Heat Recovery		1																1.1		1.1			1	1.1			\$20	
Water and Energy Saver Program		· ·								-					\$1	\$0	\$17			\$78	\$49	\$84	\$255	\$359	\$291	\$31 \$301 \$2	\$20 \$431	
Solar Water Heater Program New Homes Program (Re-design) Residential LED Lighting Program																								\$27	\$1	\$2 \$33	\$96 \$697	
Residential LED Lighting Program	Subtotal				\$180	\$279	\$179	\$171	\$313	\$35	\$4	\$37	- \$60	\$61	\$120	\$245	\$456	\$283	\$371	\$1,128	- \$1,439	\$511	\$2,540	\$3,096	\$3,047	\$799 \$4,417	\$697 \$5,608	
Service Initiatives																												
Power Smart Residential Loan Program Residential Earth Power Loan Program		: : :		1	1.1	1		1	1		1	\$45	\$76 \$2 \$0	\$20 \$47	\$9 \$97	\$0 \$343	\$1 \$872	\$9 -\$92 \$71	-\$1 \$71	-\$6 \$207 -\$19	-\$73 \$160 \$141	-\$37 \$102 \$101	-\$29 \$85 \$112 \$27	-\$72 \$125 -\$29 \$229	-\$63 \$258	-\$45 -\$46	\$64 \$8	
ecoEnergy Residential PAYS		: : :										\$0	\$0	\$0	\$0	-\$10	-\$42	\$71	\$163	-\$19	\$141	\$101	\$112	-\$29	\$1 \$43	\$0 \$27	\$130	
R-2000												\$45	\$78	\$66	\$105	\$333	\$831	\$12	\$232	\$182	\$229	\$166	\$196	\$252	\$239	327	\$203	
	Subtotal											\$45	\$78	\$66	\$105	\$333	\$831	-\$12	\$232	\$182	\$229	\$166	\$196	\$252	\$239	-\$64	\$203	
ued/Completed Residential Appliance Program														\$17	\$12	\$9	\$88	\$530	\$587	\$402	\$106	\$11	\$1		\$0	\$0		
New Homes Program Aboriginal Residential Program		: :		\$27	\$108	\$69	\$160	\$93	\$49	\$26	\$1	\$15	\$111	\$251	\$194	\$262	\$496 \$5 \$49	\$731 \$13 \$219	\$514	\$531	\$459	\$89	\$204	\$33	\$12	\$11		
Aboriginal Residential Program Seasonal LED Program		 \$93 \$145		\$109	\$46	- \$40				÷			-				\$49	\$219	\$240	\$271	\$2							
Sessonal LED Program Outdoor Timer Program Residential Hot Water Program	3		\$127 \$113	2104	540		\$14 \$1	\$2 \$47	\$20	\$12	\$0 \$3																	
Water Tank Rental Program Residential Thermostats Program		· · ·					\$14	\$302	\$304	\$59	\$4	-	-		\$8	\$4	\$7	\$46	- \$23	- \$4	\$0							
Decidential Detrofit Decorom		\$43	\$18	\$84									-			\$12	\$43	-	-		-				-			
Residential Applaince Buy Back Program High Efficiency Furnace and Boiler Program		1 I.	\$18	\$8										\$14	\$25	\$5	\$61 \$3											
Residential Applaince Barl High Efficiency Furnace and Boller Program Energy Efficient Light Fixtures Program Compact Fluorescent Lighting Program														-	\$10	\$570	\$700	\$58 \$551	\$378	\$309 \$620	\$121 \$507	\$94 \$404	\$183	-	-			_
	Subtotal \$	\$93 \$187	\$277	\$229	\$154	\$109	\$190	\$444	\$379	\$99	\$8	\$15	\$111	\$283	\$18 \$256	\$862	\$1,452	\$2,147	\$655 \$2,396	\$620 \$2,138	\$507 \$1,196	\$404 \$598	\$2 \$390	\$33	\$12	\$11		T
al Exploratory Programs LED Light Fixtures Program																					**			**	20			
Residential Solar Power Program		: :									1			1			1		1	1	\$0	\$2	\$2	\$0 -	\$0			
Residential Air Source Heat Pumps		· ·											-									-			-	\$13 \$0		
Residential Conservation Rates New Home Program (Re-design) Community Energy Plan		: :								1								1	1							÷0		
Community Energy Plan Smart Thermostats																											\$12 \$150	
Set Top Boxes Program		: : :																			\$20	\$1						
Exploratory Programs	_					•	•	•	•	•	•		•	•	•	•	•	•	•	•	\$20	\$3	\$2	\$0	\$0	\$13	\$162	
RESIDENTIAL TOTAL		\$93 \$187	\$277	\$229	\$334	\$388	\$368	\$615	\$692	\$135	\$12	\$97	\$249	\$410	\$481	\$1,439	\$2,739	\$2,418	\$3,000	\$3,448	\$2,884	\$1,278	\$3,128	\$3,382	\$3,298	\$4,377	\$5,973	
CIAL Based																												
Commercial Lighting Program		· ·	\$74	\$592	\$675 \$10	\$568 \$35	\$471 \$58	\$330 \$27	\$435 \$58	\$330 \$21	\$249 \$10	\$273 \$32	\$341 \$67	\$706 \$123	\$972 \$249	\$1,691 \$131	\$1,686 \$185	\$2,036 \$189	\$1,975	\$1,817 \$129	\$1,879 \$119	\$1,850	\$1,846	\$1,767 \$82	\$1,858 \$87	\$2,417 \$115	\$2,119 \$145	
Commercial Earth Dower Program Commercial Insulation Program Commercial Windows Program										\$21								\$189 \$133 \$146	\$205 \$137 \$155	\$43 \$99	\$119 \$44 \$114	\$97 \$31 \$117	\$121 \$30 \$116	\$82 \$148 \$169			\$145 \$79 \$125	
Commercial Windows Program		: · · ·	- \$80	- \$193	\$5 \$330	\$19	\$31	\$60	\$58 \$134	\$6 \$179	\$1 \$91	\$20	\$11 \$115	\$36	\$27	\$54 \$630	\$49 \$550	\$146 \$4,556	\$155	\$99	\$114	\$117 \$1,852	\$116	\$169	\$198 \$184 \$760	\$227 \$214 \$279	\$125	
Internal Retrofit Program Commercial Custom Measures Program		: :	- 280	ə 193	\$330 \$14	\$404 \$48	\$120 \$79	\$159 \$37	3134	\$179 \$71	\$91 \$71	\$239 \$65	\$115	\$242 \$51	\$538 \$55	\$630	\$1	\$74	\$4,253 \$33	\$2,609 \$204	\$2,120 \$85	\$89	\$745 \$138	\$812 \$11	\$760 \$7	\$378 \$14	\$34	
Commercial Refrigeration Program		1			1.1	1	1	1	1		1			1			\$217 \$65	\$205 \$20	\$187 \$13	\$93 \$13	\$95 \$17	\$83 \$16	\$134 \$17	\$120 \$10	\$113 \$16	\$154 \$78	\$96 \$60	
HVAC Program Commercial HVAC Program - HRVs				-							-	-	-	-	-		405	***									\$2	
Commercial Kitchen Appliances Program Power Smart Shops Program		: : :		1	1.1	1		1	1		1			1	1		1	1	\$1	\$45 \$60	\$35 \$237	\$13 \$138	\$18 \$46	\$8	\$2 \$6	\$9 \$40	\$260 \$34 \$96 \$60 \$2 \$12 \$178	
Commonaid Building Optimization Drogram		· ·											-	\$0			\$168	\$55	\$38	\$20	\$17	\$27	\$27	\$68	\$77	\$33		
New Buildings Program		: :																1	1	\$20 \$95	\$63 \$161	\$70 \$179	\$23 \$187	\$6 \$37	\$8 \$268	\$5 \$397 \$726	\$2 \$204	
Network Energy Manager Program New Buildings Program LED Roadway Lighting Program HVAC - CO2 Sensors Program		: :		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	\$1	\$1	\$1	- \$1	\$2	\$11	\$5	\$2 \$204 \$865 \$30	
	Subtotal		\$154	\$785	\$1,035	\$1,074	\$759	\$614	\$686	\$607	\$421	\$629	\$614	\$1,159	\$1,842	\$2,514	\$2,921	\$7,414	\$6,997	\$5,247	\$4,989	\$4,563	\$3,451	\$3,239	\$3,596	\$4,811	\$4,529	
Service Initiatives Commercial PAYS																								\$123	\$76	\$131		
ued/Completed																								\$123 \$123	\$76 \$76	\$131		
Commercial Commerchansius Departom		- \$43	\$61	\$24	\$3	\$87																						
Power Smart Energy Manager		\$12	\$105	- \$23	\$4													\$1		\$112	\$86	\$108	\$22		\$0	\$0	\$13	
Power Smart Energy Manager Infared Heat Lamps Program Livestock Waterer Program						\$96	\$85 \$13	\$62	\$18	\$3																		
		- \$74 - \$21	\$1,015 \$895	\$1,459 \$764	\$1,364 \$803	\$1,053	\$13		\$36		1						1		1						-			
Sentinel Light Program City Of Winnipeg Power Smart Agreement Program Commercial Oothers Washers Program Commercial Air Barriers Program Agricultural Demand Controller Program							-						-	\$4	\$1,803	\$911	\$895	\$409	\$52	\$62	\$44	\$41	0.05	\$7	\$1	\$2		
Commercial Clothes washers Program Commercial Air Barriers Program		: :			\$6	\$20	\$33	\$60	\$58	\$1	\$1	\$14	\$9	\$8	\$8	\$4	\$1	1	\$1	\$34	\$38	\$41	\$35	\$29	\$22	\$2		
Agricultural Demand Controller Program HVAC - Chillers			\$22	\$314	\$109 \$0	\$1	-	\$60	\$58				- \$2	\$17		\$10	\$2			\$0					\$1	\$1		
Aboriginal Commercial Program		: :		1			\$2 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$O	\$0	- \$0	\$0	\$0				a1 -			
Commercial Parking Lot Controllers Commercial Spray Valves Program Agricultural Heat Pads Program		: :			\$28	\$96	\$158	\$60	\$58	\$53	\$4	\$26	\$130	\$76	\$188	\$254	\$455	\$168 \$12	\$113 \$14	\$141 \$5	\$144 \$6	\$79 \$1	\$31 \$0	\$1 \$0	- \$0	\$1		
Agricultural Heat Pads Program	Subtotal	- \$149	\$2,099	\$2,583	\$2,316	\$1,353	\$2 \$293	\$51 \$293	\$27 \$256	\$32 \$89	\$24 \$29	\$17 \$57	\$20 \$161	\$27 \$132	\$23 \$2,022	\$72 \$1,251	\$40 \$1,394	\$40	\$27 \$207	\$18 \$372	\$31 \$349	\$27 \$177	\$8	\$1 \$37	\$2 \$25	\$3 \$6	\$13	
al Evnivration, Dromane	Subiotal	- 3149	\$2,099	az,063	32,310	31,303	3273	3273	3200	307	327	201	3101	\$134	32,022	81,201	e1,374	\$030	\$201	3312	3347	\$177		221	320	30	913	
ial Exploratory Programs Race To Reduce Program Heat Recovery Ventilation Program																						÷				, er	\$7	
Heat Recovery Ventilation Program											-								-			\$0 \$0	\$1 \$1			\$6 \$6	\$7	-
COMMERCIAL TOTAL	=	- \$149	\$2,253	\$3,368	\$3,351	\$2,427	\$1,052	\$907	\$941	\$696	\$450	\$686	\$775	\$1,291	\$3,864	\$3,765	\$4,314	\$8,044	\$7,204	\$5,620	\$5,338	\$4,741	\$3,432	\$3,399	\$3,697	\$4,954	\$4,550	
IAL																												
Performance Optimization Program	Subtotal		\$59 \$59	\$130 \$130	\$170 \$170	\$250 \$250	\$188 \$188	\$226 \$226	\$207 \$207	\$161 \$161	\$177 \$177	\$170 \$170	\$244 \$244	\$1,680 \$1,680	\$350 \$350	\$172 \$172	\$311 \$311	\$373 \$373	\$481 \$481	\$575 \$575	\$438 \$438	\$395 \$395	\$409 \$409	\$356 \$356	\$367 \$367	\$371 \$371	\$375 \$375	+
ed/Completed Industrial (Basic) Program																												
Industrial (GSL) Program			\$43	\$196	\$204	\$153	\$292	\$271	\$252	\$36	\$9	\$4						\$35							-			
Industrial (GSL) Program High Efficiency Motors Program Emergency Preparedness Program		- \$15	\$186	\$239	\$190	\$169	\$185	\$206	\$265	\$36	\$2			1	1	1	1	1	1	\$0 \$80	\$69	\$7	\$1	\$0	\$0	\$0		
Efficient Motors (QMR) Program	Subtatal	\$15	\$229	\$16	\$37 \$431	\$14	\$3	\$477	\$517	\$73	\$11	÷.			-			625		\$81	\$69	67		-	-	-		-
	Subtortal			+				+			***	34		-				230			+=-	21	31	30	30	30		
INDUSTRIAL TOTAL	_	. \$15	\$288	\$580	\$601	\$586	\$669	\$703	\$724	\$234	\$188	\$174	\$244	\$1,680	\$350	\$172	\$311	\$409	\$481	\$656	\$508	\$402	\$410	\$357	\$367	\$371	\$375	
CY PROGRAMS SUBTOTAL	5	\$93 \$351	\$2,818	\$4,177	\$4,286	\$3,401	\$2,089	\$2,225	\$2,358	\$1,065	\$650	\$957	\$1,269	\$3,380	\$4,696	\$5,376	\$7,364	\$10,871	\$10,684	\$9,723	\$8,729	\$6,420	\$6,970	\$7,138	\$7,362	\$9,702	\$10,897	-
R SELF-GENERATION PROGRAMS Bioenergy Optimization Program																		\$1,764	\$1,556	\$73	\$286	\$306	\$520	\$348	\$13	\$537	\$360	
Bioenergy Optimization Program Customer Sited Load Displacement	e																	\$1,764	01,000 01 EF1	3/3 870	3200	\$300	3020	3340	313	\$537 \$371	\$750	
	Subtotal																	\$1,764	\$1,056	\$13	3280	2006	\$520	\$348	\$13	\$909	\$1,110	
AD MANAGEMENT PROGRAMS Curtailable Rates Program	-			\$60	\$87	\$156	\$55	\$39	\$37	\$27	\$28	\$28	\$8	\$8	\$12	\$15	\$9	\$7	\$9	\$5	\$6	\$7	\$9	\$5	\$5	\$5	\$4	
Support Costs	=	- \$235	\$2,346	\$2,872	\$2,089	\$1,181	\$1,438	\$1,184	\$957	\$1,260	\$1,835	\$2,533	\$2,288	\$2,997	\$3,055	\$3,286	\$3,108	\$6,538	\$6,399	\$5,805	\$5,003	\$3,775	\$6,870	\$4,859	\$3,984	\$4,374	\$3,429	
		93 \$586	\$5.165																									
GRAND TOTAL																												100

