



**Public
Version Enclosed**

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May 1, 2019

—Via Electronic Filing—

Ms. Patricia Van Gerpen, Executive Director
South Dakota Public Utilities Commission
State Capitol Building
500 East Capitol Avenue
Pierre, South Dakota 57501-5070

RE: PETITION
2018 DSM STATUS REPORT AND PROPOSED 2020 DSM PLAN

Dear Ms. Van Gerpen:

Enclosed for filing is a Petition by Northern States Power Company requesting approval of our 2018 DSM Status Report which includes our request for: 1) approval of cost recovery for 2018 actual expenditures and incentive, 2) approval of our Proposed 2020 DSM Plan, and 3) proposed DSM Cost Adjustment Factor.

In accordance with South Dakota Admin. R. 20:10:01:39 through 42, Xcel Energy respectfully requests confidential treatment of certain information contained in this filing. In compliance with South Dakota Admin. R. 20:10:01:41, we have clearly marked each page of the confidential version with the term “CONFIDENTIAL”. A public non-confidential version is also being filed simultaneously.

Pursuant to S.D. Codified Laws Chapter 20:10:01:41, the Company submits the following justification for confidential treatment of this petition.

(1) An identification of the document and the general subject matter of the materials or the portions of the document for which confidentiality is being requested;

We request confidential treatment on the grounds that the material is proprietary and contains trade secret information, the disclosure of which would result in material damage to the Company’s financial or competitive position. The petition contains financial information that is not available to the general public.

(2) The length of time for which confidentiality is being requested and a request for handling at the end of that time. This does not preclude a later request to extend the period of confidential treatment;

The Company requests that the petition be recognized as confidential in perpetuity.

(3) The name, address, and phone number of a person to be contacted regarding the confidentiality request;

Steve Kolbeck
Principal Manager –South Dakota
Xcel Energy
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Sioux Falls, South Dakota 57101
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(4) The statutory or common law grounds and any administrative rules under which confidentiality is requested. Failure to include all possible grounds for confidential treatment does not preclude the party from raising additional grounds in the future;

The Company requests confidential treatment because the information is both trade secret and proprietary. The claim for confidential treatment is based on South Dakota Admin. R. 20:10:01:39 (4) and S.D. Codified Laws Chapter 1-27-30. The information contained within the referenced documents meets the definition of “trade secret” under S.D. Codified Laws Chapter 37-29-1(4)(1), the South Dakota Uniform Trade Secrets Act, which is defined as information that “[d]erives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and... is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.” The information also meets the definition of “proprietary information” under S.D. Codified Laws Chapter 1-27-28, which is defined as “information on pricing, costs, revenue, taxes, market share, customers, and personnel held by private entities and used for that private entity's business purposes.”

(5) The factual basis that qualifies the information for confidentiality under the authority cited.

Consistent with the terms of the Settlement Stipulation approved by the Commission in the Company's 2012 electric rate case (Docket EL12-046), the rate of return on equity is confidential.

For any questions regarding this filing, please feel free to call me at (605) 339-8350 or email Steven.T.Kolbeck@xcelenergy.com or contact Jessica Peterson at (612) 330-6850 or email Jessica.K.Peterson@xcelenergy.com.

Sincerely,

A handwritten signature in black ink that reads "Steve Kolbeck". The signature is written in a cursive style with a large, looping initial "S".

Steve Kolbeck
Principal Manager –South Dakota

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**STATE OF SOUTH DAKOTA
BEFORE THE
SOUTH DAKOTA PUBLIC UTILITIES COMMISSION**

IN THE MATTER OF THE PETITION OF
NORTHERN STATES POWER COMPANY
FOR APPROVAL OF THE 2018 ANNUAL
DSM STATUS REPORT, INCLUDING 2018
COST RECOVERY AND INCENTIVE AND
APPROVAL OF THE PROPOSED 2020 DSM
COST ADJUSTMENT FACTOR AND
PROGRAM PLAN

**PETITION FOR 2018 DSM
PROGRAM APPROVAL AND
PROPOSED 2020 DSM COST
ADJUSTMENT FACTOR**

DOCKET NO. EL19- ____

Northern States Power Company, doing business as Xcel Energy, submits to the South Dakota Public Utilities Commission, this Petition seeking approval of our 2018 Annual Demand Side Management (DSM) Report and Proposed 2020 DSM Plan (Plan).

We respectfully request that the Commission approve the following:

- The Company's 2018 DSM Tracker account;
- Approve the incentive of \$232,322 earned for 2018 program performance;
- Approve the proposed 2020 electric DSM Adjustment Factor of \$0.000475 per kWh; and
- Approve the proposed 2020 DSM Plan.

The remainder of our filing will include the following sections:

I. 2018 DSM Status Report

This section presents 2018 program performance including budgets, goals, expenditures, actual energy savings and participation. This section also specifies any programmatic changes for our 2020 Plan.

II. DSM Cost Recovery Report

This section provides the final 2018 DSM Tracker seeking approval to record \$776,907 in DSM spending in its DSM Tracker account.

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III. DSM Incentive Report

Calculations of the Company's DSM Financial Incentive can be found in this section. We request approval to record and recover \$232,322 in incentive from customers in the DSM Tracker for calendar year 2018.

IV. DSM Cost Adjustment Factor Report

The section presents the calculation of the 2018 DSM Cost Adjustment Factor to be applied to customer electric usage for recovery of 2018 DSM expenditures, effective January 1, 2020. We are proposing an increase to our electric DSM Cost Adjustment Factor of \$0.000475 per customer kWh.

V. Summary of Proposed 2019 DSM Plan

We provide the portfolio level executive summary along with updated cost-effectiveness results for our 2020 Plan.

REPORT

I. 2018 DSM STATUS REPORT

A. Executive Summary

Demand Side Management resources are part of a wide variety of offerings by the Company to empower our customers to control their energy usage and their monthly electric bills. Our DSM portfolio offers a mix of solutions designed to meet individual needs and preferences. We provide programs designed to meet individual interests of all types of customers, offering everyone the opportunity to participate.

In 2018, we successfully helped customers manage their energy bills by achieving more than 6 GWh of energy savings. The Company exceeded their projected 2018 in part due to an exceedingly successful year for Home Lighting.

The purpose of our energy efficiency portfolio is to encourage customers to adopt high efficiency equipment. As such, we identified opportunities in 2018 to increase residential participation resulting in increased spending above our anticipated budget. The total actual expenditures of \$776,907 falls slightly above the filed budget and within the

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Commission approved budget flexibility.¹ We note that no programs were suspended in 2018.

There are often times in which rebate spend in Residential Lighting (which also covers small businesses) exceeds rebate spend in the commercial programs. The Company offers Table 1 as verification that these programs do not cross subsidize each other or rather neither segment is receiving more benefit than another. Although there have been changes in the percent of spend as well as percent of kWh over time, the percent of recovery between classes has been consistent.

Table 1 – Cross Subsidization Review

Year	Percent of Spend (excl. Planning)		Percent of kWh		Percent of Recovery	
	Residential	Business	Residential	Business	Residential	Business
2014	35%	65%	22%	78%	35%	65%
2015	67%	33%	62%	38%	35%	66%
2016	34%	66%	26%	74%	35%	65%
2017	44%	56%	45%	55%	35%	65%
2018	42%	58%	42%	58%	35%	65%

To evaluate the cost-effectiveness of our portfolio for 2018, we looked at the Total Resource Cost (TRC) ratio, which compares total benefits to total costs of the portfolio.² If a program or portfolio has a TRC ratio above one, it is considered cost-effective. As shown in the table below, the 2018 portfolio demonstrated a TRC Ratio value of 1.53.

The 2018 DSM Plan was created based on market assumptions and a forecast of customer interest. Table 2 provides a breakdown of 2018 achievements by program. A full executive summary, which includes both a comparison of 2018 goals versus actuals and cost-effectiveness test results, is provided as Attachment A.

¹ Docket EL13-015, Commission Order December 3, 2013.

² A TRC ratio above 1.0 indicates the benefit outweighs the costs.

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Table 2 – Executive Summary Table of 2018 Actual Achievements

2018	Electric Participants	Electric Budget	Generator kW	Generator kWh	TRC Ratio
Business Segment					
Lighting Efficiency	134	\$394,257	506	3,497,612	1.27
Business Saver's Switch	10	\$44,850	54	129	1.30
Peak and Energy Control	3	\$3,876	11	408	1.34
Business Segment Total	147	\$442,982	571	3,498,149	1.27
Residential Segment					
Home Lighting	4,601	\$98,643	282	2,558,158	3.31
Residential Saver's Switch	637	\$185,091	485	1,391	2.86
Consumer Education	79,218	\$35,868	0	0	N/A
Residential Segment Total	84,456	\$319,602	767	2,559,550	2.81
Planning Segment					
Regulatory Affairs	0	\$14,323	0	0	N/A
Planning Segment Total	0	\$14,323	0	0	N/A
Portfolio Total	84,603	\$776,907	1,338	6,057,698	1.53

The Status Report shows a successful year for the DSM portfolio. We maintain a well-balanced portfolio of programs and continue to educate customers on the benefits of choosing energy efficiency. Additional details of individual program’s performance are offered in the Section B below. We also provide any changes to these programs for the 2020 Plan.

B. DSM Program Portfolio

1. Business Lighting Efficiency

The Business Lighting Efficiency program offers retrofit and new construction rebate incentives to commercial and industrial customers who purchase and install qualifying energy efficient lighting products. Rebates are offered to encourage customers to purchase energy efficient lighting by reducing the up-front costs associated with new lighting equipment.

The program budget includes incentives, promotion and administrative costs. Customer incentives make up the majority of the budget while a smaller amount is allotted to

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administration and promotion which includes distributor mailings, local trainings and informational materials

a. 2018 Program Activity and Results

The Business Lighting program achieved six percent more savings than it did the previous year and spent approximately \$23,000 less making it one of the most successful years for the program. We attribute these results to the addition of further customer choices for business lighting. For example, 22 percent of the total energy savings for the program were a result of the addition of LED linear tube rebates in 2018; this amounts to nearly 10,000 units, LED tubes offer customers a less costly alternative than upgrading to an LED troffer.

To enhance our 2018 success, we also invested funding into a South Dakota socket saturation study that will provide data on the number of sockets available and the number of sockets filled with energy efficient products. This will position the program better for forecasting future benefits, limiting additional cost and providing prospects for future marketing activities.

We note rebated and forecasted units in Table 3 below.

Table 3: Business Lighting Efficiency Units

Year	Actual/ Forecasted Units	Additional Information
2014	18,808	Last year of fluorescent rebates
2015	9,766	First year of LED-only
2016	18,416	Achieved
2017	11,700	Achieved
2018	21,291	Supplemental Filing
2019	16,326	Forecasted

b. Proposed Changes

To continue our success in 2020, we continue to expand the rebates offered to customers based on market need. New measures include:

- Adjusted fluorescent baseline for existing High Bay fixtures rebates;
- Mogul base rebates for screw-in replacements for HID lamps;
- T5 linear tube rebates; Stairwell fixture rebates; and

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- Network lighting control rebates, including sensors that provide occupancy, daylight harvesting and high end trim.

Additionally, we continue to reduce incentives due to a continued drop in cost for LED technologies by reducing rebates for LED Interior Screw-in Fixture Retrofit, LED Outdoor Canopy fixtures for New Construction and Refrigerated Case Lighting Retrofit and New Construction.

We provide a listing of all rebates and changes for the Business Program in Attachment B.

2. Business Saver's Switch®

Business Saver's Switch is a prescriptive load management program available to commercial customers. The program uses direct load control to cycle customers' rooftop air conditioning units during periods of peak demand, helping to maintain system reliability. Loads are controlled through the use of load control receivers operated remotely via wireless signals. The program is marketed via direct mail, email and via our customer representatives at our Business Solutions Center.

a. 2018 Program Activity and Results

The Business Saver's Switch program had a successful year. The number of new participants was slightly lower than anticipated, but the achievements were higher. This was due to participants enrolling into the program with larger AC units than projected.