#### 2016 Demand Side Management Plan Annual Incentive Costs (1989/90 - 2015/16) (000's \$)

																											Interim Estimate 2015/16	Cumulati
	1985	/90 1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2015/1
RESIDENTIAL Incentive Based																												
Home Insulation Program		-									-		-	-		\$431	\$636	\$1,523	\$1,269	\$1,455	\$1,478	\$1,144	\$1,016	\$826	\$687	\$1,133	\$1,048	\$12,647
Affordable Energy Program Lower Income First Nations Program											-							\$96	\$39	\$296	\$746	\$592	\$64	\$88	\$62	\$1,298	\$3,711	\$6,993
Refrigerator Retirement Program		-											-					-		-			\$319	\$361	\$358	\$370	\$536	\$1,943
Community Geothermal Program Behavioral Energy Efflicicency Program		-						-		-	-		-	-	-	-		-	-	-	-				\$245	\$236	\$208	\$689
Drain Water Heat Recovery																										\$30	\$12	\$42
Water and Energy Saver Program		-									-		-					-	-	-		\$370	\$184	\$417	\$119	\$137	\$197	\$1,426
Solar Water Heater Program New Homes Program (Re-design)		-																	-									
Residential LED Lighting Program																										\$1,862	\$1,813	\$3,675
	Subtotal -	-	-		-			-		-	-		-	-	-	\$431	\$636	\$1,619	\$1,308	\$1,752	\$2,224	\$2,106	\$1,583	\$1,693	\$1,472	\$5,066	\$7,526	\$27,416
Discontinued/Completed																												
Discontinued/Completed Residential Appliance Program New Homes Program	-	-					-				-		-					\$922	\$1,295	\$1,307	\$288	\$0		\$1			-	\$3,812 \$689
New Homes Program Aboriginal Residential Program		-														\$10	\$61	\$120	\$108	\$100	\$112	\$120	\$46	\$12				\$689
Seasonal LED Program																	\$29	\$149	\$109	\$66	\$21							\$373
Outdoor Timer Program Residential Hot Water Program	\$3	1 \$45	\$40 \$6	\$24	\$21			-	- \$0	- \$0	- \$0		-					-	-							-	-	\$161
Water Tank Rental Program		-	- 50					-		\$0 \$0	\$0																-	\$6 \$0
Residential Thermostats Program																		\$21	\$10	\$5								\$36
Residential Retrofit Program Residential Applaince Buy Back Program			\$17				\$3				-							\$23	-									\$36 \$3 \$40
High Efficiency Furnace and Boller Program Energy Efficient Light Fixtures Program		-	-										-					-		-							-	
Energy Efficient Light Fixtures Program	-	-					-				-		-			- \$141	- \$243	\$88 \$218	\$100 \$243	\$69	\$62 \$1.061	\$147	\$128				-	\$595
Compact Fluorescent Lighting Program	Subtotal \$3	- 1 \$45	\$64	- \$24	\$21		- \$3	\$0		- \$0		-	-	-	-	\$141 \$151	\$243 \$333	\$218 \$1,541	\$243 \$1,865	\$643 \$2,191	\$1,061 \$1,543	\$593 \$860	\$174	\$13	-	-		\$3,143 \$8,859
Residential Exploratory Programs LED Light Fixtures Program Residential Solar Power Program																												
Residential Solar Power Program	-			-			-		-		-		-		-	-	-	-	-	-		-	-					
Residential Air Source Heat Pumps				-		-	-				-				-	-			-	-			-			\$0		\$0
Residential Conservation Rates New Home Program (Re-design)	-										-																	
Community Energy Plan				-		-	-	-	-		-			-	-				-				-			-		
Smart Thermostats Set Top Boxes Program			-	-	-	-	-	-		-	-		-	-	-			-	-	-	-		-		-	-		-
Exploratory Programs								-		-				-	-											\$0		\$0
RESIDENTIAL TOTAL	\$3	1 \$45	\$64	\$24	\$21		\$3	\$0		\$0			-			\$582	\$969	\$3,161	\$3,172	\$3,943	\$3,767	\$2,966	\$1,757	\$1,705	\$1,472	\$5,067	\$7,526	\$36,275
COMMERCIAL																												
Incentive Based				\$211	\$1.088			\$575	\$347	\$1.241	\$469	\$266	\$512	\$327	\$1.382	\$3.070	\$4,194	\$4 842	\$5.267	\$5.861	\$5.325	\$4,754	\$4.503	\$6.005	\$4,784	\$4 777	\$5.910	\$68.910
Commercial Lighting Program Commercial Earth Power Program				\$211	\$1,088	\$1,545	\$1,655	\$575	\$347 \$114	\$1,241 \$70	\$469 \$97	\$266 \$58	\$512 \$74	\$327 \$122	\$1,382 \$308	\$3,070 \$114	\$4,194 \$285	\$4,842 \$406	\$5,267 \$137	\$5,861	\$261	\$4,754 \$199	\$4,503 \$169	\$6,005	\$4,784 \$81	\$4,77	\$85	\$2,953
Commercial Insulation Program Commercial Windows Program		-						-										\$69	\$111	\$193	\$183 \$887	\$233	\$202 \$871	\$304	\$319	\$359	\$353 \$359	\$2,327 \$6,832
Commercial Windows Program		-						\$37	\$72	\$42	\$34	\$42	\$46	\$97	\$77	\$162	\$245	\$226	\$214	\$339	\$887	\$1,092	\$871	\$759	\$629	\$601	\$359 \$447	\$6,832 \$447
Internal Retrofit Program Commercial Custom Measures Program		-						\$23		\$100	\$352	\$43	\$43	\$18	\$81	\$3	\$6	\$39	\$149	\$33	\$123	\$140	\$99	\$46	\$7	\$4	\$447	\$447 \$1,353
Commercial Refrigeration Program		-											-					\$87	\$98	\$81	\$86	\$86	\$201	\$494	\$538	\$752	\$419	\$2.842
HVAC Program Commercial HVAC Program - HRVs		-					-				-		-				\$97	\$172	\$56	\$198	\$143	\$295	\$192	\$140	\$177	\$296	\$360	\$2,126
Commercial Kitchen Appliances Program		-																		\$44	\$47	\$23	\$13	\$3	\$2	\$9	\$59	\$200
Power Smart Shops Program Commercial Building Optimization Program								-			-						-		-		\$2 \$9	\$3 \$9		\$0			\$46 \$11	\$52 \$121
Commercial Building Optimization Program Network Energy Manager Program											-								\$2	\$7	\$9 \$4	\$9 \$12	\$13	\$24	\$48 \$47	- \$10	\$11	\$121 \$76
New Buildings Program		-											-					\$2	\$135	-	-	\$109	\$111	\$79	\$325	\$949	\$1,239	\$2,949
LED Roadway Lighting Program HVAC - CO2 Sensors Program	-	-					-				-		-					-	-	-							\$12,833	\$12,833
HVAC - CO2 Sensors Program	Subtotal -			\$211	- \$1.088	\$1.545	- \$1.655	\$658	\$533	- \$1.452	\$951	\$408	\$674	\$564	- \$1.848	\$3.349	- \$4.828	\$5.843	- \$6.170	- \$6.846	\$7.070	\$0.955	\$6.376	\$1 \$8.037	\$0 \$6.957	\$2 \$7.835	\$29 \$22,197	\$32
Discontinued/Completed Commercial Comprehensive Program			\$20																									\$20
Power Smart Energy Manager																			\$77	\$3				\$0				\$20 \$80
Infared Heat Lamps Program	-	-	\$90								-		-					-	-	-								\$90 \$36 \$0 \$0
Livestock Waterer Program Street Light Program				\$0		\$15 \$0	\$13	\$8		1																		\$36
Sentinel Light Program City Of Winnipeg Power Smart Agreement Program				\$0																								\$0
City Of Winnipeg Power Smart Agreement Program	-	-									-		-		\$684	\$839	\$3,389	\$1,320	\$142 \$53	-	- \$98	\$157	\$71	630	-	-		\$6,474
Commercial Clothes Washers Program Commercial Air Barriers Program								\$14	\$2	\$2	\$8	\$13	\$9	\$7	\$8	\$2	\$2		\$53	\$9 -	- 240	\$23	\$28	\$30	\$26			\$267 \$72
Agricultural Demand Controller Program				\$122	\$43	-	-								-	-			-	-		-						\$164
HVAC - Chillers Aborininal Commercial Program								\$1	\$0				\$3	\$29		\$112	\$8							\$1	- \$0			\$154
Aboriginal Commercial Program Commercial Parking Lot Controllers	-			-			-	\$26	\$20	\$96	\$13	\$17	\$41	\$20	\$62	\$70	\$530	\$699	\$455	\$234	\$361	\$447	\$250	\$9	-	-		\$0 \$3,348
Commercial Spray Valves Program				-		-	-				-	-	-	-	-			\$24	\$13	\$17	\$3	\$4	-	\$0		-		\$60
Agricultural Heat Pads Program	· · · · · · · · · · · · · · · · · · ·	-	\$110	\$122	\$43	\$15	\$13	\$50	\$22	\$39 \$136	\$49 \$69	\$22 \$52	\$31 \$84	\$31 \$87	\$29 \$783	\$44	\$27 \$3.956	\$22 \$2.065	\$32 \$776	\$24 \$287	\$83 \$545	\$71	\$350		\$26	-		\$504 \$11,270
	Subtotal -																											
Commercial Exploratory Programs	Subtotal -																											
Race To Reduce Program	Subtotal -																											
Race To Reduce Program Heat Recovery Ventilation Program	Subtotal -		-	-	-	1	1	-	-	:	-	-	-	-	-	-	-	:	-	-	:	-	-	-	-	-		
Race To Reduce Program Heat Recovery Ventilation Program	Subtotal - 	-		-	-		-	-	-		-	:	-	-	-		:	-			-		-	-		-		
Heat Recovery Ventilation Program	Subtotal -		- - - \$110	\$333	\$1,131	\$1,560	- - - \$1,668	- - - \$707	\$555	\$1,589	- - \$1,020	- - \$461		- - \$651	- - \$2,631	- - \$4,416	- - \$8,784		- - \$6,946	- - - \$7,133	\$7,615		\$6,726	\$7,949	- - \$6,984		- - \$22,197	\$115,32
Heat Recovery Ventilation Program	Subtotal - - - - -		- - \$110	\$333	\$1,131	- - \$1,560	- - - \$1,668	- - \$707	- - \$555	- - - \$1,589	- - \$1,020	- - \$461	- - \$759	- - \$651	- - \$2,631	- - \$4,416	- - - \$8,784	- - \$7,908	- - \$6,946	- - \$7,133	- - - \$7,615	- - \$7,658	- - \$6,726	- - \$7,949	- - \$6,984	- - - \$7,835	- - \$22,197	\$115,32
Heat Recovery Ventilation Program COMMERCIAL TOTAL INDUSTRIAL	Subtotal - - 	- - -	- - - \$110	\$333	- - \$1,131	- - \$1,560	- - \$1,668	\$707	- - \$555	\$1,589												\$7,658					- - - \$22,197	
Heat Recovery Ventilation Program	Subtotal -	-	- - - \$110 -	\$333	- - - \$1,131	- - - \$1,560 \$106 \$106	\$1,668 \$181 \$181	\$707 \$115 \$115	- - \$555 \$297 \$297	- - \$1,589 \$149 \$149	\$1,020 \$34 \$34	- - \$461 \$163 \$163	- - \$759 \$617 \$617	\$651 \$1,103 \$1,103	- - \$2,631 \$706 \$706	\$4,416 \$1,298 \$1,298	- - - \$8,784 \$1,258 \$1,258	- - \$7,908 \$653 \$653	- - \$6,946 \$2,646 \$2,646	57,133 \$7,133 \$1,914 \$1,914		- - - \$7,658 \$2,354 \$2,354	- - \$6,726 \$2,529 \$2,529	- - - \$7,949 \$2,389 \$2,389	- - - \$6,984 \$1,807 \$1,807	\$7,835 \$1,591 \$1,591	\$22,197 \$1,570 \$1,570	
Heat Recovery Ventilation Program COMMERCIAL TOTAL INDUSTRIAL Performance Optimization Program Discontinued/Combited	Subtotal -	-	- - \$110	\$333	- - \$1,131 - -	- - \$1,560 \$106 \$106	- - - \$1,668 \$181 \$181	- - - \$707 \$115 \$115	- - \$555 \$297 \$297	- - - \$1,589 \$149 \$149	\$34	\$163	\$617	\$1 103	\$706	\$1 298	\$1.258	\$653	\$2.646	\$1 914	\$7,615 \$2,452 \$2,452	- - - \$7,658 \$2,354 \$2,354		\$2 389	\$1.807	\$1 591	\$22,197 \$1,570 \$1,570	\$115,32 \$25,932 \$25,932
Heat Recovery Verillation Program COMMERCIAL TOTAL INDUSTRIAL Performance Optimization Program Discontinued/Completed Industrial (Bask) Program	Subtotal -		\$110	\$333	- - \$1,131 - - - \$38	\$106	\$181	- - \$707 \$115 \$115	- - \$555 \$297 \$297	\$149	\$34	\$163	\$617	\$1 103	\$706	\$1 298	\$1.258	\$653	\$2.646	\$1 914		\$7,658 \$2,354 \$2,354		\$2 389	\$1.807	\$1 591	\$22,197 \$1,570 \$1,570	\$25,932 \$25,932 -
Heat Recovery Ventilation Program COMMERCIAL TOTAL INDUSTRIAL Performance Optimization Program Discontinued/Compiletid Industrial (GBS) Program High Efficiency Motors Program	Subtotal - 	- - - - - - - -	- - \$110 - - \$25	\$333 \$333	\$1,131	\$1,560 \$106 \$106 \$106 \$290 \$177	- - - \$1,668 \$181 \$181 \$488 \$139	- - - \$707 \$115 \$115 - \$155	- - - \$555 \$297 \$297 - \$229	\$1,589 \$149 \$149 \$149 \$30	\$34	\$163	\$617	\$1 103	\$706	\$1 298	\$1.258	\$653	\$2.646	\$1 914		- - \$7,658 \$2,354 \$2,354 - -		\$2 389	\$1.807	\$1 591	\$22,197 \$1,570 \$1,570	
Hat Recovery Ventilation Program COMMERCIAL TOTAL NDUSTRIAL Performance Optimization Program Industrial (IGSA) Program Industrial (IGSA) Program Environment Prostandhoise Program	Subtotal -		- - - - - - - - - - - - - - - - - - -	- - - - - - - - - - - - - - - - - - -	- - - - - - - - - - - - - - - - - - -	\$106	\$181			\$149	\$34	\$163	\$617	\$1 103	\$706	\$1 298	\$1.258	\$653	\$2.646	\$1 914		- - - \$7,658 \$2,354 \$2,354 - - -		\$2 389	\$1.807	\$1 591	- - - \$1,570 \$1,570	\$25,932 \$25,932 - \$871
Heat Recovery Ventilation Program COMMERCIAL TOTAL INDUSTRIAL Performance Optimization Program Discontinued/Compiletid Industrial (GBS) Program High Efficiency Motors Program	Subtotal -	-		- - - - - - - - - - - - - - - - - - -	- - - - - - - - - - - - - - - - - - -	\$106	\$181			\$149	\$34	\$163	\$617	\$1 103	\$706	\$1 298	\$1.258	\$653	\$2.646	\$1 914		- - - \$2,354 \$2,354 - - - -		\$2 389	\$1.807	\$1 591	- - \$22,197 \$1,570 \$1,570	\$25,932 \$25,932 - \$871 \$1,247 -
Heat Recovery Ventilation Program COMMERCIAL TOTAL NDUSTRIAL Performance Optimization Program Industrial (Bask) Program Industrial (GSJ) Program High Efficiency Motors Program Emergency Preparedness Program Efficient Motors (OMR) Program	Subtotal	-	\$25	\$283 - - \$309	\$23B - - \$277	\$106 \$290 \$177 - - \$467	\$181 \$488 \$139 - - - \$627	\$155 - \$155	\$229 - \$229	\$149 \$30 - - - \$30	\$34 \$34 - - - - -	\$163 \$163 - - - - - -	\$617 \$617 - - - - -	\$1,103 \$1,103 - - - - -	\$706 \$706 - - - -	\$1,298 \$1,298 - - - - - -	\$1,258 \$1,258 - - - - -	\$653 \$653 - - - - -	\$2,646 \$2,646 - - - -	<u>\$1,914</u> \$1,914 - - - - -	\$2,452 \$2,452 - - - - - - -	-	\$2,529 \$2,529 - - - -	\$2,389 \$2,389 - - - - - -	\$1,807 \$1,807 - - - - - -	\$1,591 \$1,591 - - - - - -	\$1,570	\$25,932 \$25,932 \$871 \$1,247 \$2,118
Hat Recovery Ventilation Program COMMERCIAL TOTAL NDUSTRIAL Performance Optimization Program Industrial (IGSA) Program Industrial (IGSA) Program Environment Prostandhoise Program	Subtotal	-		\$283	\$238	\$106 \$290 \$177	\$181 \$488 \$139 -	\$155 -	- \$229 -	\$149 \$30 - -	\$34	\$163	\$617	\$1 103	\$706 \$706 - - - -	\$1 298	\$1.258	\$653	\$2.646	\$1 914		- - \$7,658 \$2,354 \$2,354 - - - - - - - - - - - - - - - - - - -		\$2 389	\$1.807	\$1 591	- - \$22,197 \$1,570 \$1,570	\$25,932 \$25,932 - \$871 \$1,247 -
Heat Recovery Veriliation Program COMMERCIAL TOTAL NDUSTRIAL Performance Optimization Program Industrial (Bask) Program Industrial (Bask) Program Industrial (Bask) Program Emergency ProgramConservation Emergency ProgramConservation Efficient Motors (OMR) Program	Subtotal	- - - - - - - - - - - - - - - - - - -	\$25	\$283 - - \$309	\$23B - - \$277	\$106 \$290 \$177 - - \$467	\$181 \$488 \$139 - - - \$627	\$155 - \$155	\$229 - \$229	\$149 \$30 - - - \$30	\$34 \$34 - - - - -	\$163 \$163 - - - - - -	\$617 \$617 - - - - -	\$1,103 \$1,103 - - - - -	\$706 \$706 - - - - - - - - - - - - - - - - - - -	\$1,298 \$1,298 - - - - - - - - - - - - - - - - - - -	\$1,258 \$1,258 - - - - -	\$653 \$653 - - - - - - - - - - - - - - - - - - -	\$2,646 \$2,646 - - - - - - - - - - - - - - - - - -	\$1,914 \$1,914 - - - - - - - - - - - - - - - - - - -	\$2,452 \$2,452 - - - - - - -	\$2,354	\$2,529 \$2,529 - - - - - - - - - - - - - - - - - - -	\$2,389 \$2,389 - - - - - -	\$1,807 \$1,807 - - - - - - - - - - - - - - - - - - -	\$1,591 \$1,591 - - - - - -	\$1,570	\$25,932 \$25,932 \$871 \$1,247 \$2,118
Heat Recovery Ventilation Program COMMERCIAL TOTAL NDUSTRIAL Performance Optimization Program Industrial (GSS) Program Industrial (GSS) Program High Efficiency Motors Program Emergency Pregramations Program Emergency Industrial (GSS) Program Emergency Industrial (GSS) Program Efficiency Motors Program Efficiency Motors Program INDUSTRIAL TOTAL	Subtotal	- - - - - - - - - - - - - - - - - - -	- \$25 \$25	\$283 - \$309 \$309	\$238 \$277 \$277	\$106 \$290 \$177 \$467 \$572	\$181 \$488 \$139 \$627 \$808	\$155 - \$155 \$269	\$229 - \$229 \$229 \$526	\$149 \$30 - - \$30 \$30 \$179	\$34 \$34 - - - - - - - - - - - - - - - - - - -	\$163 \$163 - - - - - - - - - - - - - - - - - - -	\$617 \$617 - - - - - - - - - - - - - - - - - - -	\$1,103 \$1,103 - - - - - - - - - - - - - - - - - - -	\$706 \$706 - - - - - - - - - - - - - - - - - - -	\$1,298 \$1,298 - - - - - - - - - - - - - - - - - - -	\$1,258 \$1,258 - - - - - - - - - - - - - - - - - - -	\$653 \$653 - - - - - - - - - - - - - - - - - - -	\$2,646 \$2,646 - - - - - - - - - - - - - - - - - -	\$1,914 \$1,914 - - - - - - - - - - - - - - - - - - -	\$2,452 \$2,452 - - - - - - - - - - - - - - - - - - -	\$2,354	\$2,529 \$2,529 - - - - - - - - - - - - - - - - - - -	\$2,389 \$2,389 - - - - - - - - - - - - - - - - - - -	\$1,807 \$1,807 - - - - - - - - - - - - - - - - - - -	\$1,591 \$1,591 - - - - - - - - - - - - - - - - - - -	\$1,570 - \$1,570	\$25,932 \$25,932 \$871 \$1,247 \$2,118 \$28,051
Hast Recovery Ventilation Program COMMERCIAL TOTAL INDUSTRIAL Performance Optimization Program Industrial (Bask) Program Industrial (Bask) Program Industrial (Bask) Program Efficient Motors (CMR) Program Efficient Motors (CMR) Program INDUSTRIAL TOTAL EFFICIENCY PROGRAMS SUBTOTAL	Subtotal	- - - - - - - - - - - - - - - - - - -	- \$25 \$25	\$283 - \$309 \$309	\$238 \$277 \$277	\$106 \$290 \$177 \$467 \$572	\$181 \$488 \$139 \$627 \$808	\$155 - \$155 \$269	\$229 - \$229 \$229 \$526	\$149 \$30 - - \$30 \$30 \$179	\$34 \$34 - - - - - - - - - - - - - - - - - - -	\$163 \$163 - - - - - - - - - - - - - - - - - - -	\$617 \$617 - - - - - - - - - - - - - - - - - - -	\$1,103 \$1,103 - - - - - - - - - - - - - - - - - - -	\$706 \$706 - - - - - - - - - - - - - - - - - - -	\$1,298 \$1,298 - - - - - - - - - - - - - - - - - - -	\$1,258 \$1,258 - - - - - - - - - - - - - - - - - - -	\$653 \$653 - - - - - - - - - - - - - - - - - - -	\$2,646 \$2,646 - - - - - - - - - - - - - - - - - -	\$1,914 \$1,914 - - - - - - - - - - - - - - - - - - -	\$2,452 \$2,452 - - - - - - - - - - - - - - - - - - -	\$2,354 \$12,978	\$2,529 \$2,529 - - - - - - - - - - - - - - - - - - -	\$2,389 \$2,389 - - - - - - - - - - - - - - - - - - -	\$1,807 \$1,807 - - - - - - - - - - - - - - - - - - -	\$1,591 \$1,591 - - - - - - - - - - - - - - - - - - -	\$1,570 - \$1,570 \$1,570 \$31,292	\$25,932 \$25,932 \$871 \$1,247 \$2,118 \$28,051 \$179,650
Heat Recovery Verillation Program COMMERCIAL TOTAL INDUSTRIAL Performance Optimization Program Industrial (GSA) Program Industrial (GSA) Program Emission Program Emission Holdners (Jolkik) Program	Subtotal	- - - - - - - - - - - - - - - - - - -	- \$25 \$25	\$283 - \$309 \$309	\$238 \$277 \$277	\$106 \$290 \$177 \$467 \$572	\$181 \$488 \$139 \$627 \$808	\$155 - \$155 \$269	\$229 - \$229 \$229 \$526	\$149 \$30 - - \$30 \$30 \$179	\$34 \$34 - - - - - - - - - - - - - - - - - - -	\$163 \$163 - - - - - - - - - - - - - - - - - - -	\$617 \$617 - - - - - - - - - - - - - - - - - - -	\$1,103 \$1,103 - - - - - - - - - - - - - - - - - - -	\$706 \$706 - - - - - - - - - - - - - - - - - - -	\$1,298 \$1,298 - - - - - - - - - - - - - - - - - - -	\$1,258 \$1,258 - - - - - - - - - - - - - - - - - - -	\$653 \$653 - - - - - - - - - - - - - - - - - - -	\$2,646 \$2,646 - - - - - - - - - - - - - - - - - -	\$1,914 \$1,914 - - - - \$1,914 \$12,990 \$1,645 -	\$2,452 \$2,452 - - - \$2,452 \$13,834 \$1,201 -	\$2,354 \$12,978 \$1,298	\$2,529 \$2,529 - - - - - - - - - - - - - - - - - - -	\$2,389 \$2,389 - - - - - - - - - - - - - - - - - - -	\$1,807 \$1,807 - - - - - - - - - - - - - - - - - - -	\$1,591 \$1,591 - - - - - - - - - - - - - - - - - - -	\$1,570 - \$1,570 \$31,292 \$88 \$4,000	\$25,932 \$25,932  \$871 \$1,247  \$2,118 \$228,051 \$179,655 \$6,134
Heat Recovery Ventilation Program COMMERCIAL TOTAL INDUSTRIAL Performance Optimization Program Industrial (GSA) Program High Efficiency Motors Program Emetgency Pregarandiness Program Efficient Motors (QMR) Program Efficient Motors (QMR) Program INDUSTRIAL TOTAL EFFICIENCY PROGRAMS SUBTOTAL CUSTOMER SLIF-GENERATION PROGRAMS Biblenergy Optimization Program	Subtotal	- - - - - - - - - - - - - - - - - - -	- \$25 \$25	\$283 - \$309 \$309	\$238 \$277 \$277	\$106 \$290 \$177 \$467 \$572	\$181 \$488 \$139 \$627 \$808	\$155 - \$155 \$269	\$229 - \$229 \$229 \$526	\$149 \$30 - - \$30 \$30 \$179	\$34 \$34 - - - - - - - - - - - - - - - - - - -	\$163 \$163 - - - - - - - - - - - - - - - - - - -	\$617 \$617 - - - - - - - - - - - - - - - - - - -	\$1,103 \$1,103 - - - - - - - - - - - - - - - - - - -	\$706 \$706 - - - - - - - - - - - - - - - - - - -	\$1,298 \$1,298 - - - - - - - - - - - - - - - - - - -	\$1,258 \$1,258 - - - - - - - - - - - - - - - - - - -	\$653 \$653 - - - - - - - - - - - - - - - - - - -	\$2,646 \$2,646 - - - - - - - - - - - - - - - - - -	\$1,914 \$1,914 - - - - - - - - - - - - - - - - - - -	\$2,452 \$2,452 - - - - - - - - - - - - - - - - - - -	\$2,354 \$12,978	\$2,529 \$2,529 - - - - - - - - - - - - - - - - - - -	\$2,389 \$2,389 - - - - - - - - - - - - - - - - - - -	\$1,807 \$1,807 - - - - - - - - - - - - - - - - - - -	\$1,591 \$1,591 - - - - - - - - - - - - - - - - - - -	\$1,570 - \$1,570 \$31,292 \$88	\$25,932 \$25,932 \$871 \$1,247 \$2,118 \$28,051 \$179,650
Heat Recovery Vertilation Program COMMERCIAL TOTAL INDUSTRIAL Performance Optimization Program Industrial (GSA) Program Industrial (GSA) Program High Efficiency Motors Program Emotionery Program Efficient Motors (GMB) Program Efficient Motors (GMB) Program Efficient Motors (GMB) Program Efficient Motors (GMB) Program Efficient Rotors (GMB) Program Customer Stele Case Anton Program Customer Stele Land Displacement	Subtotal	- - - - - - - - - - - - - - - - - - -	- \$25 \$25	\$283 - \$309 \$309	\$238 \$277 \$277	\$106 \$290 \$177 \$467 \$572	\$181 \$488 \$139 \$627 \$808	\$155 - \$155 \$269	\$229 - \$229 \$229 \$526	\$149 \$30 - - \$30 \$30 \$179	\$34 \$34 - - - - - - - - - - - - - - - - - - -	\$163 \$163 - - - - - - - - - - - - - - - - - - -	\$617 \$617 - - - - - - - - - - - - - - - - - - -	\$1,103 \$1,103 - - - - - - - - - - - - - - - - - - -	\$706 \$706 - - - - - - - - - - - - - - - - - - -	\$1,298 \$1,298 - - - - - - - - - - - - - - - - - - -	\$1,258 \$1,258 - - - - - - - - - - - - - - - - - - -	\$653 \$653 - - - - - - - - - - - - - - - - - - -	\$2,646 \$2,646 - - - - - - - - - - - - - - - - - -	\$1,914 \$1,914 - - - - \$1,914 \$12,990 \$1,645 -	\$2,452 \$2,452 - - - \$2,452 \$13,834 \$1,201 -	\$2,354 \$12,978 \$1,298	\$2,529 \$2,529 - - - - - - - - - - - - - - - - - - -	\$2,389 \$2,389 - - - - - - - - - - - - - - - - - - -	\$1,807 \$1,807 - - - - - - - - - - - - - - - - - - -	\$1,591 \$1,591 - - - - - - - - - - - - - - - - - - -	\$1,570 - \$1,570 \$31,292 \$88 \$4,000	\$25,932 \$25,932  \$871 \$1,247  \$2,118 \$228,051 \$179,655 \$6,134
Heat Recovery Veriliation Program COMMERCIAL TOTAL NUUSTRIAL Performance Optimization Program Industrial (GSA) Program Industrial (GSA) Program High Efficiency Metrics Program Emergency Program Efficiency Metrics Program Efficiency Metrics Program Efficiency Metrics Program Efficiency Metrics Program Efficiency Records Program INDUSTRIAL TOTAL EFFICIENCY PROGRAMS SubTOTAL USTOMER SLIF-ER-INFANTON PROGRAMS Biolencogy Optimization Program Customer Sited Load Displacement	Subtotal	- - - - - - - - - - - - - - - - - - -	- \$25 \$25	\$283 - \$309 \$309	\$238 \$277 \$277	\$106 \$290 \$177 \$467 \$572	\$181 \$488 \$139 \$627 \$808	\$155 - \$155 \$269	\$229 - \$229 \$229 \$526	\$149 \$30 - - \$30 \$30 \$179	\$34 \$34 - - - - - - - - - - - - - - - - - - -	\$163 \$163 - - - - - - - - - - - - - - - - - - -	\$617 \$617 - - - - - - - - - - - - - - - - - - -	\$1,103 \$1,103 - - - - - - - - - - - - - - - - - - -	\$706 \$706 - - - - - - - - - - - - - - - - - - -	\$1,298 \$1,298 - - - - - - - - - - - - - - - - - - -	\$1,258 \$1,258 - - - - - - - - - - - - - - - - - - -	\$653 \$653 - - - - - - - - - - - - - - - - - - -	\$2,646 \$2,646 - - - - - - - - - - - - - - - - - -	\$1,914 \$1,914 - - - - \$1,914 \$12,990 \$1,645 -	\$2,452 \$2,452 - - - \$2,452 \$13,834 \$1,201 -	\$2,354 \$12,978 \$1,298	\$2,529 \$2,529 - - - - - - - - - - - - - - - - - - -	\$2,389 \$2,389 - - - - - - - - - - - - - - - - - - -	\$1,807 \$1,807 - - - - - - - - - - - - - - - - - - -	\$1,591 \$1,591 - - - - - - - - - - - - - - - - - - -	\$1,570 - \$1,570 \$31,292 \$88 \$4,000	\$25,932 \$25,932  \$871 \$1,247  \$2,118 \$228,051 \$179,655 \$6,134
Hast Recovery Ventilation Program COMMERCIAL TOTAL INDUSTRIAL Performance Optimization Program Industrial (GSA) Program Industrial (GSA) Program High Efficiency Motors Program Emergency Preparedness Program Emergency Preparedness Program Efficient Motors (QMR) Program INDUSTRIAL TOTAL EFFICIENCY REGRAMS SUBTOTAL CUSTOMER SELF-GENERATION PROGRAMS Bioenergy Optimization Program Customers Sied Load Displacement	Subtotal	- - - - - - - - - - - - - - - - - - -	- \$25 \$25	\$283 - \$309 \$309	\$238 \$277 \$277 \$1,428	\$106 \$290 \$177 - \$467 \$572 \$2,132 - -	\$181 \$488 \$139 \$627 \$808 \$2,479	\$155 \$155 \$269 \$977	\$229 5229 \$229 \$526 \$1,081	\$149 \$30 - - - - - - - - - - - - -	\$34 \$34 - - - - - - - - - - - - - - - - - - -	\$163 \$163 - - - - - - - - - - - - - - - - - - -	\$617 \$617 - - - \$617 - - - \$617 - - - - - - - - - - - - - - - - - - -	\$1,103 \$1,103 - - - \$1,103 - - - - - - - - - - - - - - - - - - -	\$706 \$706 - - - - - - - - - - - - - - - - - - -	\$1,298 \$1,298	\$1,258 \$1,258 - - - - - - - - - - - - - - - - - - -	\$653 \$653 - - - \$653 \$11,722 - - - \$6,344	\$2,646 \$2,646 - - - \$2,646 \$12,765 - -	\$1,914 \$1,914 - - \$1,914 \$1,914 \$12,990 \$1,645 - \$1,645	\$2,452 \$2,452 - - \$2,452 - - \$2,452 \$1,834 \$1,201 \$1,201	\$2,354 \$12,978 \$1,298 \$1,298	\$2,529 \$2,529	\$2,389 \$2,389 - - - - - - - - - - - - - - - - - - -	\$1,807 \$1,807 - - - - - - - - - - - - - - - - - - -	\$1,591 \$1,591 - - - - - - - - - - - - - - - - - - -	\$1,570 - \$1,570 \$31,292 \$88 \$4,000 \$4,088	\$25,932 \$25,932 \$871 \$1,247 \$2,118 \$28,051 \$179,65 \$6,134 \$4,302 \$10,437