In recent years, the program has had relatively few control events. The program was activated once in 2018. While control seasons in recent years have not been as robust as in the past, the Company is planning to execute at a minimum one control event per cooling season.

b. 2020 Proposed Changes

The budget and projected achievements, for 2020 will be reduced slightly.

3. Electric Rate Savings

The Peak and Energy Control program consists of two programs: (1) Peak Control Services and (2) Energy Control Services. The program is offered to any business customer that can reduce their electric loads by at least 50 kW during control periods initiated by the Company or the Midcontinent Independent System Operator (MISO). In return for reducing their loads, customers receive a monthly discount on their demand

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charges and can potentially save up to 50 percent on their demand charges over the entire year. The program is promoted directly to customers through Xcel Energy's Account Management and Business Solutions Center teams.

Energy savings are calculated using specific customer kW values customers pledge to shed during an event within their customer contract. These values are calculated off incremental customer participation and do not include savings associated with historical participants (those beginning participation prior to 2018). Further, energy savings are not based on the control events conducted within this 2018 annual timeframe, rather the Company uses a historical average. We take into account that MISO has the ability to control these programs up to 20 hours a year.

a. 2018 Program Activity and Results

In 2018, the program spent less than its budget and participants and achievements were below target. The program experienced minor growth to the program's total controllable load.

We did not have any control events for the program in 2018. Unlike in previous years the program also had no test events in 2018 outside of the annual notification tests which do not require program participants to control their load. Program costs were primarily due to administrative and application development costs as the company continues to develop and implement a new notification system.

b. 2020 Proposed Changes

We expect to continue to increase participation in the program during 2020 by promoting directly to qualifying customers through Xcel Energy's account representatives.

4. Home Lighting

The Home Lighting program offers discounted prices on light emitting diode (LED) bulbs. Energy efficient lights are an easy and low cost way for residential and small business customers to save energy and reduce the cost of their monthly electric bills. We promote the Home Lighting program through a variety of channels including bill onserts, emails, digital advertising and point of purchase displays.

We motivate customers to purchase LEDs by offering in-store retail discounts. The discounts are provided through collaboration with bulb manufacturers and retailers. The discount varies depending on the type of bulb and the manufacturer/retailer partner. Discounted prices are received at the cash register, making it easy to participate without

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the hassle of mail-in rebates. Incentives are paid upstream and the discounts are passed on to the customer.

Although the lighting market continues to mature, there is still room for consumers to replace inefficient bulbs with LEDs. The NEMA lamp shipment indices confirm that there is still an opportunity to transform the market, as a majority of the new bulbs shipped to stores are inefficient, either halogen or incandescent.³ We plan to continue to focus on promoting LED bulbs while there is still a chance to influence customers.

The energy savings and budget target for the product was derived by analyzing the market potential and historical sales data, while considering new technologies, available retail channels and participating customer segments. All Xcel Energy South Dakota electric customers are eligible to participate in the program.

a. 2018 Program Activity and Results

The program surpassed the participation and energy savings goals for 2018. The increased achievements were a result of customers looking for ways to reduce their energy bills, responding favorably to promotions and acting on discounted lighting prices. The number of residential versus business bulbs sold is defined in the table below. The program anticipates a small amount of bulbs will be purchased by small business owners. We further note that only LED light bulbs were discounted in 2018.

Table 4: Home Lighting Achievement

Type of Customer	Number of Bulbs Sold	Percent of Bulbs	Rebate Total
Residential	57,969	94%	\$68,089
Business (<i>Generally Small Business</i>)	3,700	6%	\$ 4,346

b. 2020 Proposed Changes

We plan on adding LED linear tubes to increase the variety of LED bulbs offered in the program. The availability of inefficient bulbs may change rapidly over the next three years; however the timing of this change is uncertain. We will adjust the mix of bulbs available as this change plays out to ensure the program continues to influence customers to make efficient choices.

³ <https://www.nema.org/Intelligence/Pages/Lamp-Indices.aspx>

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5. Residential Saver's Switch®

The Residential Saver's Switch program offers a bill discount to customers who agree to allow the Company to remotely control their central air conditioners during the summer months and their electric water heaters regardless of season. Saver's Switch is a significant component of our demand response portfolio. The program is marketed primarily through direct mail.

a. 2018 Program Activity and Results

In 2018, the Saver's Switch program spent its budget while participants and achievements were slightly below target. This is primarily due to higher than anticipated costs for materials and service delivery. Approximately one third of the participants came from the replacement of switches scheduled for maintenance. These switches have outlived their useful life and were due for equipment replacement.

The program had no control events in 2018 outside of a scheduled event. While control seasons in recent years have not been nearly as robust as in the past, the Company continues to plan for the execution of a minimum of one control event per cooling season.

b. 2020 Proposed Changes

The Residential Saver's Switch program will begin to be part of our Residential Demand Response program beginning in 2020. We describe this at more length Section V.

C. Additional Demand Side Efforts

1. Trade Partners

We consider our Trade Partners to be contractors, distributors and manufacturers of energy-efficient equipment. The Company values our Trade Partners as one of the most important marketing channels for DSM. Trade Partners promote our programs to our customers, verify that the equipment they are installing meets our program specifications and help complete rebate paperwork.

We support our Trade Partners through training workshops, Account Manager activities, phone support and email communications. Training workshops are scheduled on an as-needed basis.

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Our Account Manager in Sioux Falls has an important role in supporting the efforts of our Trade Partners in South Dakota. He is available to meet with Trade Partners for program training, site visits, and help with rebate paperwork.

Xcel Energy's Trade Relations Managers are based in Minneapolis and assist our South Dakota Trade Partners as needed. They provide phone support for questions on our rebate specifications and paperwork. They produce email updates to Trade Partners when there is important information to share. Trade Relations Managers are also available to travel to South Dakota to provide in-depth program training as needed.

2. Consumer Education

The Consumer Education program is part of the Company's residential program portfolio. The program's focus is to provide customers with simple ways they can make their home more energy efficient while driving them to our portfolio of energy savings programs. We focused efforts in 2018 on three specific tactics: community events, digital outreach and bill communications. Utilizing different tactics is critical to reaching a wide variety of customers.

a. Community Events

The program's primary focus at community events is to drive customers to take "action," whether through a targeted program lead or a direct program signup, and to provide customers with information on how they can make their home more energy efficient. Our 2018 events allowed us to help customers, in-person, with energy-related questions and recommended energy efficiency programs and actions that were a fit for their individual homes.

In 2018, the Company participated in three large community events:

- February 23-25 – Empire Home Show, Sioux Falls Convention Center, Sioux Falls
- July 20-21 – Sioux Falls Jazz Festival, Yankton Trails Park, Sioux Falls
- November 10-11 – Autumn Arts and Crafts Festival, Denny Sanford Premier Center, Sioux Falls

b. Digital Outreach

In addition to face-to-face community outreach, the program has invested in a digital video series to help reach a wide variety of customers outside of targeted community events. The video series developed by the company, "This Is How," is a series of tutorials on how to make simple, no- and low-cost energy saving changes to customers' homes.

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c. Bill Communications

The program also utilizes bill communications via onserts, a cost-effective way to communicate with large groups of residential customers. We place bill onserts to promote easy ways customers could lower their summer cooling costs.

d. Participation

Participation achievement continues to be measured through various educational opportunities as noted below:

- Sponsored event attendance;
- Program signups generated at sponsored events;
- Program leads generated at sponsored events; and
- Seasonal email campaign/bill onserts.

e. 2020 Program Changes

In 2020, we will continue to increase the reach of the program by exploring additional digital and mobile tools to offer customers.

3. Regulatory Affairs

The Planning & Administration group manages all DSM regulatory filings, directs and prepares cost-benefit analysis, provides results of energy conservation achievements and prepares cost recovery reports. This group also provides procedures for effectively addressing requirements and complying with the DSM regulatory process. The entirety of the budget is to cover non-direct program labor including labor for such things as regulatory filings and requests plus our DSM Rider onsert.

a. 2020 Proposed Changes

The Company is adjusting our spend forecast to align with actual costs.

II. DSM Cost Recovery Report

Cost-effective conservation benefits customers by reducing the need to build a new power plant or other generation facilities to meet our customers' electricity needs. Conservation also has environmental benefits, including a reduction in air pollution and greenhouse gas

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emissions associated with using fossil fuels. This section reports the actual 2018 spending and cost recovery as well as the Company's carrying charge rates.

In 2018, the total portfolio spend came in at \$776,907. This amount is slightly above our approved budget of \$774,408, and falls within the ten percent spend flexibility granted by the Commission.⁴ In addition to DSM expenses, the Company is requesting recovery of \$232,322 in financial incentive earned for our 2018 DSM performance for total recovery of \$1,009,228.⁵

Supportive documentation for this cost recovery request, some of which falls under the category of confidential data, is provided as Attachment C of this filing and includes:

- Calculations of the Carrying Charge Rates in 2018 and found in the 2018 Tracker; and
- Xcel Energy's 2018 DSM Tracker, which documents monthly DSM expenditures and recovered costs.

III. DSM Incentive Report – Calculation Inputs

In accordance with the Commission's October 21, 2011 Order, which approved an incentive of 30 percent of expenditures capped at the approved budget. The Company submits the following 2018 incentive calculation.

Approved Budget	\$774,408
Actual Spend	\$776,907

Since the actual expenditure was greater than the approved budget, the incentive was capped at the approved budget amount. The incentive is calculated as follows: Approved Budget x 30% = Awarded Incentive or **\$774,408 x 30% = \$232,322.**

This incentive is accounted for in our 2018 DSM Tracker included in Attachment C.

⁴ The Commission approved a 10 percent spend flexibility beginning in 2013 as part of the approval of the Company's 2012 DSM Status Report and 2014 DSM Proposed Plan. (Docket No. EL13-017)

⁵ Our final 2018 Tracker notes this amount at **[CONFIDENTIAL DATA BEGINS HERE CONFIDENTIAL DATA ENDS HERE]** due to an under recovery of the 2018 incentive. The additional amount appears as a top line adjustment in the 2019 Tracker.

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IV. DSM Cost Adjustment Factor Report

The current DSM Cost Adjustment Factor of \$0.000464 per kWh was implemented on January 1, 2019.⁶ The Company requests a new DSM Cost Adjustment Factor of \$0.000475 per kWh to be effective with the first billing cycle of January 2020.

Supportive documentation for this rate change request, some of which falls under the category of confidential data, is provided as Attachment D of this filing and includes:

- Information specified in South Dakota Administrative Rule 20:10:13:26 regarding the updated DSM Cost Adjustment Factor;
- Forecasted 2019 and 2020 DSM Trackers reflecting the forecasted cost recovery with the current and proposed rates;
- Proposed bill onsert notice; and
- Proposed updated tariff sheet in both redlined and clean versions.

The Company requests a new DSM Cost Adjustment Factor of \$0.000475 per customer kWh to be effective with the first billing cycle of January 2020 and to remain in effect through December 2020 or until the Commission approves a new DSM Cost Adjustment Factor. This is an increase of \$0.000011 per kWh or two percent. The increase is due to the 2018 adjustment being slightly under recovered.

In the event that Commission approval of the proposed adjustment is delayed beyond the timeframe needed to implement the rate change by January 1, 2020 the Company will continue to apply the current DSM Cost Adjustment of \$0.000464 per kWh up to the first cycle of the first full billing period following Commission approval of a revised factor.

This proposed factor is calculated to reduce the DSM Tracker balance to \$0 by the end of December 2020. It is based on the forecasted December 2020 unrecovered balance in the Company's DSM Tracker account. This forecasted balance is based on the forecasted January 2019 beginning balance, projected expenditures for 2020 and the forecasted 2020 incentive. The inputs and calculation are shown below.

[CONFIDENTIAL DATA BEGINS HERE]

⁶ Docket EL18-023, Commission Order December 18, 2018.