Demand Side Management Plan 2016/17

SUPPLEMENTAL REPORT: 15 yr (2016 to 2031)

# APPENDIX C - 2016 DEMAND SIDE MANAGEMENT PLAN - NATURAL GAS

- Appendix C.1 Annual Energy Savings (million m<sup>3</sup>)
- Appendix C.2 Annual Utility Costs
- Appendix C.3 Annual Program Administration Costs
- Appendix C.4 Annual Program Incentive Costs

### 2016 Demand Side Management Plan Annual Energy Savings (million m<sup>3</sup>)

Name of the second seco		2	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Note into the interpret in the interpret i	DENTIAL																
Imput Statistics Function Statis Function Statistics Function Statistics Function S																	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	New Homes Program																
Protection         0.3         0.3         0.4 <th0.4< th="">         0.4         <th0.4< th=""> <th0.4< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th0.4<></th0.4<></th0.4<>																	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Water and Energy Program																
bits																	
Back         Back <th< td=""><td>HRV Controls</td><td></td><td></td><td></td><td>0.7</td><td>0.7</td><td>0.7</td><td>0.7</td><td></td><td></td><td>0.7</td><td>0.7</td><td>0.7</td><td></td><td>0.7</td><td></td><td></td></th<>	HRV Controls				0.7	0.7	0.7	0.7			0.7	0.7	0.7		0.7		
Production         0		Subtotal	3.0	5.8	8.3	10.3	11.5	13.2	14.9	16.4	17.6	18.8	19.9	20.6	21.7	22.7	23.5
Processed Late         Sol	omer Service Initiatives / Financial Loan Programs																
Network 10th Propertion         0	Power Smart Residential Loan		0.4	0.8	1.2	1.6	2.0	2.4	2.8	3.1	3.5	3.9	4.2	4.6	5.0	5.3	5.7
basic basic basic basic basic00001100 <td></td> <td>-0.3</td>																	-0.3
Mark         Mark <t< td=""><td></td><td> <del></del></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		<del></del>															
bit <td></td> <td>Subtotal</td> <td>0.4</td> <td>0.8</td> <td>1.2</td> <td>1.6</td> <td>2.0</td> <td>2.4</td> <td>2.8</td> <td>3.1</td> <td>3.5</td> <td>3.9</td> <td>4.3</td> <td>4.6</td> <td>5.0</td> <td>5.4</td> <td>5.7</td>		Subtotal	0.4	0.8	1.2	1.6	2.0	2.4	2.8	3.1	3.5	3.9	4.3	4.6	5.0	5.4	5.7
The set of	/ERCIAL																
Comments Matching Undeg:       Comments Matchi																	
Comment HVD, fragme Mone         10         21         22         23         24         25         26         27         28         00         31         3	Commercial Building Envelope - Windows Program										2.5						
Comment HWC PoigsOrganos:         0         0         0         10         11         12         12         13         11         11         11         10         10           Comment HWC PoigsOrganos:         0         0         0         10         11         12         12         13         11         11         11         11         10         10           Comment HWC PoigsOrganos:         0 </td <td></td>																	
General Life Vice Program       0       0.3       0.3       0.5       0.8       0.5       1.5	Commercial HVAC Program - Boilers																
Connected LVDC Program       0.1       0.2       0.4       0.4       0.8       0.1       1.1       1.1       1.7       2.0       2.4       2																	
Connection Galanti Mesure Program         0.1         0.2         0.2         0.2         0.2         0.2         0.2         0.3 </td <td>Commercial HVAC Program - Water Heaters</td> <td></td>	Commercial HVAC Program - Water Heaters																
Connecting big/spice/interval         0         0         0.2         0.4         0.6         0.9         1.2         1.4         1.7         2.9         2.4         2.7         2.9         2.2         3.5         3.7           considering hypers         -         -         0.0         <	Commercial Custom Measures Program																2.2
Commental Relative Propring         0.3<	Commercial Building Optimization Program		0.0	0.2	0.4	0.6	0.9	1.2	1.4	1.7	2.0	2.4	2.7	2.9	3.2	3.5	3.7
International field and program         .         0.0         0.1         0.																	
Proof Shart Derg/ Manager         -         -         0.0         0.1         0.3         0.4         0.5         0.7         0.8         0.9         1.1         1.2         1.3         1.3         1.3         1.3         0.1           More That Synth         3.5         4.0         0.2         11.4         1.0         0.1         0.2 <td< td=""><td>Commercial Kitchen Appliance Program</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Commercial Kitchen Appliance Program																
Note that Space         0			-	0.0													
Race in Race         0.3         0.5         0.7         0.8         0.1         1 <th1< th="">         1</th1<>	Power Smart Shons		-	-							0.8						
Sector         3.5         6.9         9.2         1.6         1.8         1.9         1.8         2.9         2.49         2.60         3.60         3.5         3.60 </td <td>Race to Reduce</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td>	Race to Reduce							-	-	-	-	-	-	-	-	-	-
Prover shares for biasines PAXS framing         0.0         0.0         0.1         0.1         0.1         0.1         0.2		Subtotal						15.9	18.8	21.9	24.9	28.0	30.8	33.5	36.0	38.6	41.2
Prove that for Balmes PAYS Funcing         0.0         0.0         0.1         0.1         0.1         0.1         0.1         0.2         <																	
Sketola         0 </td <td></td> <td></td> <td>0.0</td> <td>0.0</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.2</td>			0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
THL         Skotol         10         20         30         40         50         60         70         60         60         60         10 </td <td></td> <td>Subtotal</td> <td></td>		Subtotal															
Nurral Gis Optimization Program         10         2.0         3.0         4.0         5.0         6.0         7.0         8.0         9.0         10.0         11.0         12.0         13.0         14.0         14.0           ENERGY EFFCIENCY SUBTORIA         8.0         15.6         21.8         27.4         22.5         37.4         43.6         49.0         55.2         60.9         66.2         71.0         76.0         80.9         80.9           DISPACEMENT & ALTERNATIVE SUBTORIA         .		Subtotal	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0
Subtol         10         20         30         40         50         60         70         80         90         100         110         120         130         140         140           ENERGY EFFICIENCY SUBTOTAL         80         15.6         21.8         27.6         32.5         37.6         43.6         49.6         55.2         60.9         66.2         71.0         76.0         80.9         84.7           Biometry Optimization Program LOAD DISPACEMENT & ALTEMATIVE ENERGY SUBTOTAL         .																	
ENERGY EFFICIENCY SUBTORAL         80         15.6         21.8         27.6         25.5         37.6         43.6         49.6         55.2         60.9         66.2         71.0         76.0         80.9         86.7           DISPLACEMENT A LITENATIVE DEECK Control Side Load Degistrement Control Side Degistrement Control Side Degistrement Control Side Degistrement Control Side Degistrement Control Side Degistrement Control Side	Natural Gas Optimization Program	C. (14 - 1 - 1													10.0		
UNDER LACENT & ALTERNATIVE ENERGY BIORING QDIRINGION POGRAM LOAD DISPLACEMENT & ALTERNATIVE ENERGY SUBTORAL       1 <td></td> <td>Subtotal</td> <td>1.0</td> <td>2.0</td> <td>3.0</td> <td>4.0</td> <td>5.0</td> <td>6.0</td> <td>7.0</td> <td>8.0</td> <td>9.0</td> <td>10.0</td> <td>11.0</td> <td>12.0</td> <td>13.0</td> <td>14.0</td> <td>14.0</td>		Subtotal	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	14.0
Bioengry Oplinization Program       . <t< td=""><td>ENERGY EFFICIENCY SI</td><td>UBTOTAL</td><td>8.0</td><td>15.6</td><td>21.8</td><td>27.6</td><td>32.5</td><td>37.6</td><td>43.6</td><td>49.6</td><td>55.2</td><td>60.9</td><td>66.2</td><td>71.0</td><td>76.0</td><td>80.9</td><td>84.7</td></t<>	ENERGY EFFICIENCY SI	UBTOTAL	8.0	15.6	21.8	27.6	32.5	37.6	43.6	49.6	55.2	60.9	66.2	71.0	76.0	80.9	84.7
Bit market by Optimization Program       .																	
CLODD SPACEMENT       ·     <					-						-	-					_
LOAD DISPLACEMENT & ALTERNATIVE ENERCY SUBTORAL       ·       <			-							-							1.1
Fuel Choice       -      5.5       -11.1       -16.6       -22.1       -27.7       <	LOAD DISPLACEMENT & ALTERNATIVE ENERGY SI	UBTOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fuel Choice       - <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>																	
FUEL CHOICE SUBTOTAL       -       -5.5       -11.1       -16.6       -22.1       -27.7				E E	11.1	14.4	22.1	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7
Residential Solar Thermal Program - Pool Heating OTHER EMERGING TECHNOLOGIES SUBTORL       ·       0.0       0.0       0.0       0.1       0.1       0.1       0.2       0.2       0.2       0.3       0.3       0.4       0.5         Impacts       8.0       10.0       10.8       11.0       10.4       10.0       16.0       22.0       27.7       33.4       38.8       43.6       48.6       53.6       57.5         Interactive Effects       -3.5       -5.8       -7.7       -8.8       -10.1       -11.1       -11.8       -12.4       -13.0       -13.5       -13.5       -13.7       -14.4       -15.1       -15.8         Subtoral       4       4       3       2       0       -1       4       10       15       20       25       30       34       39       42         Codes, Standards & Regulations       4       9       14       18       23       28       33       38       43       48       53       58       63       68       73         POWER SMART 2016 to 2030 Impacts       9       13       17       21       21       21       21       21       21       21       21       21       21       21 <td>FUEL CHOICE SI</td> <td></td> <td>-</td> <td></td>	FUEL CHOICE SI		-														
Residential Solar Thermal Program - Pool Heating OTHER EMERGING TECHNOLOGIES SUBTOTAL       .       0.0       0.0       0.1       0.1       0.1       0.2       0.2       0.2       0.3       0.3       0.4       0.5         OTHER EMERGING TECHNOLOGIES SUBTOTAL       0.0       0.0       0.0       0.0       0.0       0.1       0.1       0.1       0.1       0.2       0.2       0.2       0.3       0.3       0.4       0.5         Impacts       8.0       10.0       10.8       11.0       10.4       10.0       16.0       22.0       27.7       33.4       38.8       43.6       48.6       53.6       57.5         Interactive Effects       -3.5       -5.8       -7.7       -8.8       -10.1       -11.1       -11.8       -12.4       -13.0       -13.5       -13.7       -14.4       -15.1       -15.8         Subtotal       4       9       14       18       23       28       33       38       43       48       53       58       63       68       73         POWER SMART 2016 to 2030 Impacts       9       13       17       21       23       27       37       48       58       68       78       89       9 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>																	
OTHER EMERGING TECHNOLOGIES SUBTOTAL       ·       0.0       0.0       0.0       0.1       0.1       0.1       0.2       0.2       0.2       0.3       0.3       0.4       0.5         Impacts       8.0       10.0       10.8       11.0       10.4       100       16.0       22.0       27.7       33.4       38.8       43.6       48.6       53.6       57.5         Interactive Effects       ·3.5       ·5.8       ·7.7       ·8.8       ·10.1       ·11.1       ·11.8       ·12.4       ·13.0       ·13.5       ·13.7       ·14.4       ·15.1       ·15.8         Subtotal       4       4       3       2       0       ·1       4       10       15       20       25       30       34       39       42         Codes, Standards & Regulations       4       9       14       18       23       28       33       38       43       48       53       58       63       68       73         POWER SMART 2016 to 2030 Impacts       9       13       17       21       23       27       37       48       58       68       78       88       97       107       115       15       107																	
Impacts       8.0       10.0       10.8       11.0       10.4       10.0       16.0       22.0       27.7       33.4       38.8       43.6       48.6       53.6       57.5         Interactive Effects       -3.5       -5.8       -7.7       -8.8       -10.1       -11.1       -11.8       -12.4       -13.0       -13.5       -13.5       -13.7       -14.4       -15.8         Subtoal       4       4       3       2       0       -1       4       10       15       20       25       30       34       39       42         Codes, Standards & Regulations       4       9       14       18       23       28       33       38       43       48       53       58       63       68       73         POWER SMART 2016 to 2030 Impacts       9       13       17       21       23       27       37       48       58       68       78       87       70       76			-														
Interactive Effects       -3.5       -5.8       -7.7       -8.8       -10.1       -11.1       -11.8       -12.4       -13.0       -13.5       -13.5       -13.7       14.4       -15.1       -15.8         Subtot       4       4       3       2       0       -1       4       10       15       20       25       30       34       39       42         Codes, Standards & Regulations       4       9       14       18       23       28       33       38       43       48       53       58       63       68       73         POWER SMART 2016 to 2030 Impacts       9       13       17       21       23       27       37       48       58       68       78       88       97       107       115         Standard SWINGS TO DATE       77       77       76 <td>OTHER EMERGING TECHNOLOGIES SI</td> <td>UBTOTAL</td> <td>-</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.3</td> <td>0.3</td> <td>0.4</td> <td>0.5</td>	OTHER EMERGING TECHNOLOGIES SI	UBTOTAL	-	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.5
Interactive Effects       -3.5       -5.8       -7.7       -8.8       -10.1       -11.1       -11.8       -12.4       -13.0       -13.5       -13.5       -13.7       14.4       -15.1       -15.8         Subtot       4       4       3       2       0       -1       4       10       15       20       25       30       34       39       42         Codes, Standards & Regulations       4       9       14       18       23       28       33       38       43       48       53       58       63       68       73         POWER SMART 2016 to 2030 Impacts       9       13       17       21       23       27       37       48       58       68       78       88       97       107       115         Standard SWINGS TO DATE       77       77       76 <td></td>																	
Subtole       4       4       3       2       0       1       4       10       15       20       25       30       34       39       42         Codes, Standards & Regulations       4       9       14       18       23       28       33       38       43       48       53       58       63       68       73         POWER SMART 2016 to 2030 Impacts       9       13       17       21       23       27       37       48       58       68       78       88       97       107       115         R SMART 2016 to 2030 Impacts       9       13       17       21       23       27       37       48       58       68       78       88       97       107       115         R SMART SAVINGS TO DATE Incentive Based Program Impacts       77       77       76 </td <td>Impacts</td> <td></td> <td>8.0</td> <td>10.0</td> <td>10.8</td> <td>11.0</td> <td>10.4</td> <td>10.0</td> <td>16.0</td> <td>22.0</td> <td>27.7</td> <td></td> <td>38.8</td> <td>43.6</td> <td>48.6</td> <td>53.6</td> <td>57.5</td>	Impacts		8.0	10.0	10.8	11.0	10.4	10.0	16.0	22.0	27.7		38.8	43.6	48.6	53.6	57.5
Codes, Standards & Regulations       4       9       14       18       23       28       33       38       43       48       53       58       63       68       73         POWER SMART 2016 to 2030 Impacts       9       13       17       21       23       27       37       48       58       68       78       88       97       107       115         R SMART SAVINGS TO DATE Incentive Based Program Impacts       77       77       77       76	Interactive Effects		-3.5	-5.8	-7.7	-8.8	-10.1	-11.1	-11.8	-12.4	-13.0	-13.5	-13.5	-13.7	-14.4	-15.1	-15.8
POWER SMART 2016 to 2030 Impacts       9       13       17       21       23       27       37       48       58       68       78       88       97       107       115         ER SMART SAVINGS TO DATE Incentive Based Program Impacts       77       77       77       76<		Subtotal	4	4	3	2	0	-1	4	10	15	20	25	30	34	39	42
POWER SMART 2016 to 2030 Impacts       9       13       17       21       23       27       37       48       58       68       78       88       97       107       115         RR SMART SAVINGS TO DATE Incentive Sade Program Impacts       77       77       77       76 </td <td>Codes, Standards &amp; Regulations</td> <td></td> <td>4</td> <td>9</td> <td>14</td> <td>18</td> <td>23</td> <td>28</td> <td>33</td> <td>38</td> <td>43</td> <td>48</td> <td>53</td> <td>58</td> <td>63</td> <td>68</td> <td>73</td>	Codes, Standards & Regulations		4	9	14	18	23	28	33	38	43	48	53	58	63	68	73
R SMART SAVINGS TO DATE Incentive Based Program Impacts       77       77       77       76	POWER SMART 2016 to 2030 Impacts		9	13	17	21	23	27	37	48	58	68	78	88	97	107	115
Incentive Based Program Impacts       77       77       77       76 <td></td>																	
Customer Service Inflatives Program Impacts       21																	
Discontinued Programs       8       10       11       17       17       15       <																	
Interactive Effects       -17       -17       -18       -18       -18       -17       -17       -15<	Customer Service Initiatives Program Impacts																
Impacts of Codes & Standards 22 22 22 22 22 22 22 22 22 22 22 22 22	Discontinued Programs																
	Impacts of Lodes & Standards																

#### NATURAL GAS DSM

### 2016 Demand Side Management Plan Annual Utility Costs (000's \$)

APPENDIX	C.2
----------	-----

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Cumulative Total
DENTIAL																
tive Based																
New Homes Program	\$41	\$44	\$51	\$54	\$15										-	\$205
Home Insulation Program	\$1,769	\$1,295	\$1,296	\$1,285	\$1,235	\$1,203	\$1,179	\$1,090	\$1,104	\$1,073	\$1,053	\$91	-		-	\$13,673
Affordable Energy Program	\$3,841	\$3,752	\$3,566	\$3,390	\$3,196	\$3,087	\$2,991	\$2,907	\$2,833	\$2,769	\$2,713	\$2,665	\$2,624	\$2,587	\$2,555	\$45,475
Water and Energy Saver Program	\$835	\$684	\$530								+=,					\$2,050
Drain Water Heat Recovery Initiative	-	0001	-													-
And water near Recovery Initiative				-	-	-			-						-	
Appliances	-	-		-	-	-	-	-	-	-	-		-	-	-	
HRV Controls	\$575	\$565	\$461	-	-	-	-	-	-	-	-	-	-	-	-	\$1,601
Smart Thermostats	\$227	-	-			-									-	\$227
Community Energy Plan	\$11	\$21	\$21	\$22	\$22	\$14	\$15	\$15	\$15	\$15	\$16	\$16	\$16	\$17	\$17	\$254
Subtotal	\$7,299	\$6,361	\$5,925	\$4,750	\$4,468	\$4,305	\$4,185	\$4,012	\$3,952	\$3,858	\$3,781	\$2,772	\$2,640	\$2,604	\$2,572	\$63,484
er Service Initiatives / Financial Loan Programs																
Power Smart Residential Loan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Power Smart PAYS Financing		-	-		-	-		-							-	
Residential Earth Power Loan																
Behavioural Energy Efficiency Program																
Subtotal		-	-		-	-					-	-			-	
Subiotal	-	-	-	-	-	-	-			-			-	-	-	
ERCIAL																
LRCIAL ive Based																
	¢E0.4	¢EF 2	\$71/	\$7/5	6002	¢orr	6072	6000	\$0/0	\$001	\$1.005	\$1.047	\$1.0/0	\$1.000	¢1 11F	\$12,220
Commercial Building Envelope - Windows Program	\$594	\$552	\$716	\$765	\$803	\$855	\$873	\$892	\$960	\$981	\$1,025	\$1,047	\$1,069	\$1,092	\$1,115	\$13,339
Commercial Building Envelope - Insulation Program	\$1,949	\$1,915	\$1,586	\$1,627	\$1,681	\$1,725	\$1,781	\$1,828	\$1,880	\$1,930	\$1,970	\$2,022	\$2,064	\$2,118	\$2,163	\$28,238
Commercial HVAC Program - Boilers	\$857	\$881	\$8	\$8	\$8	\$8	\$8	\$9	\$9	\$9	\$9	\$9	\$10	\$10	\$10	\$1,852
Commercial HVAC Program - CO2 Sensors	\$233	\$232	\$253	\$271	\$301	\$317	\$341	\$353	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2,316
Commercial HVAC Program - HRVs	\$286	\$527	\$618	\$669	\$717	\$769	\$824	\$952	\$1,020	\$1,094	\$1,245	\$1,322	\$1,404	\$1,590	\$1,673	\$14,711
Commercial HVAC Program - Water Heaters	\$148	\$143	\$163	\$188	\$211	\$234	\$269	\$304	\$350	\$394						\$2,402
	\$148	\$157	\$179	\$183	\$187	\$191	\$195	\$219	\$224	\$229	\$234	\$239	\$244	\$272	\$278	\$3,183
Commercial Custom Measures Program																
Commercial Building Optimization Program	\$205	\$259	\$280	\$302	\$325	\$331	\$355	\$363	\$388	\$397	\$424	\$432	\$461	\$490	\$501	\$5,514
New Buildings Program	\$153	\$440	\$270	\$367	\$469	\$575	-	-	-	-	-	-	-	-	-	\$2,274
Commercial Kitchen Appliance Program	\$178	\$62	-	-	-	-	-	-	-	-	-	-	-	-	-	\$240
Internal Retrofit Program	-	\$37	\$40	-	-										-	\$77
Power Smart Energy Manager	\$52	\$115	\$199	\$230	\$201	\$137	\$137	\$141	\$144	\$147	\$68	\$26				\$1,454
Power Smart Shops	\$21	\$19	\$20	\$20	\$21	\$9	÷107		****	<b>v</b>	400	420			_	\$110
Race to Reduce	\$69	\$71	\$72	\$74	92 I	φ7	-			-		-	-	-	-	\$285
Subtotal	\$4,899	\$5,410	\$4,402	\$74	\$4,922	\$5,151	\$4,785	\$5,061	- \$4,978	\$5,182	- \$4,977	\$5,100	\$5,236	\$5,527	\$5,663	\$75,995
Jubiolai	94,077	\$3,410	\$4,402	34,702	34,722	\$5,151	94,705	\$3,001	94,770	\$5,102	ψ4,777	\$3,100	\$5,230	\$3,321	\$3,003	\$75,775
ner Service Initiatives / Financial Loan Programs																
Power Smart for Business PAYS Financing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
STRIAL																
Natural Gas Optimization Program	\$484 \$484	\$494	\$504	\$515	\$526	\$537	\$548	\$560	\$572	\$584	\$596	\$609	\$621	\$635		\$7,782
Subtotal	\$484	\$494	\$504	\$515	\$526	\$537	\$548	\$560	\$572	\$584	\$596	\$609	\$621	\$635	-	\$7,782
ENERGY EFFICIENCY SUBTOTAL	\$12,682	\$12,265	\$10,831	\$9,968	\$9,915	\$9,992	\$9,518	\$9,633	\$9,502	\$9,623	\$9,354	\$8,481	\$8,498	\$8,765	\$8,235	\$147,261
DISPLACEMENT & ALTERNATIVE ENERGY																
Bioenergy Optimization Program	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Customer Sited Load Displacement	-	-	-		-	-									-	
LOAD DISPLACEMENT & ALTERNATIVE ENERGY SUBTOTAL	-	-	-		-				-						-	1.1
CHOICE																
Fuel Choice	-	-	-	-		-	-							-	-	
FUEL CHOICE SUBTOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R EMERGING TECHNOLOGIES																
Residential Solar Thermal Program - Pool Heating	\$3	\$41	\$41	\$44	\$47	\$49	\$52	\$56	\$61	\$65	\$71	\$77	\$85	\$93	\$103	\$888
OTHER EMERGING TECHNOLOGIES SUBTOTAL	\$3	\$41	\$41	\$44	\$47	\$49	\$52	\$56	\$61	\$65	\$71	\$77	\$85	\$93	\$103	\$888
<b></b>	A40 /	A40	440	A40	40	A40.515	AQ	AD / 77	40	*0	*****	40.555	40.555	40.000	40	
Subtotal of Programs	\$12,685	\$12,305	\$10,872	\$10,011	\$9,962	\$10,041	\$9,570	\$9,689	\$9,563	\$9,688	\$9,425	\$8,558	\$8,583	\$8,858	\$8,338	\$148,149
Program Support	\$971	\$960	\$951	\$971	\$992	\$1,013	\$1,034	\$1,056	\$1,078	\$1,101	\$1,124	\$1,148	\$1,172	\$1,197	\$1,222	\$15,989
Total Utility Costs (2016 to 2030)	\$13,656	\$13,265	\$11,823	\$10,982	\$10,954	\$11,054	\$10,604	\$10,745	\$10,641	\$10,789	\$10,549	\$9,706	\$9,755	\$10,055	\$9,560	\$164,138
																\$132,944
Total Committed to Date																\$10L,744

### 2016 Demand Side Management Plan Annual Administration Costs (000's \$)

APPENDIX	C.3
----------	-----

	2016/1	7 2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Cumulative Total
DENTIAL																
tive Based																
New Homes Program	\$40	\$43	\$48	\$50	\$11										-	\$191
Home Insulation Program	\$479	\$424	\$427	\$425	\$383	\$356	\$338	\$258	\$270	\$237	\$213	\$91	-	-		\$3,902
Affordable Energy Program	\$614	\$591	\$603	\$614	\$590	\$601	\$612	\$624	\$636	\$648	\$661	\$675	\$689	\$703	\$717	\$9,578
Water and Energy Saver Program	\$479	\$462	\$359	-	-	-	-	-	-	-	-	-	-	-		\$1,300
Drain Water Heat Recovery Initiative	-	-	-	-	-	-	-	-		-			-	-	-	1.00
Appliances	-	-	-	-	-	-	-	-		-			-	-	-	
HRV Controls			-	-			-			-			-	-		
Smart Thermostats	\$77		-	-			-			-			-	-		\$77
Community Energy Plan	\$11	\$21	\$21	\$22	\$22	\$14	\$15	\$15	\$15	\$15	\$16	\$16	\$16	\$17	\$17	\$254
	Subtotal \$1,700	\$1,540	\$1,458	\$1,110	\$1,006	\$972	\$965	\$897	\$921	\$901	\$890	\$782	\$705	\$719	\$734	\$15,302
er Service Initiatives / Financial Loan Programs																
Power Smart Residential Loan			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Power Smart PAYS Financing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Residential Earth Power Loan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Behavioural Energy Efficiency Program			-	-	-		-	-		-			-	-	-	100 A
	Subtotal -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ERCIAL																
ve Based	<i>i</i> = -															
Commercial Building Envelope - Windows Program	\$70	\$109	\$113	\$115	\$119	\$121	\$124	\$127	\$130	\$133	\$137	\$140	\$143	\$146	\$149	\$1,874
Commercial Building Envelope - Insulation Program	\$67	\$160	\$177	\$196	\$200	\$211	\$216	\$228	\$233	\$246	\$251	\$265	\$271	\$285	\$291	\$3,298
Commercial HVAC Program - Boilers	\$272	\$278	\$8	\$8	\$8	\$8	\$8	\$9	\$9	\$9	\$9	\$9	\$10	\$10	\$10	\$665
Commercial HVAC Program - CO2 Sensors	\$124	\$112	\$116	\$117	\$121	\$122	\$124	\$127	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$977
Commercial HVAC Program - HRVs Commercial HVAC Program - Water Heaters	\$71	\$55	\$53	\$54	\$56	\$57	\$58	\$59	\$60	\$62			-	-	-	\$585
Commercial Custom Measures Program	\$83	\$84	\$86	\$88	\$90	\$92	\$94	\$96	\$98	\$100	\$102	\$104	\$106	\$108	\$111	\$1,441
Commercial Building Optimization Program	\$182	\$167	\$170	\$174	\$178	\$181	\$185	\$189	\$193	\$197	\$201	\$206	\$210	\$214	\$219	\$2,867
New Buildings Program	\$102	\$107	\$170	\$174	\$170	\$101	\$165	\$107	3173	\$177	\$201	\$200	\$210	\$214 -	\$217	\$2,007
Commercial Kitchen Appliance Program	\$51	\$52		-	-		-			-			-	-		\$103
Internal Retrofit Program	001	-														0100
Power Smart Energy Manager	\$52	\$80	\$128	\$130	\$133	\$136	\$139	\$142	\$145	\$148	\$69	\$70	\$72	\$73		\$1,517
Power Smart Shops	\$13	\$12	\$12	\$12	\$13	\$6			0110			010	0.2	010		\$68
Race to Reduce	\$69	\$71	\$72	\$74	-	-				-		-	-	-		\$285
	Subtotal \$1,053	\$1,179	\$936	\$968	\$916	\$935	\$948	\$976	\$870	\$896	\$772	\$796	\$813	\$839	\$782	\$13,679
er Service Initiatives / Financial Loan Programs																
Power Smart for Business PAYS Financing	<u> </u>			-	-		-	-					-	-	-	
	Subtotal -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1
RIAL Natural Gas Optimization Program	\$184	\$187	\$191	\$195	\$200	\$204	\$208	\$212	\$217	\$222	\$226	\$231	\$236	\$241		\$2,954
	Subtotal \$184	\$187	\$191	\$195	\$200	\$204	\$208	\$212	\$217	\$222	\$226	\$231	\$236	\$241	-	\$2,954
ENERGY EFFICIENCY SU	BTOTAL \$2,937	\$2,907	\$2,585	\$2,273	\$2,122	\$2,110	\$2,121	\$2,085	\$2,008	\$2,019	\$1,888	\$1,809	\$1,754	\$1,799	\$1,516	\$31,935
			,	,	+=,.==		*=/:=:	+=,		+=,=				* .,		
ISPLACEMENT & ALTERNATIVE ENERGY Bioenergy Optimization Program																1.1
Customer Sited Load Displacement		-		-												
LOAD DISPLACEMENT & ALTERNATIVE ENERGY SU	BTOTAL -	-	-	-		-					-	-				1.1
IOICE																
Fuel Choice FUEL CHOICE SU	BTOTAL -															
EMERGING TECHNOLOGIES																
Residential Solar Thermal Program - Pool Heating	\$3	\$33	\$32	\$33	\$34	\$34	\$35	\$36	\$37	\$37	\$38	\$39	\$40	\$41	\$41	\$515
OTHER EMERGING TECHNOLOGIES SU	IBTOTAL \$3	\$33	\$32	\$33	\$34	\$34	\$35	\$36	\$37	\$37	\$38	\$39	\$40	\$41	\$41	\$515
Subtotal of P	rograms \$2,941	\$2,940	\$2,618	\$2,306	\$2,156	\$2,145	\$2,156	\$2,121	\$2,045	\$2,056	\$1,926	\$1,848	\$1,794	\$1,840	\$1,557	\$32,450
Program Support	\$971	\$960	\$951	\$971	\$992	\$1,013	\$1,034	\$1,056	\$1,078	\$1,101	\$1,124	\$1,148	\$1,172	\$1,197	\$1,222	\$15,989
Total Administration Costs (2016		\$3,899	\$3,569	\$3,277	\$3,148	-	\$3,190	\$3,177	\$3,123		\$3,050	\$2,996		\$3,037		\$48,440
		\$3,899	\$3,30 <del>4</del>	\$3,211	ə3,140	\$3,157	\$3,190	\$3,177	\$3,1Z3	\$3,157	\$3,UDU	\$2'AAD	\$2,967	\$3,037	\$2,780	
Total Committee	to Date															\$61,931

### 2016 Demand Side Management Plan Annual Incentive Costs (000's \$)

APPENDIX	C.4
----------	-----

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Cumulative Total
DENTIAL																
entive Based																
New Homes Program	\$1	\$1	\$3	\$4	\$4	-	-	-	-	-	-	-	-	-	-	\$13
Home Insulation Program	\$1,290	\$871	\$869	\$860	\$852	\$847	\$841	\$832	\$834	\$836	\$839		-			\$9,771
Affordable Energy Program	\$3,227	\$3,161	\$2,962	\$2,776	\$2,606	\$2,486	\$2,379	\$2,283	\$2,197	\$2,120	\$2,051	\$1,991	\$1,935	\$1,884	\$1,838	\$35,897
Water and Energy Saver Program	\$356	\$222	\$171		-	-				-	-	-	-	-	-	\$750
Drain Water Heat Recovery Initiative			-	-	-	-	-	-		-	-		-	-	-	
Appliances	-			-		-	-	-	-	-	-		-	-	-	
HRV Controls	\$575	\$565	\$461		-	-				-	-	-	-	-	-	\$1,601
Smart Thermostats	\$150		-	-		-	-	-	-	-	-		-	-	-	\$150
Community Energy Plan	- total \$5,598	\$4,821	- \$4,466	\$3,640	\$3,462	\$3,333	\$3,220	- \$3,115	\$3,031	\$2,957	\$2,891	- \$1,991	- \$1,935	- \$1,884	\$1,838	\$48,182
50	Jiotai \$3,570	94,021	94,400	\$3,040	\$3,402	93,333	\$3,220	\$5,115	\$3,031	\$2,757	\$2,071	\$1,771	\$1,755	\$1,004	\$1,030	\$40,102
ner Service Initiatives / Financial Loan Programs																
Power Smart Residential Loan	-		-		-	-	-	-		-	-		-	-	-	
Power Smart PAYS Financing	-		-	-	-	-	-	-		-	-		-	-	-	
Residential Earth Power Loan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Behavioural Energy Efficiency Program	-															
Su	ototal -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1
/ERCIAL																
tive Based																
Commercial Building Envelope - Windows Program	\$524	\$443	\$603	\$650	\$684	\$734	\$749	\$765	\$830	\$848	\$889	\$907	\$927	\$946	\$966	\$11,466
Commercial Building Envelope - Insulation Program	\$1,882	\$1,755	\$1,408	\$1,432	\$1,481	\$1,513	\$1,565	\$1,600	\$1,647	\$1,683	\$1,719	\$1,757	\$1,794	\$1,833	\$1,872	\$24,941
Commercial HVAC Program - Boilers	\$584	\$603	-	-	-	-	-	-	-	-	-	-	-	-	-	\$1,187
Commercial HVAC Program - CO2 Sensors	\$109	\$120	\$137	\$154	\$180	\$195	\$217	\$227	-	-			-	-	-	\$1,338
Commercial HVAC Program - HRVs	\$286	\$527	\$618	\$669	\$717	\$769	\$824	\$952	\$1,020	\$1,094	\$1,245	\$1,322	\$1,404	\$1,590	\$1,673	\$14,711
Commercial HVAC Program - Water Heaters	\$77	\$88	\$109	\$133	\$155	\$178	\$211	\$244	\$290	\$332	-	-	-	-	-	\$1,817
Commercial Custom Measures Program	\$71	\$73	\$93	\$95	\$97	\$99	\$101	\$124	\$126	\$129	\$132	\$135	\$137	\$164	\$167	\$1,742
Commercial Building Optimization Program	\$24	\$92	\$110	\$128	\$147	\$150	\$170	\$174	\$195	\$199	\$222	\$227	\$251	\$276	\$282	\$2,647
New Buildings Program	\$153	\$440	\$270	\$367	\$469	\$575	-			-	-	-	-	-	-	\$2,274
Commercial Kitchen Appliance Program	\$126	\$10	-	-	-	-	-	-	-	-	-	-	-	-	-	\$137
Internal Retrofit Program	-	\$37	\$40	-	-	-	-			-	-	-	-	-	-	\$77
Power Smart Energy Manager	-	\$35	\$72	\$99	\$68	\$1										
Power Smart Shops	\$8	\$8	\$8	\$8	\$8	\$3		-	-	-	-	-	-	-	-	\$42
Race to Reduce	- ototal \$3,846	\$4,231	- \$3,467	\$3,735	- \$4,005	- \$4,216	- \$3,837	- \$4,085	- \$4,109	- \$4,285	- \$4,206	- \$4,303	-	-	- \$4,881	- \$62,315
	<del>-</del>	\$1,201	\$0,107	40,700	01,000	01,210	40,007	÷1,000	\$1,107	ψ1,200	\$1,200	\$1,000	01,120	\$1,000	\$1,001	402,010
ner Service Initiatives / Financial Loan Programs Power Smart for Business PAYS Financing																
	ototal -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIAL																
Natural Gas Optimization Program	\$300	\$306	\$313	\$319	\$326	\$333	\$340	\$347	\$355	\$362	\$370	\$378	\$386	\$394		\$4,828
	ototal \$300	\$306	\$313	\$319	\$326	\$333	\$340	\$347	\$355	\$362	\$370	\$378	\$386	\$394	-	\$4,828
ENERGY EFFICIENCY SUBT	OTAL \$9,744	\$9,358	\$8,246	\$7,694	\$7,793	\$7,882	\$7,397	\$7,547	\$7,494	\$7,604	\$7,466	\$6,671	\$6,744	\$6,966	\$6,719	\$115,326
DISPLACEMENT & ALTERNATIVE ENERGY Bioenergy Optimization Program	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Customer Sited Load Displacement	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
LOAD DISPLACEMENT & ALTERNATIVE ENERGY SUBT	OTAL -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CHOICE																
Fuel Choice	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
FUEL CHOICE SUBT	OTAL -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R EMERGING TECHNOLOGIES																
Residential Solar Thermal Program - Pool Heating		\$8	\$9	\$11	\$13	\$14	\$17	\$20	\$24	\$28	\$33	\$38	\$45	\$52	\$62	\$373
OTHER EMERGING TECHNOLOGIES SUBT	OTAL -	\$8	\$9	\$11	\$13	\$14	\$17	\$20	\$24	\$28	\$33	\$38	\$45	\$52	\$62	\$373
			•	* · · ·			•••									
Subtotal of Proc	rams \$9,744	\$9,366	\$8,255	\$7,705	\$7,806	\$7,896	\$7,414	\$7,568	\$7,518	\$7,632	\$7,499	\$6,710	\$6,789	\$7.018	\$6,781	\$115,699
															40,701	¢0,077
Program Support	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total Incentive Costs (2016 to 2	2030) \$9,744	\$9,366	\$8,255	\$7,705	\$7,806	\$7,896	\$7,414	\$7,568	\$7,518	\$7,632	\$7,499	\$6,710	\$6,789	\$7,018	\$6,781	\$115,699
Total Committed to	Date															\$71,147
																<i>Q </i>
TOTAL INCENTIVE COSTS (1989 to 2030)	\$9,744	\$9,366	\$8,255	\$7,705	\$7,806	\$7,896	\$7,414	\$7,568	\$7,518	\$7,632	\$7,499	\$6,710	\$6,789	\$7,018	\$6,781	\$186,846

Demand Side Management Plan 2016/17

SUPPLEMENTAL REPORT: 15 yr (2016 to 2031)

# **APPENDIX D - HISTORICAL SAVINGS & COSTS – NATURAL GAS**

- Appendix D.1 Annual Energy Savings (million m<sup>3</sup>)
- Appendix D.2 Annual Utility Costs
- **Appendix D.3 Annual Program Administration Costs**
- **Appendix D.4 Annual Program Incentive Costs**