CONFIDENTIAL DATA ENDS HERE]

This calculation results in a rate that would recover the sum of the beginning balance, approved expenditures and estimated incentives over the January 1, 2019 – December 31, 2020 period. This rate of **[CONFIDENTIAL DATA BEGINS HERE**

CONFIDENTIAL DATA ENDS HERE] would result in a negative balance because it does not consider carrying charges, which are negative for several months during 2020. To get as close to a possible \$0 balance by December 31, 2020, the rate was incrementally decreased to reflect future inclusion of carrying charges, until the balance approached \$0 without going negative. The resulting rate is **\$0.000475 per customer kWh.**

We note that the bill onsert for the DSM Cost Adjustment Factor has, in the past, been combined with the South Dakota Infrastructure Rider Rate. Attempts are made to limit the amount of onserts per bill when necessary; this further reduces cost. We will combine in 2020 if timing of each filing allows the ability to do so.

V. 2020 DSM Plan

This section includes a summary of our proposed 2020 Plan. The Company is expanding their DSM portfolio to include additional lighting measures for both residential and commercial customers.⁷ In addition, we are adding two additional residential programs as described below.

A. New Programs

1. Heat Pump Water Heaters

The Heat Pump Water Heaters program offers retrofit and new construction rebate incentives to residential customers who purchase and install qualifying energy efficient heat pump water heaters. Rebates are offered to encourage customers to purchase energy efficient heat pump water heaters by reducing the up-front costs associated with new heat pump water heaters.

⁷ We outline these changes in Attachment B.

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We are adding this new product to our demand side management program in 2020 based on our home energy use survey's showing the interest in these products specifically with South Dakota residential customers. Heat pump water heaters have a much larger incremental cost but save a significant amount of energy over an electric resistance water heater. The up-front cost of the technology is a barrier for most customers. We want to encourage the use of energy-efficient opportunities with our customers and providing rebates, in the amount of \$400, on electric heat pump water heaters will reduce customer barriers towards energy efficient options.

The program budget includes incentives, promotion and administrative costs. The incentives make up the majority of the budget while a smaller amount is allotted to administration and promotion which includes customer mailings, in-store signage at local retailers and information materials.

2. Residential Demand Response

In 2020, the Company will offer two demand response products to our residential customers: Saver's Switch and AC Rewards. The AC Rewards program and the associated ENERGY STAR® thermostat rebate will be added to the Saver's Switch program to create the new Residential Demand Response program. Both products target central air conditioners for reducing system load during demand peaks. Both offerings will be promoted primarily via email, direct mail and the Company's customer care organization.

Saver's Switch offers a seasonal bill discount to customers who agree to allow the Company to remotely control their central air conditioners during the summer months. Customers with qualifying electric water heaters can also enroll this equipment. Electric water heaters can be controlled year-round and customers receive incentives for their participation year-round.

The AC Rewards program (smart thermostat offering) offers residential electric customers the opportunity to implement a new load management option. The purpose of this product is to allow the company to control residential cooling load when deemed it is needed. The product will be "Bring Your Own Thermostat (BYOT)". Any customer who has a thermostat that meets the Company's qualifying criteria, and has central AC, may participate. Customers will be incentivized with a onetime incentive for enrolling their qualifying device in AC Rewards. Customers that do not have one can receive a discount for purchasing and installing an ENERGY STAR® rated thermostat (that also qualifies for the AC Rewards product).

AC Rewards will provide residential customers with an additional option to participate in reducing system demand peaks with more control by giving customer the option to, if

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needed, opt-out of a control event. Customers with a qualifying thermostat can enroll online. Once enrolled, participation will continue until the customer notifies us that they are leaving the program.

The program includes a rebate for new ENERGY STAR® connected thermostats eligible for AC Rewards. Thermostats meeting the ENERGY STAR® Connected Thermostat specification have demonstrated the ability to achieve energy savings through HVAC equipment runtime reductions, specifically an 8 percent or higher reduction in heating equipment runtime and a 10 percent or higher reduction for cooling equipment runtime.

In addition, offering the energy efficiency incentive for ENERGY STAR® Connected Thermostat will increase the stock of Residential Demand Response-eligible thermostats. Even if customers do not choose immediately to enroll in the Residential Demand Response program, they will be able to do so at any time during the lifetime of their smart thermostats.

Budget and goal projections will proportionality increase with this new combined offering. The AC Rewards program is expecting to install and enroll 200 smart thermostats in 2020. The volume of rebated ENERGY STAR® thermostats is projected at 700 per year.

B. 2020 Executive Summary

Table 5 summarizes our proposed goals and provides updated cost-effectiveness results by program. The total portfolio has a passing TRC Ratio of 1.60. The budget is higher than our 2019 filed budget due to additional program offerings. A full executive summary, which includes all cost-effectiveness test results, is provided as Attachment E.

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Table 5 – Executive Summary Table of 2020 Forecast

2020	Electric Participants	Electric Budget	Generator kW	Generator kWh	TRC Ratio
Business Segment					
Lighting Efficiency	341	\$389,320	453	3,960,428	1.20
Business Saver's Switch	10	\$25,250	28	39	1.23
Peak and Energy Control	1	\$10,000	101	3,713	4.60
Business Segment Total	352	\$424,570	582	3,964,179	1.21
Residential Segment					
Home Lighting	5,245	\$96,756	408	3,009,728	3.57
Residential Demand Response	1,410	\$235,500	817	99,889	2.82
Consumer Education	68,000	\$21,165	0	0	N/A
Water Heating	21	\$15,000	12	82,115	1.35
Residential Segment Total	74,676	\$368,421	1,237	3,191,731	2.89
Planning Segment					
Regulatory Affairs	0	\$14,000	0	0	N/A
Planning Segment Total	0	\$0	0	0	N/A
Portfolio Total	75,028	\$806,991	1,819	7,155,910	1.60

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Service of Filings

We request that communications regarding this Application be directed to:

Jim Erickson
Records Analyst
Xcel Energy Services Inc.
414 Nicollet Mall, 401-8
Minneapolis, MN 55401
(612) 330-5500
Regulatory.Records@xcelenergy.com

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CONCLUSION

In summary, the Company respectfully requests that the Commission:

- Approve the Company's 2018 DSM Tracker account;
- Approve the incentive of \$232,322 earned for 2018 program performance;
- Approve the proposed 2020 electric DSM Adjustment Factor of \$0.000475 per kWh; and
- Approve the proposed 2020 DSM Plan.

We look forward to continuing these programs in South Dakota. The Company appreciates the interest and efforts of South Dakota policy makers in supporting this DSM portfolio.

Dated: May 1, 2019

Xcel Energy



By:

Steve Kolbeck
Principal Manager –South Dakota

Full Executive Summary Table - 2018 Actual Achievements																		
2018	GOAL				ACTUAL										TEST RESULTS			
	Participants	Electric Budget	Generator kW	Generator kWh	Participants	% of Goal	Electric Spend	% of Goal	Generator kW	% of Goal	Generator kWh	Lifetime years	Lifetime kWh	% of Goal	Part Ratio	Utility Ratio	RIM Ratio	TRC Ratio
Business Segment																		
Lighting Efficiency	325	\$ 389,520	509	3,913,384	134	41%	\$394,257	101%	506	99%	3,497,612	16.82	58,841,050	89%	2.56	5.11	0.54	1.27
Business Saver's Switch	12	\$ 37,213	44	108	10	83%	\$44,850	121%	54	123%	129	15.00	1,936	120%	INF	1.30	0.52	1.30
Peak and Energy Control	1	\$ 10,000	102	3,707	3	300%	\$3,876	39%	11	11%	408	5.00	2,041	11%	INF	1.34	0.11	1.34
Business Segment Total	338	\$ 436,733	655	3,917,198	147	43%	\$442,982	101%	571	87%	3,498,149	16.82	58,845,027	89%	2.63	4.69	0.53	1.27
Residential Segment																		
Residential Home Lighting	3,225	\$ 109,598	162	1,480,452	4,601	143%	\$98,643	90%	282	174%	2,558,158	5.27	13,469,186	173%	17.14	5.32	0.37	3.31
Residential Saver's Switch	770	\$ 187,913	565	1,486	637	83%	\$185,091	98%	485	86%	1,391	15.00	20,868	94%	INF	2.86	0.83	2.86
Consumer Education	68,000	\$ 27,165			79,218	116%	\$35,868	132%	0	N/A	0	N/A	N/A	N/A	-	-	-	N/A
Residential Segment Total	71,995	\$ 324,676	727	1,481,938	84,456	117%	\$319,602	98%	767	105%	2,559,550	5.27	13,490,054	173%	22.71	3.30	0.50	2.81
Planning Segment																		
Regulatory Affairs	0	\$ 13,000	0	0	0	N/A	\$14,323	110%	0	N/A	0	N/A	N/A	N/A	-	-	-	N/A
Planning Segment Total	0	\$ 13,000	0	0	0	N/A	\$14,323	110%	0	N/A	0	N/A	N/A	N/A	-	-	-	N/A
PORTFOLIO TOTAL	72,333	\$ 774,408	1,382	5,399,136	84,603	117%	\$776,907	100%	1,338	97%	6,057,698	11.94	72,335,081	112%	3.70	4.03	0.52	1.53

2018 SD DSM Year End Cost-Effectiveness Analysis

LIGHTING EFFICIENCY						2018	ELECTRIC	ACTUAL
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	16.8 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	57.52%
Generation	N/A	\$367,883	\$367,883	\$367,883	\$367,883	Gross Load Factor at Customer	E	46.70%
T & D	N/A	\$218,560	\$218,560	\$218,560	\$218,560	Transmission Loss Factor (Energy)	F	4.710%
Marginal Energy	N/A	\$1,429,765	\$1,429,765	\$1,429,765	\$1,429,765	Transmission Loss Factor (Demand)	G	7.380%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$619
Subtotal	N/A	\$2,016,208	\$2,016,208	\$2,016,208	\$2,016,208	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	6.08 kW
Bill Reduction - Electric	\$3,371,866	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$331,051	N/A	N/A	\$331,051	\$331,051	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$3,702,917	N/A	N/A	\$331,051	\$331,051	Total Participants	J	134
Total Benefits						Total Budget	K	\$394,257
Costs						Gross kW Saved at Customer	$(J \times I)$	814.72 kW
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Utility Administration	N/A	\$63,205	\$63,205	\$63,205	\$63,205	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Societal Net Benefits	$(J \times I \times H)$	
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Rebates	N/A	\$331,051	\$331,051	\$331,051	\$331,051	Utility Program Cost per kW at Gen		
Other	N/A	\$0	\$0	\$0	\$0	\$0.0067		
Subtotal	N/A	\$394,257	\$394,257	\$394,257	\$394,257	\$779		
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$3,371,866	N/A	N/A			
Subtotal	N/A	N/A	\$3,371,866	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$1,334,410	N/A	N/A	\$1,334,410	\$1,334,410			
Incremental O&M Costs	\$114,229	N/A	N/A	\$114,229	\$114,229			
Subtotal	\$1,448,640	N/A	N/A	\$1,448,640	\$1,448,640			
Total Costs								
	\$1,448,640	\$394,257	\$3,766,123	\$1,842,896	\$1,842,896			
Net Benefit (Cost)								
	\$2,254,278	\$1,621,952	(\$1,749,914)	\$504,363	\$504,363			
Benefit/Cost Ratio								
	2.56	5.11	0.54	1.27	1.27			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

BUSINESS SAVER'S SWITCH						2018	ELECTRIC	ACTUAL
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	15.0 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	20.23%
Generation	N/A	\$36,237	\$36,237	\$36,237	\$36,237	Gross Load Factor at Customer	E	0.01%
T & D	N/A	\$22,044	\$22,044	\$22,044	\$22,044	Transmission Loss Factor (Energy)	F	4.710%
Marginal Energy	N/A	\$78	\$78	\$78	\$78	Transmission Loss Factor (Demand)	G	7.380%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$55
Subtotal	N/A	\$58,360	\$58,360	\$58,360	\$58,360	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	24.49 kW
Bill Reduction - Electric	\$67,212	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	5.35 kW
Rebates from Xcel Energy	\$0	N/A	N/A	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	12 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	13 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$67,212	N/A	N/A	\$0	\$0	Total Participants	J	10
Total Benefits						Total Budget	K	\$44,850
Costs						Gross kW Saved at Customer	$(J \times I)$	244.93 kW
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	53 kW
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	123 kWh
Utility Administration	N/A	\$44,574	\$44,574	\$44,574	\$44,574	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	129 kWh
Advertising & Promotion	N/A	\$275	\$275	\$275	\$275	Societal Net Benefits	$(J \times I \times H)$	\$13,510
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Rebates	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Other	N/A	\$0	\$0	\$0	\$0			\$23.1639
Subtotal	N/A	\$44,850	\$44,850	\$44,850	\$44,850			\$838
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$67,212	N/A	N/A			
Subtotal	N/A	N/A	\$67,212	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$0	N/A	N/A	\$0	\$0			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$0	N/A	N/A	\$0	\$0			
Total Costs								
	\$0	\$44,850	\$112,062	\$44,850	\$44,850			
Net Benefit (Cost)								
	\$67,212	\$13,510	(\$53,703)	\$13,510	\$13,510			
Benefit/Cost Ratio								
	INF	1.30	0.52	1.30	1.30			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