#### 2016 Demand Side Management Plan Annual Energy Savings (Savings to Date) (million m<sup>3</sup>)

2001/03         2001/03         2001/04         2001/07 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th>million m</th><th>)</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>							million m	)									
Instructure         Head		2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	Estimate	Benchmark 2030/31
Same bard series of the section of t																	
Here involvious hypen         1         -         -         0         0         2         2         9         6.6         1         0.7         2         1.3 <th1.3< th="">         1.3         <th1.3< th=""></th1.3<></th1.3<>																	
Middade Energy Regam         ·						0.0	2.2	2.0	F /	7 /	0.0	10.0	11.0	10.0	10.7	10.0	40.0
Mark and Envisy Sale         -		-	-	-	-	0.3											13.3
CIACLE APPORT MINIMUS         -         -         -         0.3         2.2         1.9         1.3         1.2         1.4         1.8         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.4         1.3         2.1         2.3         2.4         4.5         6.4         6.4			-					0.0	0.1	0.7							8.2 4.5
SIGUAR SMUCL INTLATIVAS Prove four field and a final analysis of the second sec	water and Energy Saver Hogram		-			0.3	2.2	3.9	5.6	8.3							26.1
Inside if an Power tax Program         .         .0         0 <t< td=""><td>JSTOMER SERVICE INITIATIVES</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	JSTOMER SERVICE INITIATIVES																
sciency         . </td <td>Power Smart Residential Loan Program</td> <td>1.2</td> <td>2.1</td> <td>3.5</td> <td>5.6</td> <td>7.8</td> <td>9.6</td> <td>11.3</td> <td>12.3</td> <td>13.9</td> <td>14.3</td> <td>14.6</td> <td>14.9</td> <td>15.2</td> <td>15.5</td> <td>15.7</td> <td>15.7</td>	Power Smart Residential Loan Program	1.2	2.1	3.5	5.6	7.8	9.6	11.3	12.3	13.9	14.3	14.6	14.9	15.2	15.5	15.7	15.7
Subtrivise Healer Program         - <td></td> <td>-</td> <td></td> <td>3.1</td>		-															3.1
H-2000 Proversion from the forger Manager Proversion from the Mark Forger Manager Mark Share Forger Manager Mark Share Forger Manager Mark Share Forger Manager Mark Heres Program         0.0		-	0.1	0.4	1.3	2.3	2.3	2.3	2.3								2.3
Proof: Sharp Harry Sharry Harry Sharp Harry Sharp Harry Sharp Harry Sharp Harry		-	-	-	-	-	-	-	-								0.0
Instactive IPAYS         ·																	0.0 0.3
SCONTINUED/COMPETED       1.2       2.4       4.3       7.7       11.3       13.2       15.3       16.4       8.3.       16.0       17.7       7.0       2.0.2       0.2.		-0.0	-	-	-	-	-	-	-	-	-	-					-0.1
SCOTTENELTED SCONTENELTED SCONT		1.2	2.4	4.3	7.7	11.3	13.2	15.3	16.4	18.3	19.0	19.7					21.5
High Efficiency Frances and Baler Program         .	SCONTINUED/COMPLETED																
New Homes Program         ·	Residential Thermostats Program	-	-	-	-	-											0.2
RESIDENTIAL TOTAL         -         0.0         0.7         2.9         4.4         6.3         7.5         7.7		-	-	-													7.0
RSIDENTIAL TOTAL         1.2         2.4         4.3         7.7         1.2         1.8         2.6         2.3         3.1         3.8.8         4.2.8         4.6.6         4.9.6         52.6         55.3           MILECALL Commercial Instantion Program         -         -         -         -         0.0         0.1         0.2         0.5         0.8         1.3         1.6         9.2         2.6           Commercial Instantion Program         -         -         -         0.0         0.1         0.2         0.6         0.8<	New Homes Program	-	-	-	0.0	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6
NUMBER LAL continue Based continue Based Continue Call Industria Program         ·		-	-	-	0.0	0.7	2.9	4.4	6.3	7.5	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Cammerical Insulation Program         -         -         -         0.3         1.1         2.1         3.2         5.4         6.8         1.3         1.6         1.9         2.4         2.6           Commerical Insulation Program         -         -         -         0.0         0.1         0.2         0.5         0.8         1.3         1.6         1.9         2.4         2.6           Commerical Mindows Program         -         -         -         0.0	RESIDENTIAL TOTAL	1.2	2.4	4.3	7.7	12.2	18.2	23.6	28.3	34.1	38.8	42.8	46.6	49.6	52.6	55.3	55.3
commercial Insulation Program       -       -       -       0.3       1.1       2.1       3.2       5.4       6.8       1.3       1.6       1.9       2.4       2.6         commercial Insulation Program       -       -       -       0.0       0.1       0.2       0.5       0.8       1.3       1.6       1.9       2.4       2.6         Commercial Winkings Program       -       -       -       -       0.7       0.7       0.7       0.0       0.	-																
Commercial Insulation Program       -       -       -       -       -       0.3       1.1       2.1       3.2       5.4       6.8       7.8       9.2       11.0       12.3         Commercial Custom Messures Program       -       -       -       0.1       0.2       0.6       0.7																	
Commercial Windows Program         · </td <td></td>																	
Commercial Custom Measures Program         .		-	-	-	-	-											12.3
City Of Winninger Provers Smart Agricement Program       -       0.1       0.1       0.2       0.6       0.7       0.7       0.8		-	-	-	-	-	0.0	0.1	0.2								2.6 1.9
Commercial Kitche Applances Program       -       -       -       -       0.0       0.1       0.1       0.1       0.1       0.4       1.0         Power Statishops Program       -       -       -       -       0.0       0.			0.1	0.1	-	-	0.7	0.7	0.7								0.8
Power Smart Shops Program       -       -       -       -       -       -       0.0			-	-	-	-	-	-									1.0
Commercial Building Optimization Program       . <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0.0</td>		-	-	-	-	-	-	-	-								0.0
HWAC-Boller       -       -       -       0.4       2.5       4.8       6.2       6.2       7.2       8.2       9.5       10.6       11.5         HWAC-HOW Water Heater       -       -       -       -       -       -       0.2       0.2       0.2       0.2       0.6       0.1         SCONTINUED/COMPLETED       -       -       -       -       -       -       -       -       -       -       0.0       0.0       0.5       0.6       0.1       0.1       0.2       0.6       1.4       4.4       8.0       11.0       13.8       17.2       23.4       26.6       31.0       35.0         SCONTINUED/COMPLETED       -       -       -       0.8       1.1       2.1       2.4       2.4       -		-	-	-	-	-	-	-	0.1				0.4				-
HWAC-CO2 Sensor       .			-	-	-	-	-	-	-	-	-	0.4	2.8		3.0		3.6
HVAC-Hot Water Heater       1       1       0.1       0.1       0.2       0.6       1.4       4.4       8.0       11.0       13.8       17.2       23.4       26.6       31.0       35.0         SCONTINUED/COMPLETED       -       -       -       0.8       1.1       2.1       2.4       2.4       -		-	-	-	-	-	0.4	2.5	4.8	6.2	6.2	7.2					11.5
Internal Retrofit Program       -       -       -       -       -       -       -       -       -       -       -       0.0       0		-	-	-	-	-	-	-	-	-	-	-	0.2	0.2	0.5		0.6
-       0.1       0.1       0.2       0.6       1.4       4.4       8.0       11.0       13.8       17.2       23.4       26.6       31.0       35.0         SCONTINUED/COMPLETED Commercial Spray Valves Program Commercial Clothes Washers Program       -       -       -       0.8       1.1       2.1       2.4       2.4       -																	0.1
SCONTINUED/COMPLETED       1       1       2.1       2.4       2.4       2.4       1 <th< td=""><td>Internal Retrofit Program</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>- 11.0</td><td>-</td><td>- 17.0</td><td>-</td><td>-</td><td></td><td></td><td>0.0 34.4</td></th<>	Internal Retrofit Program	-	-	-	-	-	-	-	-	- 11.0	-	- 17.0	-	-			0.0 34.4
Commercial Spray Values Program       -       -       -       0.8       1.1       2.1       2.4       2.4       - </td <td></td> <td>-</td> <td>0.1</td> <td>0.1</td> <td>0.2</td> <td>0.0</td> <td>1.4</td> <td>4.4</td> <td>8.0</td> <td>11.0</td> <td>13.0</td> <td>17.2</td> <td>23.4</td> <td>20.0</td> <td>31.0</td> <td>35.0</td> <td>34.4</td>		-	0.1	0.1	0.2	0.0	1.4	4.4	8.0	11.0	13.0	17.2	23.4	20.0	31.0	35.0	34.4
Commercial Clothes Washers Program       -			_	_	-		0.8	11	21	24	24	-	_	-	_	_	-
STOMER SERVICE INITIATIVES       -       -       -       0.8       1.1       2.1       2.4       2.4       -			-	-	-		-	-	-	-	-	-	-	-	-	-	_
Commercial PAYS       .		-	-	-	-	-	0.8	1.1	2.1	2.4	2.4	-	-	-	-	-	-
Commercial PAYS       .																	
COMMERCIAL TOTAL       -       -       -       -       -       -       0.0         COMMERCIAL TOTAL       -       0.1       0.1       0.2       0.6       2.2       5.5       10.1       13.4       16.2       17.2       23.4       26.6       31.0       35.0         DUSTRIAL Natural Gas Optimization Prorgram       -       -       -       -       1.7       3.8       4.9       8.0       10.5       12.5       13.4       14.9       15.4         FICIENCY PROGRAMS SUBTOTAL       1.2       2.4       4.4       7.9       12.8       20.5       30.8       42.3       52.4       63.1       70.5       82.5       89.6       98.4       105.7         ISTOMER SELF-GENERATION PROGRAMS Bloenergy Optimization Program       -																	
COMMERCIAL TOTAL       -       0.1       0.1       0.2       0.6       2.2       5.5       10.1       13.4       16.2       17.2       23.4       26.6       31.0       35.0         IDUSTRIAL Natural Gas Optimization Prorgram       -       -       -       -       -       1.7       3.8       4.9       8.0       10.5       12.5       13.4       14.9       15.4         FFICIENCY PROGRAMS SUBTOTAL       1.2       2.4       4.4       7.9       12.8       20.5       30.8       42.3       52.4       63.1       70.5       82.5       89.6       98.4       105.7         STOMER SELF-GENERATION PROGRAMS Bioenergy Optimization Program       -	Commercial PAYS	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0.0
IDUSTRIAL       Natural Gas Optimization Prorgram       -       -       -       -       1.7       3.8       4.9       8.0       10.5       12.5       13.4       14.9       15.4          -       -       -       -       1.7       3.8       4.9       8.0       10.5       12.5       13.4       14.9       15.4         FFICIENCY PROGRAMS SUBTOTAL       1.2       2.4       4.4       7.9       12.8       20.5       30.8       42.3       52.4       63.1       70.5       82.5       89.6       98.4       105.7         JSTOMER SELF-GENERATION PROGRAMS Bioenergy Optimization Program       -		-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0
IDUSTRIAL       Natural Gas Optimization Prorgram       -       -       -       -       1.7       3.8       4.9       8.0       10.5       12.5       13.4       14.9       15.4          -       -       -       -       1.7       3.8       4.9       8.0       10.5       12.5       13.4       14.9       15.4         FFICIENCY PROGRAMS SUBTOTAL       1.2       2.4       4.4       7.9       12.8       20.5       30.8       42.3       52.4       63.1       70.5       82.5       89.6       98.4       105.7         JSTOMER SELF-GENERATION PROGRAMS Bioenergy Optimization Program       -	COMMERCIAL TOTAL	-	0.1	0.1	0.2	0.6	2.2	55	10.1	13 4	16.2	17 2	23.4	26.6	31.0	35.0	34.4
Natural Gas Optimization Prorgram       -       -       -       -       -       1.7       3.8       4.9       8.0       10.5       12.5       13.4       14.9       15.4         -       -       -       -       -       -       -       -       1.7       3.8       4.9       8.0       10.5       12.5       13.4       14.9       15.4         FFICIENCY PROGRAMS SUBTOTAL       1.2       2.4       4.4       7.9       12.8       20.5       30.8       42.3       52.4       63.1       70.5       82.5       89.6       98.4       105.7         JSTOMER SELF-GENERATION PROGRAMS Bioenergy Optimization Program       - <td< td=""><td>Sommercome Torne</td><td></td><td>0.1</td><td>0.1</td><td>0.2</td><td>0.0</td><td>2.2</td><td>0.0</td><td>10.1</td><td>13.4</td><td>10.2</td><td>17.2</td><td>23.4</td><td>20.0</td><td>31.0</td><td>33.0</td><td>34.4</td></td<>	Sommercome Torne		0.1	0.1	0.2	0.0	2.2	0.0	10.1	13.4	10.2	17.2	23.4	20.0	31.0	33.0	34.4
Natural Gas Optimization Prorgram       -       -       -       -       -       1.7       3.8       4.9       8.0       10.5       12.5       13.4       14.9       15.4         -       -       -       -       -       -       -       -       1.7       3.8       4.9       8.0       10.5       12.5       13.4       14.9       15.4         FFICIENCY PROGRAMS SUBTOTAL       1.2       2.4       4.4       7.9       12.8       20.5       30.8       42.3       52.4       63.1       70.5       82.5       89.6       98.4       105.7         JSTOMER SELF-GENERATION PROGRAMS Bioenergy Optimization Program       - <td< td=""><td>IDUSTRIAL</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	IDUSTRIAL																
EFFCIENCY PROGRAMS SUBTOTAL       1.2       2.4       4.4       7.9       12.8       20.5       30.8       42.3       52.4       63.1       70.5       82.5       89.6       98.4       105.7         JSTOMER SELF-GENERATION PROGRAMS Bioenergy Optimization Program       -		-	-	-	-	-	-										15.4
USTOMER SELF-GENERATION PROGRAMS Bioenergy Optimization Program       - <t< td=""><td></td><td></td><td>-</td><td></td><td>-</td><td></td><td></td><td>1.7</td><td>3.8</td><td>4.9</td><td>8.0</td><td>10.5</td><td>12.5</td><td>13.4</td><td>14.9</td><td>15.4</td><td>15.4</td></t<>			-		-			1.7	3.8	4.9	8.0	10.5	12.5	13.4	14.9	15.4	15.4
JSTOMER SELF-GENERATION PROGRAMS Bioenergy Optimization Program       - <t< td=""><td>FICIENCY PROGRAMS SUBTOTAL</td><td>1.2</td><td>2.4</td><td>4.4</td><td>7.9</td><td>12.8</td><td>20.5</td><td>30.8</td><td>42.3</td><td>52.4</td><td>63.1</td><td>70.5</td><td>82.5</td><td>89.6</td><td>98.4</td><td>105.7</td><td>105.1</td></t<>	FICIENCY PROGRAMS SUBTOTAL	1.2	2.4	4.4	7.9	12.8	20.5	30.8	42.3	52.4	63.1	70.5	82.5	89.6	98.4	105.7	105.1
Bioenergy Optimization Program       -       <																	
Interactive Effects         -         -0.0         -0.0         -1.2         -2.6         -3.0         -3.8         -5.9         -8.9         -10.5         -11.3         -12.0         -13.0         -14.8         -17.6           Subtotal after Interactive Effects         1.2         2.4         4.4         6.7         10.2         17.5         27.0         36.4         43.5         52.6         59.2         70.4         76.6         83.6         88.1           Codes, Standards & Regulations         0.3         0.7         1.1         1.6         2.0         2.4         2.7         3.0         3.5         4.4         9.9         13.2         16.0         19.0         22.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interactive Effects         -         -0.0         -0.0         -1.2         -2.6         -3.0         -3.8         -5.9         -8.9         -10.5         -11.3         -12.0         -13.0         -14.8         -17.6           Subtotal after Interactive Effects         1.2         2.4         4.4         6.7         10.2         17.5         27.0         36.4         43.5         52.6         59.2         70.4         76.6         83.6         88.1           Codes, Standards & Regulations         0.3         0.7         1.1         1.6         2.0         2.4         2.7         3.0         3.5         4.4         9.9         13.2         16.0         19.0         22.4																	
Codes, Standards & Regulations 0.3 0.7 1.1 1.6 2.0 2.4 2.7 3.0 3.5 4.4 9.9 13.2 16.0 19.0 22.4		-	-0.0	-0.0	-1.2	-2.6	-3.0	-3.8	-5.9	-8.9	-10.5	-11.3	-12.0	-13.0	-14.8	-17.6	-14.7
Codes, Standards & Regulations 0.3 0.7 1.1 1.6 2.0 2.4 2.7 3.0 3.5 4.4 9.9 13.2 16.0 19.0 22.4																	
	Subtotal after Interactive Effects	1.2	2.4	4.4	6.7	10.2	17.5	27.0	36.4	43.5	52.6	59.2	70.4	76.6	83.6	88.1	90.4
	Codes, Standards & Regulations	0.3	0.7	1.1	1.6	2.0	2.4	2.7	3.0	3.5	4.4	9.9	13.2	16.0	19.0	22.4	22.4
Power Smart Impacts 1.6 3.1 5.5 8.2 12.2 19.8 29.7 39.4 47.0 57.0 69.1 83.6 92.7 102.6 110.5	Dower Smart Impacts	14	3 1	5.5	8.2	12.2	19.8	29.7	39.4	47.0	57.0	69.1	83.6	92.7	102.6	110.5	112.8