PEAK AND ENERGY CONTROL						2018	ELECTRIC	ACTUAL	
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	5.0 years	
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760	
Benefits						Gross Customer kW	C	1 kW	
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	47.46%	
Generation	N/A	\$3,159	\$3,159	\$3,159	\$3,159	Gross Load Factor at Customer	E	0.20%	
T & D	N/A	\$1,912	\$1,912	\$1,912	\$1,912	Transmission Loss Factor (Energy)	F	4.710%	
Marginal Energy	N/A	\$113	\$113	\$113	\$113	Transmission Loss Factor (Demand)	G	7.380%	
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$59	
Subtotal	N/A	\$5,184	\$5,184	\$5,184	\$5,184	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I	7.33 kW	
Bill Reduction - Electric	\$43,714	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		3.76 kW
Rebates from Xcel Energy	\$0	N/A	N/A	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		130 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		136 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$43,714	N/A	N/A	\$0	\$0	Total Participants	J	3	
Total Benefits						Total Budget	K	\$3,876	
Costs						Gross kW Saved at Customer	$(J \times I)$	22.00 kW	
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		11 kW
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		389 kWh
Utility Administration	N/A	\$3,876	\$3,876	\$3,876	\$3,876	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		408 kWh
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Societal Net Benefits	$(J \times I \times H)$		\$1,308
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			\$1,8989
Rebates	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen			\$344
Other	N/A	\$0	\$0	\$0	\$0				
Subtotal	N/A	\$3,876	\$3,876	\$3,876	\$3,876				
Utility Revenue Reduction									
Revenue Reduction - Electric	N/A	N/A	\$43,714	N/A	N/A				
Subtotal	N/A	N/A	\$43,714	N/A	N/A				
Participant Costs									
Incremental Capital Costs	\$0	N/A	N/A	\$0	\$0				
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0				
Subtotal	\$0	N/A	N/A	\$0	\$0				
Total Costs									
	\$0	\$3,876	\$47,590	\$3,876	\$3,876				
Net Benefit (Cost)									
	\$43,714	\$1,308	(\$42,406)	\$1,308	\$1,308				
Benefit/Cost Ratio									
	INF	1.34	0.11	1.34	1.34				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

BUSINESS SEGMENT TOTAL						2018	ELECTRIC	ACTUAL
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	16.8 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	48.87%
Generation	N/A	\$407,279	\$407,279	\$407,279	\$407,279	Gross Load Factor at Customer	E	35.18%
T & D	N/A	\$242,516	\$242,516	\$242,516	\$242,516	Transmission Loss Factor (Energy)	F	4.710%
Marginal Energy	N/A	\$1,429,957	\$1,429,957	\$1,429,957	\$1,429,957	Transmission Loss Factor (Demand)	G	7.380%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$480
Subtotal	N/A	\$2,079,752	\$2,079,752	\$2,079,752	\$2,079,752	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	7.36 kW
Bill Reduction - Electric	\$3,482,792	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$331,051	N/A	N/A	\$331,051	\$331,051	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$3,813,843	N/A	N/A	\$331,051	\$331,051	Total Participants	J	147
Total Benefits						Total Budget	K	\$442,982
Costs						Gross kW Saved at Customer	$(J \times I)$	1,081.65 kW
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Utility Administration	N/A	\$111,656	\$111,656	\$111,656	\$111,656	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Advertising & Promotion	N/A	\$275	\$275	\$275	\$275	Societal Net Benefits	$(J \times I \times H)$	
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Rebates	N/A	\$331,051	\$331,051	\$331,051	\$331,051	Utility Program Cost per kW at Gen		
Other	N/A	\$0	\$0	\$0	\$0	\$0.0075		
Subtotal	N/A	\$442,982	\$442,982	\$442,982	\$442,982	\$776		
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$3,482,792	N/A	N/A			
Subtotal	N/A	N/A	\$3,482,792	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$1,334,410	N/A	N/A	\$1,334,410	\$1,334,410			
Incremental O&M Costs	\$114,229	N/A	N/A	\$114,229	\$114,229			
Subtotal	\$1,448,640	N/A	N/A	\$1,448,640	\$1,448,640			
Total Costs								
	\$1,448,640	\$442,982	\$3,925,774	\$1,891,622	\$1,891,622			
Net Benefit (Cost)								
	\$2,365,204	\$1,636,769	(\$1,846,023)	\$519,181	\$519,181			
Benefit/Cost Ratio								
	2.63	4.69	0.53	1.27	1.27			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

RESIDENTIAL HOME LIGHTING						2018	ELECTRIC	ACTUAL
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	5.3 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	11.85%
Generation	N/A	\$71,414	\$71,414	\$71,414	\$71,414	Gross Load Factor at Customer	E	12.74%
T & D	N/A	\$43,229	\$43,229	\$43,229	\$43,229	Transmission Loss Factor (Energy)	F	5.132%
Marginal Energy	N/A	\$409,767	\$409,767	\$409,767	\$409,767	Transmission Loss Factor (Demand)	G	8.509%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$191
Subtotal	N/A	\$524,410	\$524,410	\$524,410	\$524,410	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	0.47 kW
Bill Reduction - Electric	\$1,323,601	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$71,587	N/A	N/A	\$71,587	\$71,587	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$1,395,188	N/A	N/A	\$71,587	\$71,587	Total Participants	J	4,601
Total Benefits						Total Budget	K	\$98,643
Costs						Gross kW Saved at Customer	$(J \times I)$	2,174.16 kW
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Utility Administration	N/A	\$21,813	\$21,813	\$21,813	\$21,813	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Advertising & Promotion	N/A	\$5,244	\$5,244	\$5,244	\$5,244	Societal Net Benefits	$(J \times I \times H)$	
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Rebates	N/A	\$71,587	\$71,587	\$71,587	\$71,587	Utility Program Cost per kW at Gen		
Other	N/A	\$0	\$0	\$0	\$0	\$0.0073		
Subtotal	N/A	\$98,643	\$98,643	\$98,643	\$98,643	\$350		
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$1,323,601	N/A	N/A			
Subtotal	N/A	N/A	\$1,323,601	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$81,380	N/A	N/A	\$81,380	\$81,380			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$81,380	N/A	N/A	\$81,380	\$81,380			
Total Costs								
	\$81,380	\$98,643	\$1,422,244	\$180,023	\$180,023			
Net Benefit (Cost)								
	\$1,313,808	\$425,766	(\$897,835)	\$415,973	\$415,973			
Benefit/Cost Ratio								
	17.14	5.32	0.37	3.31	3.31			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

RESIDENTIAL SAVER'S SWITCH						2018	ELECTRIC	ACTUAL	
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	15.0 years	
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760	
Benefits						Gross Customer kW	C	1 kW	
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	27.89%	
Generation	N/A	\$328,601	\$328,601	\$328,601	\$328,601	Gross Load Factor at Customer	E	0.01%	
T & D	N/A	\$199,896	\$199,896	\$199,896	\$199,896	Transmission Loss Factor (Energy)	F	5.260%	
Marginal Energy	N/A	\$654	\$654	\$654	\$654	Transmission Loss Factor (Demand)	G	8.580%	
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$216	
Subtotal	N/A	\$529,150	\$529,150	\$529,150	\$529,150	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I	2.50 kW	
Bill Reduction - Electric	\$452,600	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		0.76 kW
Rebates from Xcel Energy	\$0	N/A	N/A	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		2 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		2 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$452,600	N/A	N/A	\$0	\$0	Total Participants	J	637	
Total Benefits						Total Budget	K	\$185,091	
Costs						Gross kW Saved at Customer	$(J \times I)$	1,590.10 kW	
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		485 kW
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		1,318 kWh
Utility Administration	N/A	\$183,696	\$183,696	\$183,696	\$183,696	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		1,391 kWh
Advertising & Promotion	N/A	\$1,395	\$1,395	\$1,395	\$1,395	Societal Net Benefits	$(J \times I \times H)$		\$344,059
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			\$8.8698
Rebates	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen			\$382
Other	N/A	\$0	\$0	\$0	\$0				
Subtotal	N/A	\$185,091	\$185,091	\$185,091	\$185,091				
Utility Revenue Reduction									
Revenue Reduction - Electric	N/A	N/A	\$452,600	N/A	N/A				
Subtotal	N/A	N/A	\$452,600	N/A	N/A				
Participant Costs									
Incremental Capital Costs	\$0	N/A	N/A	\$0	\$0				
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0				
Subtotal	\$0	N/A	N/A	\$0	\$0				
Total Costs									
	\$0	\$185,091	\$637,690	\$185,091	\$185,091				
Net Benefit (Cost)									
	\$452,600	\$344,059	(\$108,541)	\$344,059	\$344,059				
Benefit/Cost Ratio									
	INF	2.86	0.83	2.86	2.86				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

RESIDENTIAL SEGMENT TOTAL						2018	ELECTRIC	ACTUAL
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	5.3 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	18.63%
Generation	N/A	\$400,015	\$400,015	\$400,015	\$400,015	Gross Load Factor at Customer	E	7.36%
T & D	N/A	\$243,124	\$243,124	\$243,124	\$243,124	Transmission Loss Factor (Energy)	F	5.132%
Marginal Energy	N/A	\$410,421	\$410,421	\$410,421	\$410,421	Transmission Loss Factor (Demand)	G	8.539%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$192
Subtotal	N/A	\$1,053,560	\$1,053,560	\$1,053,560	\$1,053,560	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	0.04 kW
Bill Reduction - Electric	\$1,776,201	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	0.01 kW
Rebates from Xcel Energy	\$71,587	N/A	N/A	\$71,587	\$71,587	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	29 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	30 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$1,847,787	N/A	N/A	\$71,587	\$71,587	Total Participants	J	84,456
Total Benefits						Total Budget	K	\$319,602
Costs						Gross kW Saved at Customer	$(J \times I)$	3,764.26 kW
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	767 kW
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	2,428,202 kWh
Utility Administration	N/A	\$212,498	\$212,498	\$212,498	\$212,498	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	2,559,550 kWh
Advertising & Promotion	N/A	\$35,518	\$35,518	\$35,518	\$35,518	Societal Net Benefits	$(J \times I \times H)$	\$724,164
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Rebates	N/A	\$71,587	\$71,587	\$71,587	\$71,587	Utility Program Cost per kWh at Gen		\$0.0237
Other	N/A	\$0	\$0	\$0	\$0			\$417
Subtotal	N/A	\$319,602	\$319,602	\$319,602	\$319,602			
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$1,776,201	N/A	N/A			
Subtotal	N/A	N/A	\$1,776,201	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$81,380	N/A	N/A	\$81,380	\$81,380			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$81,380	N/A	N/A	\$81,380	\$81,380			
Total Costs								
	\$81,380	\$319,602	\$2,095,803	\$400,982	\$400,982			
Net Benefit (Cost)								
	\$1,766,408	\$733,958	(\$1,042,243)	\$724,164	\$724,164			
Benefit/Cost Ratio								
	22.71	3.30	0.50	2.81	2.81			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