# 2016 Demand Side Managment Plan Annual Utility Costs (2001/02 - 2015/16) (000's \$)

APPENDIX D.2	AP	PE	ND	IX	D.2
--------------	----	----	----	----	-----

Microsoft Energy Program March Med Hangel Program March Med Hangel Program March Med Hangel Program Proce Small Exelection Program Proce Small Program Proce Small Program Proce Small Program Proce Small Exelection Program Pro			2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	Interim Estimate 2015/16	Cumul Tot 2015
Include Lead Include Lead Includ																		
Hera instation Program Medication Program Water and Energy Server Program Sectors         1 <th1< th="">         1         1         1</th1<>																		
Mark Watch         Find	Incentive Based																	
Safe Water Heider Freigham         . </td <td>Home Insulation Program</td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>\$357</td> <td>\$1,776</td> <td>\$2,899</td> <td>\$2,735</td> <td>\$2,925</td> <td>\$2,215</td> <td>\$2,108</td> <td>\$1,414</td> <td>\$1,117</td> <td>\$1,352</td> <td>\$1,105</td> <td>\$20,0</td>	Home Insulation Program		-	-	-	-	\$357	\$1,776	\$2,899	\$2,735	\$2,925	\$2,215	\$2,108	\$1,414	\$1,117	\$1,352	\$1,105	\$20,0
Safe Water Heider Freigham         . </td <td>Affordable Energy Program</td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>\$74</td> <td>-</td> <td>\$160</td> <td>\$466</td> <td>\$1,542</td> <td>\$4,424</td> <td>\$5,025</td> <td>\$5,451</td> <td>\$5,159</td> <td>\$7,717</td> <td>\$2,174</td> <td>\$32,1</td>	Affordable Energy Program		-	-	-	-	\$74	-	\$160	\$466	\$1,542	\$4,424	\$5,025	\$5,451	\$5,159	\$7,717	\$2,174	\$32,1
White and Servey See Program         Subtain         -	Solar Water Heater Program		-	-	-	-	-	-	-	-	-	\$0	\$0	\$1	\$1	\$1	-	\$4
Sabelal         . </td <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>\$40</td> <td></td> <td>\$1.026</td> <td></td> <td></td> <td></td> <td>\$1,128</td> <td>\$5,2</td>			-	-	-	-	-	-	-	-	\$40		\$1.026				\$1,128	\$5,2
USTORE SERVICE HUTTINGE       141       171       57       155       171       57.00       150       150       151       150       151       150       151       150       151       150       151       150       151       150       151       150       151       151       150       151       150       151       150       151       150       150       151       150 <td< td=""><td></td><td>Subtotal</td><td>-</td><td>-</td><td>-</td><td>-</td><td>\$431</td><td>\$1,776</td><td>\$3,059</td><td>\$3,201</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>\$57,4</td></td<>		Subtotal	-	-	-	-	\$431	\$1,776	\$3,059	\$3,201								\$57,4
Prover frame the locker transming         413         111         280         4.50         517         517         520         518         514         517         517         517         517         518         <																		
Besidenial Earli Prove Loan Program	USTOMER SERVICE INITIATIVES																	
Besidenial Earli Prove Loan Program	Power Smart Residential Loan Program		\$431	\$112	\$50	-\$5	\$15	\$179	-\$22	-\$108	-\$655	-\$702	-\$545	-\$646	-\$563	-\$404	\$454	-\$2,
scaturing Starting Sectoring Sect			-	· -	-	-	-	· -	-	-	-	-						\$2
Side Hailer Resident MrVS         · <td></td> <td></td> <td>\$248</td> <td>\$287</td> <td>\$289</td> <td>\$346</td> <td>-\$10</td> <td>\$637</td> <td>\$489</td> <td>-\$108</td> <td>\$566</td> <td>\$382</td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>\$3,4</td>			\$248	\$287	\$289	\$346	-\$10	\$637	\$489	-\$108	\$566	\$382					-	\$3,4
Reidential PAYS			-	-	-	-	-		-				-				_	\$
Subbal         57.9         53.9         53.1         53.0         <										<b>\$</b> 0	<i><b>V</b>Z</i>		¢19	\$425	\$00	¢01		\$6
SCHTLIGEOGRAFTED	Residential FATS	Subtotal	- ¢470	-	¢220	- ¢2/1	- ¢E	¢014	\$167	- ¢214	- ¢00	- ¢220					- ¢102	\$1,9
How Hume Regram         -		Subiolai	20/9	<b>\$340</b>	2224	\$34 I	20	2010	\$407	-\$210	-200	-\$320	-\$21	-\$263	-\$300	-9000	\$492	¢١,
How Hume Regram         -																		
New Mones Regram High Efflores Function and Boler Program Subtoral         -							_	\$194	\$128	\$28	¢1				_			\$3
High Efficiency furnaes and Roler Program         .			-												-	-	-	\$7
Subtral         -         511         567         580         5000         51,640         52,22         53,185         51,640         51,318         564         55         - <td></td> <td></td> <td>-</td> <td>211</td> <td>20 /</td> <td>\$Q2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>\$04</td> <td>20 C ¢</td> <td>-</td> <td>-</td> <td>-</td> <td></td>			-	211	20 /	\$Q2							\$04	20 C ¢	-	-	-	
RESIDENTIAL TOTAL       9479       9407       5420       31.046       44.141       55.853       54.170       64.027       57.138       89.202       57.365       54.679       59.550       44.899       80.001         Dommercial Instalation Program       -       -       -       5404       8033       51.004       51.234       52.190       51.755       51.110       51.755       51.110       51.755       51.110       51.755       51.110       51.755       51.956       57.86       35.04       37.84       37.94 <t< td=""><td></td><td> <del>.</del></td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>\$8,</td></t<>		<del>.</del>	-	-	-	-							-	-	-	-	-	\$8,
DMMERCIAL control Baddings Program         -         -         -         5404         5400         51,224         52,100         51,725         51,110         51,725         52,071         51,643         57           Commercial Insultion Program         -         -         -         -         5124         527,74         590         51,005         57,965         51,110         51,224         527,135         518         556.6         522.41         51,110         51,224         527,135         518         556.6         522.41         51,51         516         518         518         556.6         522.41         51,51         516         523.83         518         556.6         522.41         51,51         516         523.83         518         556.7         51         516         51         517.8         51         517.8         51         51.22         527.6         51         51.22         527.6         51         51.22         517.8         51         51.22         527.6         51         51         52.22         51.43         51         51.22         527.8         51         51.22         527.8         51         51         51.22         527.8         51         51         51         51.22 <td></td> <td>Subtotal</td> <td>-</td> <td>\$11</td> <td>\$67</td> <td>\$85</td> <td>\$609</td> <td>\$1,549</td> <td>\$2,327</td> <td>\$3,185</td> <td>\$1,608</td> <td>\$138</td> <td>\$64</td> <td>\$5</td> <td>-</td> <td>-</td> <td>-</td> <td>\$9,</td>		Subtotal	-	\$11	\$67	\$85	\$609	\$1,549	\$2,327	\$3,185	\$1,608	\$138	\$64	\$5	-	-	-	\$9,
SAMECIAL comite Badd Commercial Instalation Program         -         -         -         5404         5400         51,224         52,190         51,755         51,110         51,728         52,071         51,643         52           Commercial Instalation Program         -         -         -         -         5124         527,4         570         570         570         570         574         570         571         570         570         571         580 <td>PESIDENTIAL TOTAL</td> <td>-</td> <td>\$670</td> <td>\$400</td> <td>\$107</td> <td>\$174</td> <td>¢1 044</td> <td>¢1 111</td> <td>¢5 050</td> <td>\$6 170</td> <td>¢6 007</td> <td>\$7 120</td> <td>¢8 202</td> <td>¢7 045</td> <td>\$6 470</td> <td>\$0 EE0</td> <td>¢1 000</td> <td>\$68</td>	PESIDENTIAL TOTAL	-	\$670	\$400	\$107	\$174	¢1 044	¢1 111	¢5 050	\$6 170	¢6 007	\$7 120	¢8 202	¢7 045	\$6 470	\$0 EE0	¢1 000	\$68
commercial insulation Program       -       -       -       5404       \$903       \$1,004       \$1,234       \$2,100       \$1,756       \$1,110       \$1,728       \$2,017       \$1,110       \$1,728       \$2,017       \$1,110       \$1,728       \$2,017       \$1,110       \$1,728       \$2,017       \$1,110       \$1,728       \$2,017       \$1,110       \$1,728       \$2,017       \$1,110       \$1,728       \$2,017       \$1,110       \$1,728       \$2,017       \$1,110       \$1,728       \$2,017       \$1,110       \$1,728       \$2,017       \$1,110       \$1,728       \$2,017       \$1,125       \$1,110       \$1,728       \$2,017       \$1,125       \$1,110       \$1,728       \$2,017       \$1,128       \$1,110       \$1,728       \$2,017       \$1,128       \$1,110       \$1,728       \$2,017       \$1,128       \$1,110       \$1,128       \$2,017       \$1,128       \$1,110       \$1,128       \$2,017       \$1,128       \$2,017       \$1,128       \$1,110       \$1,276       \$1,428       \$2,233       \$1,110       \$1,276       \$1,428       \$2,283       \$1,110       \$1,276       \$1,428       \$2,137       \$1,118       \$1,276       \$1,438       \$2       \$1,111       \$1,276       \$1,228       \$3,138       \$1,439       \$2,144	RESIDENTIAL TOTAL	-	\$0/9	\$409	\$407	\$420	\$1,040	\$4,141	\$0,603	\$0,170	\$0,027	\$7,130	\$6,202	\$7,300	\$0,079	\$9,330	\$4,699	\$00
commercial Insulation Program       -       -       -       -       -       51/24       \$22,72       \$1,99       \$1,064       \$1,224       \$2,74       \$1,90       \$1,725       \$1,110       \$1,728       \$2,011       \$1,603       \$1         Commercial Windows Program       -       -       -       -       -       \$139       \$153       \$158       \$506       \$224       \$154       \$366       \$1,244       \$517       \$517       \$512       \$527       \$515       \$512       \$527       \$515       \$512       \$527       \$515       \$512       \$527       \$515       \$512       \$527       \$515       \$516       \$520       \$520       \$516       \$516       \$520       \$520       \$517       \$516       \$520       \$520       \$517       \$516       \$520       \$520       \$517       \$516       \$520       \$520       \$517       \$516       \$520       \$5108       \$516       \$510       \$516       \$520       \$5108       \$5108       \$5108       \$5108       \$5108       \$5108       \$5108       \$5108       \$5108       \$5108       \$511       \$517       \$511       \$512       \$517       \$511       \$507       \$5121       \$512       \$511       \$507 <td>DMMERCIAL</td> <td></td>	DMMERCIAL																	
Commercial Mindows Program       -       -       -       -       -       -       5124       5273       5499       5714       5990       51,095       5798       5964       51,244       5713       513       5158       550       52,04       5154       513       5158       550       52,04       5154       513       5158       550       52,04       5154       513       5158       550       52,02       519       51,02       5203       513       518       550       52,02       519       514,0       520       5215       516       540       520       519       513,0       514,0       520       516       512,0       5213       514,0       520       511,0       51,05       520,0       51,05       512,0       51,05       512,0       51,05       512,0       51,0       51,05       512,0       51,05       512,0       51,05       512,0       51,05       512,0       51,05       512,0       51,05       512,0       51,05       512,0       52,12       517       51,05       51,05       512,0       52,12       517,0       51,05       51,05       51,05       51,05       512,0       51,05       51,05       51,05       51,05	centive Based																	
Commercial Custom Messives Program       -       -       -       -       5139       5158       556       524       5154       536       547       5527       515       5162       5233       5162       5233       5162       5233       5162       5233       5162       5233       5162       5237       516       5162       5237       516       5162       5237       516       5162       5237       517       553       5336       511       553       556       -       -       - <td< td=""><td>Commercial Insulation Program</td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>\$404</td><td>\$803</td><td>\$1,004</td><td>\$1,234</td><td>\$2,190</td><td>\$1,755</td><td>\$1,110</td><td>\$1,728</td><td>\$2,071</td><td>\$1,603</td><td>\$13</td></td<>	Commercial Insulation Program		-	-	-	-	-	\$404	\$803	\$1,004	\$1,234	\$2,190	\$1,755	\$1,110	\$1,728	\$2,071	\$1,603	\$13
Commercial Custom Messures Program       -       -       -       -       5139       5158       5166       5244       5154       5266       3         Commercial Kitchen Appliances Program       -       -       -       516       554       529       547       527       513       5162       5233       5164       5326       5336       511       553       5336       511       553       5537       5537       5537       5537       5537       5537       5537       5537       5537       5537       5537       5537       5537       5537       5537       5537       5537       55377       55377       55377       55377       55377       5217       55171       5	Commercial Windows Program		-	-	-	-	-	\$124	\$273	\$459	\$774	\$990	\$1.095	\$798	\$964	\$1,244	\$713	\$7,
Ctry of Winninge Program			-	-	-	-	-	_	_			\$153						\$1,
Commercial Kitcher Applances Frogram       -       -       -       -       -       516       554       529       547       527       515       5162       5233         Commercial Building Optimization Program       -       -       -       572       5221       515       580       594       517       518       518       518       518       518       519       512       517       518       519       518       518       519       518       518       519       518       518       519       518       518       519       519       518       519       519       519       518       519       519       518       519       5		aram									\$137	ψ133	\$150	\$300	Ψ <b>2</b> 04	\$15 <del>4</del>	\$300	Ψ1,
Power Smart Shops Program       -<		gram	-	-	-	-	-	-	-	¢14	e E 4	- ¢20	- ¢ 4 7	- ¢07	¢1E	- ¢140	- ¢111	\$5
Commercial Building Optimization Program       -       -       -       572       5221       \$154       \$156       \$232       \$203       \$118       \$92       \$125       \$76       -       5         HVAC. Boile Program       -       -       -       5162       \$127       \$11,81       \$12,82       \$976       \$1,433       \$51         Commercial Hollidings Program       - </td <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			-	-	-	-	-	-	-									
New Buildings Program       -			-	-	-	-											\$8	\$2
HWC - Bolier Program       -			-	-	-	-	\$72	\$221	\$154								-	\$1,
HWAC - 022 Sensor Program       -<	New Buildings Program		-	-	-	-	-	-	-	\$142	\$107	\$192	\$199	\$1,045	\$198	\$336	\$1,443	\$3,
Commercial Hol Water Program       . <th< td=""><td>HVAC - Boiler Program</td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>\$99</td><td>\$584</td><td>\$1,612</td><td>\$1,371</td><td>\$1,112</td><td>\$1,218</td><td>\$917</td><td>\$1,181</td><td>\$1,276</td><td>\$1,282</td><td>\$878</td><td>\$11,</td></th<>	HVAC - Boiler Program		-	-	-	-	\$99	\$584	\$1,612	\$1,371	\$1,112	\$1,218	\$917	\$1,181	\$1,276	\$1,282	\$878	\$11,
Commercial Hol Water Program       . <th< td=""><td>HVAC - CO2 Sensor Program</td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>\$36</td><td>\$11</td><td>\$63</td><td>\$51</td><td>\$1</td></th<>	HVAC - CO2 Sensor Program		-	-	-	-	-	-	-	-	-	-	-	\$36	\$11	\$63	\$51	\$1
Power Smart Energy Manager         - </td <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>\$22</td> <td>\$31</td> <td>\$14</td> <td>\$0</td> <td>\$2</td> <td>\$44</td> <td>\$82</td> <td>\$1</td>			-	-	-	-	-	-	-	-	\$22	\$31	\$14	\$0	\$2	\$44	\$82	\$1
Subtolal       -       -       \$171       \$1,333       \$2,959       \$3,258       \$3,825       \$5,100       \$4,367       \$4,564       \$5,439       \$5,377       \$         USTOMER SERVICE INITIVES Commercial PAYS       -       -       -       -       -       -       -       -       -       -       -       \$ <t< td=""><td></td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>\$116</td><td>\$94</td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td>\$3</td></t<>			-	-	-	-	-	-	\$116	\$94							-	\$3
USDATE SERVICE INITIATIVES Commercial PAYS       I <thi< th="">       I<!--</td--><td></td><td>Subtotal</td><td>-</td><td>-</td><td>-</td><td>-</td><td>\$171</td><td>\$1,333</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>\$5,377</td><td>\$41</td></thi<>		Subtotal	-	-	-	-	\$171	\$1,333									\$5,377	\$41
Commercial PAYS       .																		
SCONTINUED/COMPLETED Commercial Clothes Washers Program       -       -       -       \$123       \$54       \$121       \$27       \$21       \$1       \$0       \$0       - <td>JSTOMER SERVICE INITIATIVES</td> <td></td>	JSTOMER SERVICE INITIATIVES																	
Commercial Spray Valves Program       -	Commercial PAYS	-	-	-	-	-	-	-	-	-	-	-	-	\$151	\$92	\$33	\$181	\$4
Commercial Spray Valves Program       -																		
Commercial Clothes Washers Program       .	ISCONTINUED/COMPLETED																	
Commercial Clothes Washers Program       .	Commercial Spray Valves Program		-	-	-	-	-	\$123	\$54	\$121	\$27	\$21	\$1	\$0	\$0	-	-	\$3
Subtotal       -       -       -       \$123       \$54       \$121       \$27       \$21       \$1       \$0       \$0       -       -         DOMMERCIAL EXPLORATORY Heat Recovery Ventilation Program       -       -       -       -       -       -       -       -       \$4       \$11       -       -       \$6       -         COMMERCIAL TOTAL       -       -       -       -       -       -       -       -       \$4       \$11       -       -       \$6       -         IDUSTRIAL Natural Gas Optimization Program Bioenergy Optimization Program Bioenergy Optimization Program       -       -       -       \$97       \$35       \$282       \$332       \$593       \$696       \$708       \$754       \$480       \$587       \$557       \$5         FFICIENCY PROGRAMS SUBTOTAL       -       -       -       -       -       \$97       \$35       \$282       \$332       \$593       \$696       \$708       \$754       \$480       \$587       \$557       \$5         Subtotal       -       -       -       \$97       \$35       \$282       \$332       \$593       \$696       \$708       \$754       \$480       \$587       \$557       \$5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DMMERCIAL EXPLORATORY Heat Recovery Ventilation Program COMMERCIAL TOTAL		Subtotal				-		\$123	\$54	\$121	\$27	\$21	\$1	\$0	\$0	-	-	\$3
Heat Recovery Ventilation Program       -       -       -       -       -       -       -       S6       -         Subtotal       -																		
Subtotal       -       -       -       -       -       \$4       \$11       -       \$6       -         COMMERCIAL TOTAL       -       -       -       \$171       \$1,456       \$3,013       \$3,379       \$3,851       \$5,125       \$4,379       \$4,946       \$4,677       \$5,477       \$5,558       \$         IDUSTRIAL       Natural Gas Optimization Prorgram       -       -       -       \$97       \$35       \$282       \$332       \$593       \$696       \$708       \$754       \$480       \$587       \$557       \$         IDUSTRIAL       Natural Gas Optimization Prorgram       -       -       -       \$97       \$35       \$282       \$332       \$593       \$696       \$708       \$754       \$480       \$587       \$557       \$         FICIENCY PROGRAMS SUBTOTAL       \$679       \$409       \$407       \$426       \$1,313       \$5,632       \$9,147       \$9,880       \$10,472       \$12,958       \$13,290       \$13,065       \$11,836       \$15,614       \$11,014       \$         JSTOMER SELF-GENERATION PROGRAMS Bioenergy Optimization Program       -       -       -       \$13       \$8       -       -       -       -       -       -       - <td></td> <td>¢ 4</td> <td>611</td> <td></td> <td></td> <td>¢ /</td> <td></td> <td></td>												¢ 4	611			¢ /		
COMMERCIAL TOTAL       -       -       -       \$171       \$1,456       \$3,013       \$3,379       \$3,851       \$5,125       \$4,379       \$4,946       \$4,677       \$5,477       \$5,558       \$         IDUSTRIAL Natural Gas Optimization Prorgram       -       -       -       \$97       \$35       \$282       \$332       \$593       \$696       \$708       \$754       \$480       \$587       \$557       \$5         Subtotal       -       -       -       \$97       \$35       \$282       \$332       \$593       \$696       \$708       \$754       \$480       \$587       \$557       \$5       \$5       \$575       \$5       \$5       \$500       \$10,472       \$12,958       \$13,065       \$11,816       \$11,014       \$5       \$5       \$5       \$5       \$5       \$5       \$5       \$5       \$5       \$5       \$5       \$5       \$5       \$5       \$5       \$5,632       \$9,147       \$9,880       \$10,472       \$13,065       \$11,836       \$15,614       \$11,014       \$5         JSTOMER SELF-GENERATION PROGRAMS Bioenergy Optimization Program       -       -       -       \$13       \$8       -       -       -       -       -       -       -       <		Subtata				-		-						-	-		-	\$3
DUSTRIAL Natural Gas Optimization Prorgram       -       -       -       \$97       \$35       \$282       \$332       \$593       \$696       \$708       \$754       \$480       \$587       \$557 <td></td> <td>SUDIOIAI</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td><b>⊅</b>4</td> <td>211</td> <td>-</td> <td>-</td> <td>9¢</td> <td>-</td> <td>\$.</td>		SUDIOIAI	-	-	-	-	-	-	-	-	-	<b>⊅</b> 4	211	-	-	9¢	-	\$.
Natural Gas Optimization Program       -       -       -       \$97       \$35       \$282       \$332       \$593       \$696       \$708       \$754       \$480       \$587       \$557 <t< td=""><td>COMMERCIAL TOTAL</td><td>-</td><td>-</td><td>-</td><td></td><td></td><td>\$171</td><td>\$1,456</td><td>\$3,013</td><td>\$3,379</td><td>\$3,851</td><td>\$5,125</td><td>\$4,379</td><td>\$4,946</td><td>\$4,677</td><td>\$5,477</td><td>\$5,558</td><td>\$42</td></t<>	COMMERCIAL TOTAL	-	-	-			\$171	\$1,456	\$3,013	\$3,379	\$3,851	\$5,125	\$4,379	\$4,946	\$4,677	\$5,477	\$5,558	\$42
Natural Gas Optimization Prorgram       -       -       -       \$97       \$35       \$282       \$332       \$593       \$696       \$708       \$754       \$480       \$587       \$557       <		-																
Subtotal       -       \$97       \$35       \$282       \$332       \$593       \$696       \$708       \$754       \$480       \$587       \$557       \$         FFICIENCY PROGRAMS SUBTOTAL       \$679       \$409       \$407       \$426       \$1,313       \$5,632       \$9,147       \$9,880       \$10,472       \$12,958       \$13,290       \$13,065       \$11,836       \$15,614       \$11,014       \$         JSTOMER SELF-GENERATION PROGRAMS Bloenergy Optimization Program       -       -       \$13       \$8       -																		
Support Costs       \$5       \$90       \$120       \$361       \$1,072       \$1,313       \$2,000       \$1,930       \$1,605       \$1,527       \$1,234       \$1,370       \$1,028       \$	Natural Gas Optimization Prorgram	<del>.</del>	-	-	-	-												\$5,
JSTOMER SELF-GENERATION PROGRAMS         Bioenergy Optimization Program         Support Costs         \$5       \$90       \$1.072       \$1.353       \$1.318       \$2,000       \$1,605       \$1,767       \$1,527       \$1,234       \$1,028       \$		Subtotal	-	-	-	-	\$97	\$35	\$282	\$332	\$593	\$696	\$708	\$754	\$480	\$587	\$557	\$5,
JSTOMER SELF-GENERATION PROGRAMS         Bioenergy Optimization Program         Support Costs         \$5       \$90       \$1.072       \$1.353       \$1.318       \$2,000       \$1,605       \$1,767       \$1,527       \$1,234       \$1,028       \$		_																
Bioenergy Optimization Program         -         -         \$13         \$8         -	FICIENCY PROGRAMS SUBTOTAL	-	\$679	\$409	\$407	\$426	\$1,313	\$5,632	\$9,147	\$9,880	\$10,472	\$12,958	\$13,290	\$13,065	\$11,836	\$15,614	\$11,014	\$116
Bioenergy Optimization Program         -         -         \$13         \$8         -																		
Support Costs \$5 \$90 \$120 \$361 \$1,072 \$1,353 \$1,318 \$2,000 \$1,930 \$1,605 \$1,767 \$1,527 \$1,234 \$1,370 \$1,028 \$		-							¢10	¢O								
	BIOENERGY OPTIMIZATION Program	-	-	-	-	-	-	-	\$13	38	-	-	-	-	-	-	-	\$2
	Support Costs	-	\$5	\$90	\$120	\$361	\$1,072	\$1,353	\$1,318	\$2,000	\$1,930	\$1,605	\$1,767	\$1,527	\$1,234	\$1,370	\$1,028	\$16
		-																
GRAND TOTAL \$684 \$499 \$526 \$787 \$2,385 \$6,985 \$10,478 \$11,888 \$12,402 \$14,563 \$15,057 \$14,592 \$13,070 \$16,984 \$12,042 \$																		\$132