PORTFOLIO TOTAL						2018	ELECTRIC	ACTUAL			
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals					
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW					
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	11.9 years			
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760			
Benefits						Gross Customer kW	C	1 kW			
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	25.32%			
Generation	N/A	\$807,294	\$807,294	\$807,294	\$807,294	Gross Load Factor at Customer	E	13.57%			
T & D	N/A	\$485,640	\$485,640	\$485,640	\$485,640	Transmission Loss Factor (Energy)	F	4.888%			
Marginal Energy	N/A	\$1,840,377	\$1,840,377	\$1,840,377	\$1,840,377	Transmission Loss Factor (Demand)	G	8.283%			
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$254			
Subtotal	N/A	\$3,133,311	\$3,133,311	\$3,133,311	\$3,133,311	Program Summary per Participant					
Participant Benefits						Gross kW Saved at Customer	I	0.06 kW			
Bill Reduction - Electric	\$5,258,993	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	0.02 kW			
Rebates from Xcel Energy	\$402,638	N/A	N/A	\$402,638	\$402,638	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	68 kWh			
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	72 kWh			
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants					
Subtotal	\$5,661,631	N/A	N/A	\$402,638	\$402,638	Total Participants	J	84,603			
Total Benefits						Total Budget	K	\$776,907			
	\$5,661,631	\$3,133,311	\$3,133,311	\$3,535,949	\$3,535,949	Gross kW Saved at Customer	$(J \times I)$	4,845.91 kW			
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	1,338 kW			
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	5,761,588 kWh			
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	6,057,698 kWh			
Utility Administration	N/A	\$338,492	\$338,492	\$338,492	\$338,492	Societal Net Benefits	$(J \times I \times H)$	\$1,229,022			
Advertising & Promotion	N/A	\$35,778	\$35,778	\$35,778	\$35,778	Utility Program Cost per kWh Lifetime					
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh at Gen		\$0.0107			
Rebates	N/A	\$402,638	\$402,638	\$402,638	\$402,638			\$581			
Other	N/A	\$0	\$0	\$0	\$0	Participant Costs					
Subtotal	N/A	\$776,907	\$776,907	\$776,907	\$776,907	Incremental Capital Costs	\$1,415,790	\$1,415,790			
Utility Revenue Reduction						Incremental O&M Costs	\$114,229	\$114,229			
Revenue Reduction - Electric	N/A	N/A	\$5,258,993	N/A	N/A	Subtotal	\$1,530,019	\$1,530,019			
Subtotal	N/A	N/A	\$5,258,993	N/A	N/A	Total Costs					
Net Benefit (Cost)							\$1,530,019	\$776,907	\$6,035,900	\$2,306,927	\$2,306,927
Benefit/Cost Ratio											
	3.70	4.03	0.52	1.53	1.53						

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 Lighting Measures

Type	Lighting Efficiency	2018 Rebate Amount (\$)	2019 Rebate Amount (\$)	2020 Rebate Amount (\$)	Rebate Adjustment	Justification
Retrofit	Wall mount occupancy sensor - 50 Watts to 300 Watts Controlled Load	\$ 15.00	\$ 15.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Wall mount occupancy sensor - Greater than 300 Watts Controlled Load	\$ 25.00	\$ 25.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Ceiling mount occupancy sensor - 50 Watts to 300 Watts Controlled Load	\$ 30.00	\$ 30.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Ceiling mount occupancy sensor - Greater than 300 Watts Controlled Load	\$ 40.00	\$ 40.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Occupancy Sensor - Photozell	\$ 25.00	\$ 25.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Stairwell Fixture with Integral Occupancy Sensor	\$ 25.00	\$ 25.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Stairwell Fixture	\$ -	\$ -	\$ 40	New in 2020	Decoupled integral control and fixture rebate. Customers can obtain standalone or networked lighting controls in addition to fixture rebate.
Retrofit	Networked Lighting Controls	\$ -	\$ -	\$ 40/watt	New in 2020	New Technology
Retrofit	Standalone Occupancy sensor	\$ -	\$ -	\$ 05/watt	New in 2020	New Technology
Retrofit	Standalone Daylighting sensor	\$ -	\$ -	\$ 10/watt	New in 2020	New Technology
Retrofit	Standalone Daylighting & Occupancy sensors	\$ -	\$ -	\$ 015/watt	New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 30-39W	\$ -	\$ -	\$ 30.00	New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 40-49W	\$ -	\$ -	\$ 40.00	New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 50-79W	\$ -	\$ -	\$ 50.00	New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 80-119W	\$ -	\$ -	\$ 60.00	New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 120-230W	\$ -	\$ -	\$ 75.00	New in 2020	New Technology
Retrofit	LED/LFC Exit Sign	\$ 25.00	\$ 25.00	\$ 25.00	NA	
Retrofit	LED Interior Screw In Fixture Retrofit	\$ 15.00	\$ 15.00	\$ 10.00	Rebate reduced in 2020	Change in incremental cost
Retrofit	LED Interior Fixture <= 25W	\$ 35.00	\$ 20.00	\$ 20.00	Change in 2020	Add CFL baseline
Retrofit	LED Interior Fixture 26W - 50W	\$ 50.00	\$ 40.00	\$ 40.00	Change in 2020	Add CFL baseline
Retrofit	LED Ref and Frz Cases 5' or 6' doors	\$ 100.00	\$ 100.00	\$ 45.00	Rebate reduced in 2020	Increase in rebate to promote technology
Retrofit	LED Parking Garage Lighting 25W-60W	\$ 75.00	\$ 75.00	\$ 75.00	NA	
Retrofit	LED Area Lighting - 45-65W	\$ 25.00	\$ 25.00	\$ 25.00	NA	
Retrofit	LED Area Lighting - 66-89W	\$ 25.00	\$ 25.00	\$ 25.00	NA	
Retrofit	LED Area Lighting - 90-119W	\$ 50.00	\$ 50.00	\$ 50.00	NA	
Retrofit	LED Area Lighting - 120-140W	\$ 50.00	\$ 50.00	\$ 50.00	NA	
Retrofit	LED Troffer Fixture 1X4	\$ 20.00	\$ 20.00	\$ 20.00	NA	
Retrofit	LED Troffer Fixture 2X2	\$ 20.00	\$ 20.00	\$ 20.00	NA	
Retrofit	LED Troffer Fixture 2X4	\$ 30.00	\$ 30.00	\$ 30.00	NA	
Retrofit	LED Troffer Retrofit Kit 1X4	\$ 15.00	\$ 15.00	\$ 15.00	NA	
Retrofit	LED Troffer Retrofit Kit 2X2	\$ 15.00	\$ 15.00	\$ 15.00	NA	
Retrofit	LED Troffer Retrofit Kit 2X4	\$ 25.00	\$ 25.00	\$ 25.00	NA	
Retrofit	LED Exterior Wall Pack <= 25W	\$ 35.00	\$ 25.00	\$ 25.00	NA	
Retrofit	LED Exterior Wall Pack 26W - 60W	\$ 75.00	\$ 50.00	\$ 50.00	NA	
Retrofit	LED Exterior Wall Pack 61W - 150W	\$ 100.00	\$ 80.00	\$ 80.00	NA	
Retrofit	LED Parking Garage Wall Pack <= 25W	\$ 35.00	\$ 35.00	\$ 35.00	NA	
Retrofit	LED Parking Garage Wall Pack 26W - 60W	\$ 75.00	\$ 75.00	\$ 75.00	NA	
Retrofit	LED Parking Garage Wall Pack 61W - 150W	\$ 100.00	\$ 100.00	\$ 100.00	NA	
Retrofit	LED Outdoor Canopy or Soffit lighting 25W - 60W	\$ 75.00	\$ 75.00	\$ 75.00	NA	
Retrofit	LED Outdoor Canopy or Soffit lighting 61W - 150W	\$ 100.00	\$ 100.00	\$ 100.00	NA	
Retrofit	LED Interior Lamp <= 5W	\$ 7.00	\$ 4.00	\$ 4.00	NA	
Retrofit	LED Interior Lamp 6W - 10W	\$ 12.00	\$ 6.00	\$ 6.00	NA	
Retrofit	LED Interior Lamp 11W - 20W	\$ 15.00	\$ 8.00	\$ 8.00	NA	
Retrofit	LED Tube Type A 2 foot	\$ 2.00	\$ 2.00	\$ 2.00	NA	
Retrofit	LED Tube Type C 2 foot	\$ 5.00	\$ 5.00	\$ 5.00	NA	
Retrofit	LED Tube Type A 4 foot	\$ 2.00	\$ 2.00	\$ 2.00	NA	
Retrofit	LED Tube Type C 4 foot	\$ 5.00	\$ 5.00	\$ 5.00	NA	
Retrofit	LED Tube Type B 4 foot	\$ 3.00	\$ 3.00	\$ 3.00	NA	
Retrofit	LED High Bay Fixture - 95-189W replaces HID	\$ -	\$ 100.00	\$ 100.00	New in 2019	New Technology
Retrofit	LED High Bay Fixture - 190-290W replaces HID	\$ -	\$ 120.00	\$ 120.00	New in 2019	New Technology
Retrofit	LED High Bay Fixture - 291-464W replaces HID	\$ -	\$ 150.00	\$ 150.00	New in 2019	New Technology
Retrofit	LED High Bay Fixture - 465-625W replaces HID	\$ -	\$ 200.00	\$ 200.00	New in 2019	New Technology
Retrofit	LED High Bay Retrofit Kit - 95-189W replaces HID	\$ -	\$ -	\$ 40.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 190-290W replaces HID	\$ -	\$ -	\$ 50.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 291-464W replaces HID	\$ -	\$ -	\$ 80.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 465-625W replaces HID	\$ -	\$ -	\$ 160.00	New in 2020	New Technology
Retrofit	LED High Bay Fixture - 95-189W replaces fluorescent	\$ -	\$ -	\$ 100.00	New in 2020	New Baseline
Retrofit	LED High Bay Fixture - 190-290W replaces fluorescent	\$ -	\$ -	\$ 120.00	New in 2020	New Baseline
Retrofit	LED High Bay Fixture - 291-464W replaces fluorescent	\$ -	\$ -	\$ 150.00	New in 2020	New Baseline
Retrofit	LED High Bay Fixture - 465-625W replaces fluorescent	\$ -	\$ -	\$ 200.00	New in 2020	New Baseline
Retrofit	LED High Bay Retrofit Kit - 95-189W replaces fluorescent	\$ -	\$ -	\$ 40.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 190-290W replaces fluorescent	\$ -	\$ -	\$ 50.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 291-464W replaces fluorescent	\$ -	\$ -	\$ 80.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 465-625W replaces fluorescent	\$ -	\$ -	\$ 160.00	New in 2020	New Technology
New Construction	LED Interior Lamp <= 5W	\$ 7.00	\$ 4.00	\$ 4.00	NA	
New Construction	LED Interior Lamp 6W - 10W	\$ 12.00	\$ 6.00	\$ 6.00	NA	
New Construction	LED Interior Lamp 11W - 20W	\$ 15.00	\$ 8.00	\$ 8.00	NA	
New Construction	LED Interior Fixture <= 25W	\$ 25.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Interior Fixture 26W - 50W	\$ 40.00	\$ 20.00	\$ 20.00	NA	
New Construction	LED Ref and Frz Cases 5' or 6' doors	\$ 70.00	\$ 70.00	\$ 35.00	Rebate reduced in 2020	
New Construction	LED Parking Garage Lighting 25W-60W	\$ 35.00	\$ 35.00	\$ 35.00	NA	Increase in rebate to promote technology
New Construction	LED Area Lighting - 45-65W	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Area Lighting - 66-89W	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Area Lighting - 90-119W	\$ 30.00	\$ 30.00	\$ 30.00	NA	
New Construction	LED Area Lighting - 120-140W	\$ 30.00	\$ 30.00	\$ 30.00	NA	
New Construction	LED Troffer Fixture 1X4	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Troffer Fixture 2X2	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Troffer Fixture 2X4	\$ 25.00	\$ 25.00	\$ 25.00	NA	
New Construction	LED Exterior Wall Pack <= 25W	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Exterior Wall Pack 26W - 60W	\$ 30.00	\$ 30.00	\$ 30.00	NA	
New Construction	LED Exterior Wall Pack 61W - 150W	\$ 50.00	\$ 50.00	\$ 50.00	NA	
New Construction	LED Parking Garage Wall Pack <= 25W	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Parking Garage Wall Pack 26W - 60W	\$ 30.00	\$ 30.00	\$ 30.00	NA	
New Construction	LED Parking Garage Wall Pack 61W - 150W	\$ 50.00	\$ 50.00	\$ 50.00	NA	
New Construction	LED Outdoor Canopy or Soffit lighting 25W - 60W	\$ 50.00	\$ 50.00	\$ 50.00	NA	
New Construction	LED Outdoor Canopy or Soffit lighting 61W - 150W	\$ 90.00	\$ 90.00	\$ 50.00	Rebate reduced in 2020	Change in incremental cost

Home Lighting	Rebate Amount (\$)	Rebate Adjustment	Justification
LED Bulb - A-Line	\$1.06	Yes - \$2.10 in 2019	Change in incremental cost
LED Bulb - Specialty	\$1.10	Yes - \$2.10 in 2019	Change in incremental cost
LED Bulb - Linear Tube	\$2.00	New in 2020	New Technology

**Xcel Energy
South Dakota Capital Structure
Carrying Charge Calculation**

**State of South Dakota Jurisdiction
2014 Rate Case-Docket EL-14-058 (Order issued 7/22/15)**

Base Assumptions

Capital Structure:

	<u>Percent</u>	<u>Cost</u>	<u>Weighted Cost</u>
Long-term Debt	[CONFIDENTIAL DATA BEGINS HERE	[CONFIDENTIAL DATA BEGINS HERE	[CONFIDENTIAL DATA BEGINS HERE
Short-term Debt			
Perferred Stock			
Common Equity			
			7.22%

<u>Weighted Cost of Capital</u>	
Equity	[CONFIDENTIAL DATA BEGINS HERE
Debt	[CONFIDENTIAL DATA BEGINS HERE
Total	[CONFIDENTIAL DATA BEGINS HERE
Weighted Cost of Capital	7.22%

Book Depreciation Rate	30 years	3.33%
Tax Depreciation Life - MACRS	20 years	
Composite SD Tax Rate =	21.0000%	
Composite Company Tax Rate =	28.1344%	
Property Tax Exempt =	0	

<u>Use these values beginning January 1, 2018:</u>	
(b) Composite SD Tax Rate	21%
(c) Carrying Charge Rate =	
[CONFIDENTIAL DATA BEGINS HERE	
CONFIDENTIAL DATA ENDS HERE]	

Northern States Power Company
State of South Dakota- Electric Utility
DSM Cost Recovery & Incentive Mechanism - Total
2018 Actual

2018	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>	Total
	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	
<u>EXPENSES</u>													
[CONFIDENTIAL DATA BEGINS													
1. Beg. Balance													
2. DSM Program Expenditures													
3. Accrued Incentive													
4. Total Expenditures + Incentive (Line 2 + 3)													
<u>RECOVERY</u>													
5. Calendar Month Sales Volume (MWh)													
6. DSM Adjustment Factor (\$/MWh)													
7. Cost and Incentive Recovery													
8. Sub-Balance (Over)/Under Recovery (Sum Lines 1 - 3, minus Line 7)													
9. Accumulated Deferred Income Tax (Line 8 x 21%)													
10. Net Investment (Line 8 - 9)													
11. Carrying Charge Rate													
12. Carrying Charge (Line 10 x Line 11)													
13. End of Month Balance (over)/under recovered (Line 8 + 12)													

[CONFIDENTIAL DATA ENDS]

[CONFIDENTIAL DATA BEGINS

[CONFIDENTIAL DATA ENDS]

Supporting Documentation for Updated DSM Cost Adjustment Factor

The following is information specified in South Dakota Administrative Rule 20:10:13:26 regarding the updated DSM Cost Adjustment Factor:

(1) Name and address of the public utility;

Xcel Energy
500 West Russell Street
Sioux Falls, South Dakota 57104
(605) 339-8350

(2) Section and sheet number of tariff schedule;

Xcel Energy proposes to update DSM Rate tariff sheet number 73 in Section 5 of the Xcel Energy South Dakota Electric Rate Book. Pages 7-10 of this attachment include the proposed tariff sheets with the updated DSM Rate.

(3) Description of the change;

The proposed updated DSM Rate is designed to true up the cost recovery, which is over our forecasted budget in the time period of 2019-2020 timeframe, as well as recover all forecasted 2020 DSM expenditures and incentives.

(4) Reason for the change;

As proposed in the South Dakota DSM Plan and described in the DSM Cost Adjustment Factor tariff sheet, the Company plans to update the DSM Cost Adjustment Factor on an annual basis in the May 1 Status Report filing. The updated DSM Rate is designed to true up any over-recovery or under-recovery that exists in the tracker as well as recover the forecasted DSM expenditures and incentives for the upcoming year.

(5) Present rate;

Pursuant to the Commission's December 18, 2018 Order,¹ Xcel Energy implemented the approved rate of \$0.000464 per kWh effective January 1, 2019.

(6) Proposed rate;

Xcel Energy requests a new DSM Cost Adjustment Factor of \$0.000475 per customer kWh.

(7) Proposed effective date of modified rate;

Xcel Energy requests this new DSM Cost Adjustment Factor of \$0.000475 per customer kWh become effective with the first billing cycle of January 2020. We request this rate remain in effect through December 2020 or until the Commission approves a new DSM Cost Adjustment Factor.

(8) Approximation of annual amount of increase or decrease in revenue;

This new DSM Cost Adjustment Factor of \$0.000475 per customer kWh is a increase of \$0.000011 per kWh or two percent.

(9) Points affected;

The proposed updated DSM Rate would be applicable to all areas served by Xcel Energy in South Dakota.

(10) Estimation of the number of customers whose cost of service will be affected and annual amounts of either increases or decreases, or both, in cost of service to those customers;

The proposed electric tariff will apply to all customers throughout all customer classes as described within the filing. Xcel Energy presently serves just over 95,666 electric customers in 36 communities in eastern South Dakota.

¹ Docket No. EL18-023

(11) Statement of facts, expert opinions, documents, and exhibits to support the proposed changes.

A narrative for the calculation of the updated rate is included in the DSM Cost Adjustment Factor Report section of this filing. The following pages of this attachment include the forecasted 2019 and 2020 DSM Trackers, which are referenced in the narrative, along with the proposed customer bill onsert message and the proposed updated tariff sheets in both redline and clean versions.

Northern States Power Company State of South Dakota- Electric Utility DSM Cost Recovery & Incentive Mechanism - Total 2019 Forecast														
	2019	January	February	March	April	May	June	July	August	September	October	November	December	Total
	EXPENSES	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
1.	[CONFIDENTIAL DATA BEGINS] Balance													
2.	DSM Program Expenditures													
3.	Total Incentive (Line 2 * 30%)													
4.	Total Expenditures + Incentive (Line 2 + 3)													
5.	RECOVERY DSM Adjustment Factor (\$/MWh)													
6.	Calendar Month Sales Volume Forecast (MWh)													
7.	Total Cost Recovery (Line 5*6)													
8.	Sub-Balance (Over/Under Recovery) (Line 1 + 4 - 7)													
9.	Accum Deferred Tax (Line 8 *21%)													
10.	Net Investment (Line 8 - 9)													
11.	Carrying Charge Rate													
12.	Carrying Charge (Line 10 * carrying charge)													
13.	13. End of Month Balance (over)/under recovered (Line 8 + 12)													

Table 1: 2019 DSM Tracker Forecast, With Cost Recovery in 2020

CONFIDENTIAL DATA ENDS]

[CONFIDENTIAL DATA BEGINS

CONFIDENTIAL DATA ENDS]

Northern States Power Company State of South Dakota- Electric Utility DSM Cost Recovery & Incentive Mechanism - Total 2020 Forecast													
2020	January	February	March	April	May	June	July	August	September	October	November	December	Total
EXPENSES	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
CONFIDENTIAL DATA BEGINS													
1. Balance													
2. DSM Program Expenditures													
3. Total Incentive (Line 2 * 30%)													
4. Total Expenditures + Incentive (Line 2 + 3)													
RECOVERY													
5. DSM Adjustment Factor (\$/MWh)													
6. Calendar Month Sales Volume Forecast (MWh)													
7. Total Cost Recovery													
8. Sub-Balance (Over)/Under Recovery (Line 1 + 4 - 7)													
9. Accum Deferred Tax (Line 8 * 21%)													
10. Net Investment (Line 8 - 9)													
11. Carrying Charge Rate													
12. Carrying Charge (Line 10 * carrying charge)													
13. End of Month Balance (Line 8 + 12)													
CONFIDENTIAL DATA ENDS													

Table 2: 2020 DSM Tracker Forecast, With Cost Recovery in 2021

CONFIDENTIAL DATA BEGINS

CONFIDENTIAL DATA ENDS

Proposed Customer Bill Onsert Language

DSM Cost Adjustment Factor Increase Effective January 1, 2020

Xcel Energy offers a variety of load management and demand side management (DSM) programs to our South Dakota customers to help them reduce their home’s usage. The South Dakota Public Utilities Commission has approved a new Demand Side Management (DSM) Cost Adjustment Factor as a separate line item on your monthly electric bill to recover the cost of our load management and DSM programs. Beginning January 1, 2020 the rate factor will increase from \$0.000464 per kWh to \$0.000475 per kWh.

Residential Electric Service – Winter Month Bill Example

This chart provides a comparison of customer bills by applying the prior DSM rate versus the new DSM rate. The table below shows the DSM Rider rate increase only and does not factor in any other rate change that may occur concurrently.

Usage (kWh)	Prior Rates				New Rates				Change in Bill	Percent Increase
	Other Rates	Prior DSM Factor	Prior DSM	Prior Bill	Other Rates	New DSM Factor	New DSM	New Bill		
400	\$52.90	\$0.000464	\$0.19	\$53.09	\$52.90	\$0.000475	\$0.19	\$53.09	0.00	0.00%
500	\$64.06	\$0.000464	\$0.23	\$64.29	\$64.06	\$0.000475	\$0.24	\$64.30	0.01	0.02%
600	\$75.22	\$0.000464	\$0.28	\$75.50	\$75.22	\$0.000475	\$0.29	\$75.51	0.01	0.01%
750	\$91.96	\$0.000464	\$0.35	\$92.31	\$91.96	\$0.000475	\$0.36	\$92.32	0.01	0.01%
1000	\$119.86	\$0.000464	\$0.46	\$120.32	\$119.86	\$0.000475	\$0.48	\$120.34	0.02	0.02%
2000	\$231.48	\$0.000464	\$0.93	\$232.41	\$231.48	\$0.000475	\$0.95	\$232.43	0.02	0.01%

For more information

You may call **800.895.4999** with questions or examine the new rates by visiting our website at xcelenergy.com/SDRates.

Legislative

PUBLIC

Northern States Power Company, a Minnesota corporation
Minneapolis, MN 55401

SOUTH DAKOTA ELECTRIC RATE BOOK - SDPUC NO. 2

DEMAND SIDE MANAGEMENT COST

Section No. 5

ADJUSTMENT FACTOR

~~6th~~^{7th} Revised Sheet No. 73

Cancelling ~~5th~~^{6th} Revised Sheet No. 73

APPLICATION

Applicable to bills for electric service provided under the Company's retail rate schedules.

RIDER

There shall be included on each customer's monthly bill a Demand Side Management Cost Adjustment, which shall be calculated by multiplying the monthly applicable billing kilowatt hours (kWh) by the Demand Side Management Factor (DSM Factor). This Demand Side Management Cost Adjustment shall be calculated before city surcharge and sales tax.

DETERMINATION OF DSM FACTOR

A DSM Factor shall be calculated by dividing the forecasted balance of the DSM Tracker Account (Tracker), including any True Up, by the Forecasted Retail Sales for the Next Recovery Period. The DSM Factor shall be rounded to the nearest \$0.000001 per kWh.