### 2016 Demand Side Management Plan Annual Administration Costs (2001/02 - 2015/16) (000's \$)

APPEN	DIX D.3
-------	---------

Interim Cumulative

		2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	Estimate 2015/16	Total 2015/16
RESIDENTIAL																	
Incentive Based																	
Home Insulation Program			-	-		\$162	\$508	\$743	\$593	\$468	\$495	\$519	\$185	\$187	\$382	\$313	\$4,556
Affordable Energy Program		-	-	-	-	\$74	-	\$138	\$128	\$182	\$4,096	\$4,501	\$5,035	\$4,809	\$1,778	\$468	\$21,208
Solar Water Heater Program			_		_	-	_	÷.00	-	+.oz	\$0	\$0	\$1	\$1	\$1	+ 100	\$4
Water and Energy Saver Program			_		_		_	-	_	\$40	\$125	\$596	\$729	\$540	\$558	\$774	\$3,363
water and Energy Saver Program	Subtotal		-		-	\$236	\$508	\$881	\$721	\$690	\$4,716	\$5,616	\$5,950	\$5,537	\$2,719	\$1,555	\$29,130
									*.=.		* .,		*=/-==	+=,==:	+=,		
CUSTOMER SERVICE INITIATIVES																	
Power Smart Residential Loan Program		\$431	\$112	\$50	-\$5	\$15	\$179	-\$22	-\$108	-\$655	-\$702	-\$545	-\$646	-\$563	-\$404	\$454	-\$2,408
Residential Earth Power Loan Program		-	-	-	-	-	-	-	-	-	-	\$36	\$53	\$111	-\$20	\$38	\$219
ecoEnergy		\$248	\$287	\$289	\$346	-\$10	\$637	\$489	-\$108	\$566	\$382	\$470	-\$116	\$2	\$0	-	\$3,481
Solar Heater		-	-	-	-	-	-	-	\$0	\$2	-	-	-	-	-	-	\$2
Residential PAYS	_	-	-	-	-	-	-	-	-	-	-	\$18	\$425	\$90	\$91	-	\$624
	Subtotal	\$679	\$398	\$339	\$341	\$5	\$816	\$467	-\$216	-\$88	-\$320	-\$21	-\$283	-\$360	-\$333	\$492	\$1,917
DISCONTINUED/COMPLETED																	
							\$106	\$92	\$18	\$1					\$0		\$217
Residential Thermostats Program		-	\$11	- ¢ ( 7	\$70	\$19					-	- \$17	\$1	-		-	
New Homes Program		-	211	\$67	\$/U		\$30 \$270	\$48	\$0 ¢252	\$15	- \$17	\$I/	ΦI	-	-	-	\$279
High Efficiency Furnace and Boiler Program	Cubt-t-1		-	- ¢/7	-	\$249	\$279	\$437	\$353	\$194		- ¢17	-	-	-		\$1,528
	Subtotal	-	\$11	\$67	\$70	\$268	\$414	\$578	\$371	\$209	\$17	\$17	\$1	-	\$0		\$2,024
RESIDENTIAL TOTAL	-	\$679	\$409	\$407	\$411	\$510	\$1,739	\$1,925	\$876	\$812	\$4,413	\$5,612	\$5,668	\$5,177	\$2,387	\$2,047	\$33,071
COMMERCIAL Incentive Based	-																
Commercial Insulation Program					-		\$72	\$74	\$172	\$174	\$218	\$270	\$114	\$93	\$136	\$220	\$1,543
Commercial Windows Program		-	-	-	-	-	\$78	\$83	\$172	\$174	\$167	\$270	\$99	\$69	\$130	\$195	\$1,343
		-	-	-	-	-	\$70	\$03	⊅121 -	\$57	\$59	\$92	\$95	\$139	\$104	\$157	\$721
Commercial Custom Measures Program	rogram	-	-	-	-	-	-	-	-	\$U/	9U7	\$92	CF¢	\$134	Φ1 <b>∠</b> 3	\$10/	\$721
City Of Winnipeg Power Smart Agreement Pr	ogram	-	-	-	-	-	-	-		-	- ¢10		- ¢10	<u>-</u> \$9	- ¢00	\$40	+
Commercial Kitchen Appliances Program		-	-	-	-	-	-	-	\$8 ¢1E	\$23 ¢70	\$10 ¢02	\$27 ¢12	\$19		\$83		\$220
Power Smart Shops Program		-	-	-	-	- ¢70	- ¢221	\$1 ¢154	\$15 ¢115	\$79 \$152	\$92	\$12	- \$68	\$1 ¢77	\$4 \$76	\$6	\$211
Commercial Building Optimization Program		-	-	-	-	\$72	\$221	\$154	\$115	\$153	\$152	\$80 ¢105		\$77	\$76 ¢00	- 620.4	\$1,168
New Buildings Program		-	-	-	-	-	-	-	\$142	\$107	\$119	\$125	\$337	\$89	\$99	\$204	\$1,222
HVAC - Boiler Program			-	-	-	\$99	\$273	\$289	\$249	\$344	\$259	\$288	\$302	\$304	\$377	\$212	\$2,996
HVAC - CO2 Sensor Program		-	-	-	-	-	-	-	-	-	-	-	\$25	\$10	\$46	\$13	\$94
Commercial Hot Water Program			-	-	-	-	-	-	-	\$22	\$31	\$14	-	\$2	\$44	\$54	\$167
Power Smart Energy Manager	Subtotal	-	-	-	-	- \$171	- \$644	\$116 \$717	\$92 \$914	\$70 \$1,170	- \$1,107	\$51 \$1,134	- \$1,059	\$1 \$794	\$1 \$1,093	- \$1,101	\$330 \$9,902
	JUDIOIAI	-	-	-	-	\$171	<b>JU44</b>	\$/I/	2714	\$1,17U	\$1,1U7	\$1,134	\$1,037	\$174	\$1,073	\$1,101	\$7,70Z
CUSTOMER SERVICE INITIATIVES																	
Commercial PAYS	-	-	-	-	-	-	-	-	-	-	-	-	\$151	\$92	\$33	\$181	\$457
DISCONTINUED/COMPLETED																	
Commercial Spray Valves Program		-	-	-	-	-	\$50	\$30	\$25	\$17	\$2	\$1	-	\$0	-	-	\$127
Commercial Clothes Washers Program		-	-	-	-	-	-		-	-	-	-	\$0	-	-	-	\$0
	Subtotal	-	-	-	-	-	\$50	\$30	\$25	\$17	\$2	\$1	\$0	\$0	-	-	\$127
COMMERCIAL EXPLORATORY																	
Heat Recovery Ventilation Program		-	-	-	-	-	-	-	-	-	-	\$11	-	-	\$6		\$16
	Subtotal	-	-	-	-	-	-	-	-	-	-	\$11	-	-	\$6		\$16
	_																
COMMERCIAL TOTAL	-	-	-	-	-	\$171	\$694	\$747	\$939	\$1,188	\$1,109	\$1,146	\$1,209	\$886	\$1,131	\$1,282	\$10,502
INDUSTRIAL																	
Natural Gas Optimization Prorgram					-	\$97	\$35	\$90	\$86	\$164	\$117	\$173	\$244	\$201	\$150	\$200	\$1,557
Natural Gas Optimization Froiglan	Subtotal		-	-	-	\$97	\$35	\$90	\$86	\$164	\$117	\$173	\$244	\$201	\$150	\$200	\$1,557
	SUDIOIAI	-	-	-	-	\$71	00D	940	400	<b>Φ104</b>	φι I /	\$1/3	<b>⊅∠44</b>	\$∠U I	ΦIOU	\$2UU	\$1,557
EFFICIENCY PROGRAMS SUBTOTAL	-	\$679	\$409	\$407	\$411	\$777	\$2,469	\$2,762	\$1,901	\$2,163	\$5,639	\$6,930	\$7,122	\$6,265	\$3,668	\$3,529	\$45,130
CUSTOMER SELF-GENERATION PROGRAMS																	
Bioenergy Optimization Program	-	-	-	-	-	-	-	\$13	\$8	-	-	-	-	-	-	-	\$21
Support Costs	-	\$5	\$90	\$120	\$361	\$1,072	\$1,353	\$1,318	\$2,000	\$1,930	\$1,605	\$1,767	\$1,527	\$1,234	\$1,370	\$1,028	\$16,780
-apport obsto	-	40	<i></i>	¥120	4001	*11012	21,000	\$1,010	22,000	21,700	\$1,000	21/101	\$1,027	21/201	\$1,070	\$1,020	\$10,700

GRAND TOTAL \$684 \$499 \$526 Note: May not add up due to rounding.

#### 2016 Demand Side Management Plan Annual Incentive Costs (2001/02 - 2015/16) (000's \$)

APPENDIX D.4
--------------

		2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	Interim Estimate 2015/16	Cumulative Total 2015/16
RESIDENTIAL																	
ncentive Based Home Insulation Program		-	-	-	-	\$195	\$1,267	\$2,156	\$2,142	\$2,457	\$1,720	\$1,589	\$1,229	\$931	\$970	\$791	\$15,446
Affordable Energy Program		-	-	-	-	-	-	\$22	\$338	\$1,360	\$328	\$525	\$417	\$350	\$5,939	\$1,706	\$10,985
Solar Water Heater Program		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water and Energy Saver Program	Subtotal		-	-	-	- \$195	- \$1,267	- \$2,178	\$2,480	\$3,817	\$556 \$2,604	\$430 \$2,543	\$47 \$1,693	\$222 \$1,502	\$255 \$7,163	\$354 \$2,852	<u>\$1,864</u> \$28,295
ISCONTINUED/COMPLETED																	
Residential Thermostats Program		-		-	-	-	\$80	\$36	\$20	-	-	-		-	-		\$136
New Homes Program		-	-	-	\$15	\$39	\$60	\$86	-	\$71	\$108	\$47	\$4	-	-	-	\$431
High Efficiency Furnace and Boiler Program	Subtatal	-	-	-	- \$15	\$303	\$994	\$1,627	\$2,794	\$1,327	\$14 \$122	- \$47	- ¢ 4	-	-	-	\$7,059
	Subtotal	-	-	-	\$15	\$341	\$1,134	\$1,749	\$2,814	\$1,398	\$122	\$47	\$4	-	-	-	\$7,625
RESIDENTIAL TOTAL			-	-	\$15	\$536	\$2,402	\$3,927	\$5,294	\$5,216	\$2,725	\$2,591	\$1,697	\$1,502	\$7,163	\$2,852	\$35,920
DMMERCIAL																	
centive Based							\$333	\$729	\$833	\$1,060	\$1,972	\$1,485	\$995	\$1,635	\$1,935	\$1,383	\$12,360
Commercial Insulation Program Commercial Windows Program		-	-	-	-	-	\$333 \$45	\$729 \$190	\$833 \$338	\$1,060 \$634	\$1,972 \$823	\$1,485 \$921	\$995 \$699	\$1,635 \$895	\$1,935 \$1,140	\$1,383 \$518	\$12,360
Commercial Custom Measures Program		_	-	-	-		- -	-	-	\$82	\$94	\$66	\$411	\$125	\$32	\$209	\$1,019
City Of Winnipeg Power Smart Agreement Pro	ogram	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Commercial Kitchen Appliances Program		-	-	-	-	-	-	-	\$8	\$31	\$19	\$20	\$8	\$6	\$79	\$193	\$363
Power Smart Shops Program		-	-	-	-	-	-	-	- \$42	\$1 \$79	\$2 \$52	- \$38	\$0 \$24	- \$48	-	\$2	\$5 \$282
Commercial Building Optimization Program New Buildings Program		-	-	-	-	-	-	-	\$42	\$79	\$52 \$73	\$38 \$74	\$24 \$708	\$48 \$108	\$237	\$1,239	\$282 \$2,440
HVAC - Boiler Program		-	-	-	-		\$311	\$1,323	\$1,122	\$768	\$959	\$629	\$879	\$970	\$905	\$666	\$8,533
HVAC - CO2 Sensor Program		-	-	-	-	-	-	-	-	-	-	-	\$11	\$0	\$17	\$38	\$67
Commercial Hot Water Program		-	-	-	-	-	-	-	-	-	-	-	\$0	-	-	\$28	\$28
Power Smart Energy Manager	Subtotal			-	-	-	\$689	- \$2,243	\$2 \$2,344	- \$2,655	\$0 \$3,993	- \$3,234	\$0 \$3,737	- \$3,788	- \$4,346	\$4,276	\$2 \$31,303
SCONTINUED/COMPLETED																	
Commercial Spray Valves Program		-	-	-	_	-	\$73	\$24	\$96	\$9	\$18		\$0	-			\$220
Commercial Clothes Washers Program		-	-	-	-		-	-	-	-	-	-	ψ <b>U</b>	-	-		<b>4</b> 220
	Subtotal	-	-	-	-	-	\$73	\$24	\$96	\$9	\$18			-	-	-	\$220
MMERCIAL EXPLORATORY																	
Heat Recovery Ventilation Program		-	-	-	-	-	-	-	-	-	\$4	-	-	-	-		\$4
	Subtotal	-	-	-	-	-	-	-	-	-	\$4	-	-	-	-	-	\$4
COMMERCIAL TOTAL		-	-	-	-	-	\$762	\$2,266	\$2,440	\$2,664	\$4,016	\$3,234	\$3,737	\$3,788	\$4,346	\$4,276	\$31,528
DUSTRIAL																	
Natural Gas Optimization Prorgram			-	-	-	-	-	\$212	\$265	\$461	\$616	\$554	\$519	\$278	\$438	\$357	\$3,700
	Subtotal	-	-	-	-	-	-	\$212	\$265	\$461	\$616	\$554	\$519	\$278	\$438	\$357	\$3,700
FICIENCY PROGRAMS SUBTOTAL			-	-	\$15	\$536	\$3,163	\$6,406	\$7,998	\$8,340	\$7,356	\$6,378	\$5,953	\$5,569	\$11,947	\$7,485	\$71,147
STOMER SELF-GENERATION PROGRAMS																	
Bioenergy Optimization Program			-	-	-	-	-	-	-	-	-	-	-	-	-		-
Support Costs																	-
					445	*===	*****	<b>*</b> ( <b>10</b> (	A7 000	40.045	47.05	*/ 070	45.055	45 5/5	*** ***	47 105	474 4
GRAND TOTAL Note: May not add up due to rounding.		-		-	\$15	\$536	\$3,163	\$6,406	\$7,998	\$8,340	\$7,356	\$6,378	\$5,953	\$5,569	\$11,947	\$7,485	\$71,147

Demand Side Management Plan 2016/17

SUPPLEMENTAL REPORT: 15 yr (2016 to 2031)

# **APPENDIX E - PROGRAM EVALUATION CRITERIA**

**Appendix E.1 - Nature of Electricity and Natural Gas Markets** 

**Appendix E.2 - Program Categories** 

**Appendix E.3 - Economic Effectiveness Metrics** 

**Appendix E.4 - Other DSM Program Assumptions** 

# **Appendix E - 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.

## **Appendix E.1 - 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 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.

## **Appendix E.2 - Program Categories**

## **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 ongoing basis and require a qualitative evaluation of the benefits. Service levels are then adjusted accordingly.

## **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.

## **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.

## **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.

## **Energy Efficient Codes and 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 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.

## **Appendix E.3 - Economic Effectiveness Metrics**

Manitoba Hydro uses a number of cost effective metrics to assess energy efficient opportunities, including whether to pursue an opportunity, how 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 metrics:

## **Integrated Metrics**

- Societal Cost (SC)
- Total Resource Cost (TRC)
- Total Resource Cost NPV (TRC NPV)
- Levelized Resource Cost (LRC)

## Utility Metrics

- Rate Impact Measure Cost (RIM)
- Net Utility Benefit (NUB)
- Utility Net Present Value (Utility NPV)
- Levelized Utility Cost (LUC)

## Customer Metrics

- Simple Customer Payback calculation
- Participating Customer Cost (PC)
- Participating Customer Cost Net Present Value (PC NPV)

## **Integrated Metrics**

## Societal Cost (SC)

The Societal Cost (SC) metric measures the net economic benefit as measured by the TRC, plus additional indirect benefits such the avoided environmental or societal externalities (e.g. reduced health care costs, increase productivity, employment) and "non-priced" benefits enjoyed by participants (improved comfort, improved heath).

(PV (Marginal Benefits) x 1.10) + PV (Measurable Non-Energy benefits)

SC =

PV (Total Program Admin Costs + Incremental Product Costs)

- 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).
- 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. Manitoba Hydro pays incentives to free riders but does not include the savings or the associated incremental product costs related to free riders.

## **Total Resource Cost (TRC)**

The Total Resource Cost (TRC) metric assesses 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 metric is defined as follows:

PV (Marginal Benefits) + PV (Measurable Non-Energy Benefits)

## PV (Total Program Admin Costs + Incremental Product Costs)

- 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).
- 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. Manitoba Hydro pays incentives to free riders but does not include the savings or the associated incremental product costs related to free riders.

## Total Resource Cost Net Present Value (TRC NPV)

The Total Resource Cost Net Present Value (TRC NPV) calculation reveals if the economic value of the benefits that are associated with an energy efficiency program are greater than the costs.

TRC NPV = (PV (Marginal Benefits) + PV (Measurable Non-Energy Benefits)) -

PV (Total Program Admin Costs + Incremental Product Costs)

- 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. Manitoba Hydro pays incentives to free riders but does not include the savings or the associated incremental product costs related to free riders.

## Levelized Resource Cost (LRC)

The Levelized Resource Cost (LRC) is used to determine the overall economic resource cost of energy saved through an energy efficiency program. The LRC provides a levelized cost of energy saved per unit over a fixed time period. The Levelized Resource Cost is defined as follows:

LRC = PV (Incremental Product Costs + Total Program Admin Costs) PV (Energy)

- 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. Manitoba Hydro pays incentives to free riders but does not include the savings or the associated incremental product costs related to free riders.
- 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.
- Energy includes the annual energy savings.

## **Utility Metrics**

## Rate Impact Measure Cost (RIM)

The Rate Impact Measure (RIM) metric is used to provide an indication of the long term impact of an energy efficient program on energy rates. The metric 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 metric is defined as follows:

PV (Utility Marginal Benefits)

RIM =

PV (Revenue Loss + Utility Program Admin Costs + Incentives)

- 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 and avoided transportation costs.
- 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. Manitoba Hydro pays incentives to free riders but does not include the savings.

## Net Utility Benefit (NUB)

The Net Utility Benefit (NUB) metric is used to measure the energy saving benefits to the utility net of any revenue losses. Marginal benefits, after deductions from lost revenue are compare to the cost incurred by the by the utility. The Net Utility Benefit metric is defined as follows:

PV (Utility Marginal Benefits) - PV (Revenue Loss)

NUB =

PV (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 and avoided transportation costs.
- 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. Manitoba Hydro pays incentives to free riders but does not include the savings.

#### Utility Net Present Value (Utility NPV)

The Utility Net Present Value (Utility NPV) calculation reveals from the Utility's perspective, if the economic value of the benefits that are associated with an energy efficiency program are greater than the costs.

- 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 and avoided transportation costs.
- 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. Manitoba Hydro pays incentives to free riders but does not include the savings.

## Levelized Utility Cost (LUC)

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 based upon the utility's investment on behalf of the ratepayer 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:

#### PV (Utility Program Admin Costs + Incentives)

LUC =

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. Manitoba Hydro pays incentives to free riders but does not include the savings.

- Energy includes the annual energy savings.

## **Customer Metrics**

## Simple Customer Payback Calculation (Payback)

CP =

The Simple 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 projecting customer participation rates for energy efficient opportunities. The Customer Payback is defined as follows:

#### Participant Costs - Incentives

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 include funds provided by Manitoba Hydro and external parties to the participant associated with implementing the energy efficient opportunity.
- Annual Bill Reductions include the first year dollar reductions in the customer's electricity, natural gas, and water bills.

#### Participating Customer Cost (PC)

The Participating Customer Cost (PC) metric evaluates from a customer perspective if the benefits that are associated with an energy efficiency program are greater than the costs over the life of the measure. The Participating Customer Cost is defined as follows:

PC = \_\_\_\_\_\_PV (Incentives + Revenue Loss) PC = \_\_\_\_\_PV (Incremental Product Costs)

- Incentives include the funds transferred from Manitoba Hydro to the participant associated with implementing the Power Smart measure.
- Revenue Loss includes Manitoba Hydro's lost revenue associated with the participants' reduced energy consumption (i.e. customer energy and measurable non-energy (i.e. water) bill reductions).
- 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.

## Participating Customer Cost Net Present Value (PC NPV)

The Participating Customer Cost Net Present Value (PC NPV) calculation reveals from the customer's perspective, if the economic value of the benefits that are associated with an energy efficiency program are greater than the costs over the life of the measure.

PC NPV = PV (Incentives + Revenue Loss) - PV (Incremental Product Costs)

- Incentives include the funds transferred from Manitoba Hydro to the participant associated with implementing the Power Smart measure.
- Revenue Loss includes Manitoba Hydro's lost revenue associated with the participants' reduced energy consumption (i.e. customer energy and measurable non-energy (i.e. water) bill reductions).
- 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.

## **Appendix E.4 - 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.

## 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.

## 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.



Demand Side Management Plan 2016/17 | Supplemental Report 15 yr (2016 to 2031)

\*Manitoba Hydro is a licensee of the Trademark and Official Mark.