The DSM Factor may be adjusted annually with approval of the South Dakota Public Utilities Commission (Commission). The DSM Factor is:

All Customers ~~\$0.000464~~^{\$0.000475} per kWh

~~R1~~

DSM Tracker shall include all annual expenses, costs and incentives associated with demand side management programs and that are approved by the Commission. All revenues recovered pursuant to the Demand Side Management Cost Adjustment shall be credited to the Tracker.

Forecasted Retail Sales shall be the estimated total retail electric sales for the Next Recovery Period.

Next Recovery Period shall be that period that begins January 1 and ends December 31 following the Company's most recent May 1 filing.

TRUE-UP

True Up shall include the difference between the revenues received from customers and actual expenditures for the most recent recovery period ending December 31.

A True Up will be included in each annual May 1 filing beginning with the May 1, 2013 filing. The 2012 DSM Factor calculation will not include a True Up due to no previous cost or revenue activity prior to implementation of the Demand Side Management Cost Adjustment in 2012. Beginning with the Company's request submitted on May 1, 2013, the DSM Factor may include a True Up.

Date Filed: ~~05-01-18~~⁰⁵⁻⁰¹⁻¹⁹

By: Christopher B. Clark

Effective Date: ~~01-01-19~~

President, Northern States Power Company, a Minnesota corporation

Docket No. ~~EL18-023~~^{EL19-}

Order Date: ~~12-18-18~~

Non-Legislative

PUBLIC

Northern States Power Company, a Minnesota corporation
Minneapolis, MN 55401

SOUTH DAKOTA ELECTRIC RATE BOOK - SDPUC NO. 2

**DEMAND SIDE MANAGEMENT COST
ADJUSTMENT FACTOR**

Section No. 5
7th Revised Sheet No. 73
Cancelling 6th Revised Sheet No. 73

APPLICATION

Applicable to bills for electric service provided under the Company's retail rate schedules.

RIDER

There shall be included on each customer's monthly bill a Demand Side Management Cost Adjustment, which shall be calculated by multiplying the monthly applicable billing kilowatt hours (kWh) by the Demand Side Management Factor (DSM Factor). This Demand Side Management Cost Adjustment shall be calculated before city surcharge and sales tax.

DETERMINATION OF DSM FACTOR

A DSM Factor shall be calculated by dividing the forecasted balance of the DSM Tracker Account (Tracker), including any True Up, by the Forecasted Retail Sales for the Next Recovery Period. The DSM Factor shall be rounded to the nearest \$0.000001 per kWh.

The DSM Factor may be adjusted annually with approval of the South Dakota Public Utilities Commission (Commission). The DSM Factor is:

All Customers	\$0.000475 per kWh
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DSM Tracker shall include all annual expenses, costs and incentives associated with demand side management programs and that are approved by the Commission. All revenues recovered pursuant to the Demand Side Management Cost Adjustment shall be credited to the Tracker.

Forecasted Retail Sales shall be the estimated total retail electric sales for the Next Recovery Period.

Next Recovery Period shall be that period that begins January 1 and ends December 31 following the Company's most recent May 1 filing.

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True Up shall include the difference between the revenues received from customers and actual expenditures for the most recent recovery period ending December 31.

A True Up will be included in each annual May 1 filing beginning with the May 1, 2013 filing. The 2012 DSM Factor calculation will not include a True Up due to no previous cost or revenue activity prior to implementation of the Demand Side Management Cost Adjustment in 2012. Beginning with the Company's request submitted on May 1, 2013, the DSM Factor may include a True Up.

Date Filed: 05-01-19

By: Christopher B. Clark
President, Northern States Power Company, a Minnesota corporation

Effective Date:

Docket No. EL19-

Order Date:

Executive Summary Table - 2020

2020	Electric Participants	Electric Budget	Generator kW	Generator kWh	Participant Test Ratio	Utility Test Ratio	Ratepayer Impact Measure Test Ratio	TRC Ratio
Business Segment								
Lighting Efficiency	341	\$389,320	453	3,960,428	2.67	5.74	0.47	1.20
Business Saver's Switch	10	\$25,250	28	39	INF	1.23	0.50	1.23
Peak and Energy Control	1	\$10,000	101	3,713	INF	4.60	1.03	4.60
Business Segment Total	352	\$424,570	582	3,964,179	2.71	5.44	0.48	1.21
Residential Segment								
Home Lighting	5,245	\$96,756	408	3,009,728	36.68	6.34	0.17	3.57
Residential Demand Response	1,410	\$235,500	817	99,889	6.78	2.74	0.83	2.82
Consumer Education	68,000	\$21,165	N/A	N/A				
Water Heating	21	\$15,000	12	82,115	4.35	2.32	0.43	1.35
Residential Segment Total	74,676	\$368,421	1,237	3,191,731	18.18	3.51	0.29	2.89
Planning Segment								
Regulatory Affairs	0	\$14,000	N/A	N/A				
Planning Segment Total	0	\$0	N/A	N/A				
PORTFOLIO TOTAL								
	75,028	\$806,991	1,819	7,155,910	4.89	4.46	0.39	1.60

2020 SD DSM Plan Cost-Effectiveness Analysis

LIGHTING EFFICIENCY						2020 ELECTRIC			GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A		18.2 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B		8760
Benefits						Gross Customer kW	C		1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D		48.56%
Generation	N/A	\$338,439	\$338,439	\$338,439	\$338,439	Gross Load Factor at Customer	E		48.84%
T & D	N/A	\$206,552	\$206,552	\$206,552	\$206,552	Transmission Loss Factor (Energy)	F		4.873%
Marginal Energy	N/A	\$1,688,254	\$1,688,254	\$1,688,254	\$1,688,254	Transmission Loss Factor (Demand)	G		5.640%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H		\$477
Subtotal	N/A	\$2,233,245	\$2,233,245	\$2,233,245	\$2,233,245	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I		2.58 kW
Bill Reduction - Electric	\$4,322,713	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		1.33 kW
Rebates from Xcel Energy	\$315,210	N/A	N/A	\$315,210	\$315,210	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		11,036 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		11,602 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$4,637,923	N/A	N/A	\$315,210	\$315,210	Total Participants	J		341
Total Benefits						Total Budget	K		\$389,320
Total Benefits	\$4,637,923	\$2,233,245	\$2,233,245	\$2,548,454	\$2,548,454	Gross kW Saved at Customer	$(J \times I)$		880.62 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		453 kW
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		3,767,456 kWh
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		3,960,428 kWh
Utility Administration	N/A	\$74,110	\$74,110	\$74,110	\$74,110	Societal Net Benefits	$(J \times I \times H)$		\$419,945
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen			
Rebates	N/A	\$315,210	\$315,210	\$315,210	\$315,210	\$0.0054			
Other	N/A	\$0	\$0	\$0	\$0	\$859			
Subtotal	N/A	\$389,320	\$389,320	\$389,320	\$389,320	Net Benefit (Cost)			
Utility Revenue Reduction						\$2,898,734			
Revenue Reduction - Electric	N/A	N/A	\$4,322,713	N/A	N/A	\$1,843,925			
Subtotal	N/A	N/A	\$4,322,713	N/A	N/A	(\$2,478,789)			
Participant Costs						\$419,945			
Incremental Capital Costs	\$1,611,263	N/A	N/A	\$1,611,263	\$1,611,263	\$419,945			
Incremental O&M Costs	\$127,926	N/A	N/A	\$127,926	\$127,926	Benefit/Cost Ratio			
Subtotal	\$1,739,189	N/A	N/A	\$1,739,189	\$1,739,189	2.67			
Total Costs						5.74			
Total Costs	\$1,739,189	\$389,320	\$4,712,033	\$2,128,509	\$2,128,509	0.47			
Net Benefit (Cost)						1.20			
Benefit/Cost Ratio						1.20			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

BUSINESS SAVER'S SWITCH						2020	ELECTRIC	GOAL	
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	15.0 years	
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760	
Benefits						Gross Customer kW	C	1 kW	
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	16.76%	
Generation	N/A	\$19,301	\$19,301	\$19,301	\$19,301	Gross Load Factor at Customer	E	0.00%	
T & D	N/A	\$11,769	\$11,769	\$11,769	\$11,769	Transmission Loss Factor (Energy)	F	4.872%	
Marginal Energy	N/A	\$20	\$20	\$20	\$20	Transmission Loss Factor (Demand)	G	5.640%	
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$37	
Subtotal	N/A	\$31,089	\$31,089	\$31,089	\$31,089	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I	15.93 kW	
Bill Reduction - Electric	\$36,940	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		2.83 kW
Rebates from Xcel Energy	\$0	N/A	N/A	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		4 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		4 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$36,940	N/A	N/A	\$0	\$0	Total Participants	J	10	
Total Benefits						Total Budget	K	\$25,250	
Total Benefits	\$36,940	\$31,089	\$31,089	\$31,089	\$31,089	Gross kW Saved at Customer	$(J \times I)$		159.27 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		28 kW
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		37 kWh
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		39 kWh
Utility Administration	N/A	\$25,250	\$25,250	\$25,250	\$25,250	Societal Net Benefits	$(J \times I \times H)$		\$5,839
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			\$43,4116
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen			\$893
Rebates	N/A	\$0	\$0	\$0	\$0				
Other	N/A	\$0	\$0	\$0	\$0				
Subtotal	N/A	\$25,250	\$25,250	\$25,250	\$25,250				
Utility Revenue Reduction									
Revenue Reduction - Electric	N/A	N/A	\$36,940	N/A	N/A				
Subtotal	N/A	N/A	\$36,940	N/A	N/A				
Participant Costs									
Incremental Capital Costs	\$0	N/A	N/A	\$0	\$0				
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0				
Subtotal	\$0	N/A	N/A	\$0	\$0				
Total Costs									
Total Costs	\$0	\$25,250	\$62,190	\$25,250	\$25,250				
Net Benefit (Cost)									
Net Benefit (Cost)	\$36,940	\$5,839	(\$31,101)	\$5,839	\$5,839				
Benefit/Cost Ratio									
Benefit/Cost Ratio	INF	1.23	0.50	1.23	1.23				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

PEAK AND ENERGY CONTROL						2020	ELECTRIC	GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	5.0 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	47.46%
Generation	N/A	\$28,201	\$28,201	\$28,201	\$28,201	Gross Load Factor at Customer	E	0.20%
T & D	N/A	\$17,108	\$17,108	\$17,108	\$17,108	Transmission Loss Factor (Energy)	F	4.873%
Marginal Energy	N/A	\$723	\$723	\$723	\$723	Transmission Loss Factor (Demand)	G	5.640%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$180
Subtotal	N/A	\$46,032	\$46,032	\$46,032	\$46,032	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	200.00 kW
Bill Reduction - Electric	\$34,880	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$0	N/A	N/A	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$34,880	N/A	N/A	\$0	\$0	Total Participants	J	1
Total Benefits						Total Budget	K	\$10,000
Total Benefits	\$34,880	\$46,032	\$46,032	\$46,032	\$46,032	Gross kW Saved at Customer	$(J \times I)$	200.00 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Utility Administration	N/A	\$10,000	\$10,000	\$10,000	\$10,000	Societal Net Benefits	$(J \times I \times H)$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Rebates	N/A	\$0	\$0	\$0	\$0	\$0.5387		
Other	N/A	\$0	\$0	\$0	\$0	\$99		
Subtotal	N/A	\$10,000	\$10,000	\$10,000	\$10,000			
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$34,880	N/A	N/A			
Subtotal	N/A	N/A	\$34,880	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$0	N/A	N/A	\$0	\$0			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$0	N/A	N/A	\$0	\$0			
Total Costs								
Total Costs	\$0	\$10,000	\$44,880	\$10,000	\$10,000			
Net Benefit (Cost)								
Net Benefit (Cost)	\$34,880	\$36,032	\$1,152	\$36,032	\$36,032			
Benefit/Cost Ratio								
Benefit/Cost Ratio	INF	4.60	1.03	4.60	4.60			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

BUSINESS SEGMENT TOTAL						2020	ELECTRIC	GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	18.2 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	44.30%
Generation	N/A	\$385,941	\$385,941	\$385,941	\$385,941	Gross Load Factor at Customer	E	34.72%
T & D	N/A	\$235,430	\$235,430	\$235,430	\$235,430	Transmission Loss Factor (Energy)	F	4.873%
Marginal Energy	N/A	\$1,688,996	\$1,688,996	\$1,688,996	\$1,688,996	Transmission Loss Factor (Demand)	G	5.640%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$372
Subtotal	N/A	\$2,310,366	\$2,310,366	\$2,310,366	\$2,310,366	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	3.52 kW
Bill Reduction - Electric	\$4,394,533	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$315,210	N/A	N/A	\$315,210	\$315,210	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$4,709,743	N/A	N/A	\$315,210	\$315,210	Total Participants	J	352
Total Benefits						Total Budget	K	\$424,570
Total Benefits	\$4,709,743	\$2,310,366	\$2,310,366	\$2,625,576	\$2,625,576	Gross kW Saved at Customer	$(J \times I)$	1,239.90 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Utility Administration	N/A	\$109,360	\$109,360	\$109,360	\$109,360	Societal Net Benefits	$(J \times I \times H)$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Rebates	N/A	\$315,210	\$315,210	\$315,210	\$315,210	Net Benefit (Cost)		
Other	N/A	\$0	\$0	\$0	\$0	Benefit/Cost Ratio		
Subtotal	N/A	\$424,570	\$424,570	\$424,570	\$424,570	2.970,554 / 1,885,796 = 1.575		
Utility Revenue Reduction						(\$2,508,737) / \$461,817 = 5.44		
Revenue Reduction - Electric	N/A	N/A	\$4,394,533	N/A	N/A	0.48 / 1.21 = 0.40		
Subtotal	N/A	N/A	\$4,394,533	N/A	N/A	1.21		
Participant Costs						1.21		
Incremental Capital Costs	\$1,611,263	N/A	N/A	\$1,611,263	\$1,611,263			
Incremental O&M Costs	\$127,926	N/A	N/A	\$127,926	\$127,926			
Subtotal	\$1,739,189	N/A	N/A	\$1,739,189	\$1,739,189			
Total Costs								
Total Costs	\$1,739,189	\$424,570	\$4,819,103	\$2,163,759	\$2,163,759			
Net Benefit (Cost)								
Net Benefit (Cost)	\$2,970,554	\$1,885,796	(\$2,508,737)	\$461,817	\$461,817			
Benefit/Cost Ratio								
Benefit/Cost Ratio	2.71	5.44	0.48	1.21	1.21			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

HOME LIGHTING						2020 ELECTRIC			GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A		5.2 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B		8760
Benefits						Gross Customer kW	C		1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D		16.21%
Generation	N/A	\$107,872	\$107,872	\$107,872	\$107,872	Gross Load Factor at Customer	E		13.87%
T & D	N/A	\$65,521	\$65,521	\$65,521	\$65,521	Transmission Loss Factor (Energy)	F		5.696%
Marginal Energy	N/A	\$440,051	\$440,051	\$440,051	\$440,051	Transmission Loss Factor (Demand)	G		7.127%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H		\$211
Subtotal	N/A	\$613,444	\$613,444	\$613,444	\$613,444	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I		0.45 kW
Bill Reduction - Electric	\$3,415,253	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		0.08 kW
Rebates from Xcel Energy	\$70,419	N/A	N/A	\$70,419	\$70,419	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		541 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		574 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$3,485,672	N/A	N/A	\$70,419	\$70,419	Total Participants	J		5,245
Total Benefits						Total Budget	K		\$96,756
Total Benefits	\$3,485,672	\$613,444	\$613,444	\$683,863	\$683,863	Gross kW Saved at Customer	$(J \times I)$		2,336.05 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		408 kW
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		2,838,286 kWh
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		3,009,728 kWh
Utility Administration	N/A	\$26,337	\$26,337	\$26,337	\$26,337	Societal Net Benefits	$(J \times I \times H)$		\$492,078
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen			
Rebates	N/A	\$70,419	\$70,419	\$70,419	\$70,419				\$0.0062
Other	N/A	\$0	\$0	\$0	\$0				\$237
Subtotal	N/A	\$96,756	\$96,756	\$96,756	\$96,756	Net Benefit (Cost)			
Utility Revenue Reduction									\$3,390,643
Revenue Reduction - Electric	N/A	N/A	\$3,415,253	N/A	N/A	Benefit/Cost Ratio			
Subtotal	N/A	N/A	\$3,415,253	N/A	N/A				36.68
Participant Costs									6.34
Incremental Capital Costs	\$95,029	N/A	N/A	\$95,029	\$95,029				0.17
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0				3.57
Subtotal	\$95,029	N/A	N/A	\$95,029	\$95,029	Net Benefit (Cost)			
Total Costs									\$3,390,643
Total Costs	\$95,029	\$96,756	\$3,512,009	\$191,785	\$191,785	Benefit/Cost Ratio			
Net Benefit (Cost)									36.68
Benefit/Cost Ratio									6.34

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

RESIDENTIAL DEMAND RESPONSE						2020	ELECTRIC	GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	10.0 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	37.93%
Generation	N/A	\$378,810	\$378,810	\$378,810	\$378,810	Gross Load Factor at Customer	E	0.54%
T & D	N/A	\$230,791	\$230,791	\$230,791	\$230,791	Transmission Loss Factor (Energy)	F	5.950%
Marginal Energy	N/A	\$34,592	\$34,592	\$34,592	\$34,592	Transmission Loss Factor (Demand)	G	7.220%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$341
Subtotal	N/A	\$644,193	\$644,193	\$644,193	\$644,193	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	1.42 kW
Bill Reduction - Electric	\$536,077	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$50,000	N/A	N/A	\$50,000	\$50,000	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$363,741	N/A	N/A	\$363,741	\$363,741	Program Summary All Participants		
Subtotal	\$949,817	N/A	N/A	\$413,741	\$413,741	Total Participants	J	1,410
Total Benefits						Total Budget	K	\$235,500
	\$949,817	\$644,193	\$644,193	\$1,057,934	\$1,057,934	Gross kW Saved at Customer	$(J \times I)$	1,998.47 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Utility Administration	N/A	\$185,500	\$185,500	\$185,500	\$185,500	Societal Net Benefits	$(J \times I \times H)$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Rebates	N/A	\$50,000	\$50,000	\$50,000	\$50,000	\$0.2358		
Other	N/A	\$0	\$0	\$0	\$0	\$288		
Subtotal	N/A	\$235,500	\$235,500	\$235,500	\$235,500			
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$536,077	N/A	N/A			
Subtotal	N/A	N/A	\$536,077	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$140,000	N/A	N/A	\$140,000	\$140,000			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$140,000	N/A	N/A	\$140,000	\$140,000			
Total Costs								
	\$140,000	\$235,500	\$771,577	\$375,500	\$375,500			
Net Benefit (Cost)								
	\$809,817	\$408,693	(\$127,384)	\$682,434	\$682,434			
Benefit/Cost Ratio								
	6.78	2.74	0.83	2.82	2.82			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

WATER HEATING						2020 ELECTRIC			GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A		10.0 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B		8760
Benefits						Gross Customer kW	C		1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D		100.00%
Generation	N/A	\$6,042	\$6,042	\$6,042	\$6,042	Gross Load Factor at Customer	E		79.10%
T & D	N/A	\$3,675	\$3,675	\$3,675	\$3,675	Transmission Loss Factor (Energy)	F		5.950%
Marginal Energy	N/A	\$25,136	\$25,136	\$25,136	\$25,136	Transmission Loss Factor (Demand)	G		7.220%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H		\$1,001
Subtotal	N/A	\$34,853	\$34,853	\$34,853	\$34,853	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I		0.53 kW
Bill Reduction - Electric	\$66,021	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		0.57 kW
Rebates from Xcel Energy	\$8,400	N/A	N/A	\$8,400	\$8,400	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		3,678 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		3,910 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$74,421	N/A	N/A	\$8,400	\$8,400	Total Participants	J		21
Total Benefits						Total Budget	K		\$15,000
Total Benefits	\$74,421	\$34,853	\$34,853	\$43,253	\$43,253	Gross kW Saved at Customer	$(J \times I)$		11.14 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		12 kW
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		77,229 kWh
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		82,115 kWh
Utility Administration	N/A	\$6,600	\$6,600	\$6,600	\$6,600	Societal Net Benefits	$(J \times I \times H)$		\$11,157
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen			
Rebates	N/A	\$8,400	\$8,400	\$8,400	\$8,400	\$0.0183			
Other	N/A	\$0	\$0	\$0	\$0	\$1,249			
Subtotal	N/A	\$15,000	\$15,000	\$15,000	\$15,000				
Utility Revenue Reduction									
Revenue Reduction - Electric	N/A	N/A	\$66,021	N/A	N/A				
Subtotal	N/A	N/A	\$66,021	N/A	N/A				
Participant Costs									
Incremental Capital Costs	\$12,841	N/A	N/A	\$12,841	\$12,841				
Incremental O&M Costs	\$4,255	N/A	N/A	\$4,255	\$4,255				
Subtotal	\$17,096	N/A	N/A	\$17,096	\$17,096				
Total Costs									
Total Costs	\$17,096	\$15,000	\$81,021	\$32,096	\$32,096				
Net Benefit (Cost)									
Net Benefit (Cost)	\$57,325	\$19,853	(\$46,168)	\$11,157	\$11,157				
Benefit/Cost Ratio									
Benefit/Cost Ratio	4.35	2.32	0.43	1.35	1.35				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

RESIDENTIAL SEGMENT TOTAL						2020	ELECTRIC	GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	5.5 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	26.42%
Generation	N/A	\$492,723	\$492,723	\$492,723	\$492,723	Gross Load Factor at Customer	E	7.91%
T & D	N/A	\$299,987	\$299,987	\$299,987	\$299,987	Transmission Loss Factor (Energy)	F	5.711%
Marginal Energy	N/A	\$499,780	\$499,780	\$499,780	\$499,780	Transmission Loss Factor (Demand)	G	7.170%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$268
Subtotal	N/A	\$1,292,491	\$1,292,491	\$1,292,491	\$1,292,491	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	0.06 kW
Bill Reduction - Electric	\$4,017,350	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$128,819	N/A	N/A	\$128,819	\$128,819	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$359,485	N/A	N/A	\$359,485	\$359,485	Program Summary All Participants		
Subtotal	\$4,505,655	N/A	N/A	\$488,304	\$488,304	Total Participants	J	74,676
Total Benefits						Total Budget	K	\$368,421
Total Benefits	\$4,505,655	\$1,292,491	\$1,292,491	\$1,780,795	\$1,780,795	Gross kW Saved at Customer	$(J \times I)$	4,345.66 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Utility Administration	N/A	\$239,602	\$239,602	\$239,602	\$239,602	Societal Net Benefits	$(J \times I \times H)$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Rebates	N/A	\$128,819	\$128,819	\$128,819	\$128,819	\$0.0210		
Other	N/A	\$0	\$0	\$0	\$0	\$298		
Subtotal	N/A	\$368,421	\$368,421	\$368,421	\$368,421			
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$4,017,350	N/A	N/A			
Subtotal	N/A	N/A	\$4,017,350	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$247,870	N/A	N/A	\$247,870	\$247,870			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$247,870	N/A	N/A	\$247,870	\$247,870			
Total Costs								
Total Costs	\$247,870	\$368,421	\$4,385,771	\$616,291	\$616,291			
Net Benefit (Cost)								
Net Benefit (Cost)	\$4,257,785	\$924,070	(\$3,093,281)	\$1,164,504	\$1,164,504			
Benefit/Cost Ratio								
Benefit/Cost Ratio	18.18	3.51	0.29	2.89	2.89			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

PORTFOLIO TOTAL						2020	ELECTRIC	GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	12.5 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	30.34%
Generation	N/A	\$878,664	\$878,664	\$878,664	\$878,664	Gross Load Factor at Customer	E	13.86%
T & D	N/A	\$535,417	\$535,417	\$535,417	\$535,417	Transmission Loss Factor (Energy)	F	5.246%
Marginal Energy	N/A	\$2,188,776	\$2,188,776	\$2,188,776	\$2,188,776	Transmission Loss Factor (Demand)	G	6.835%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$289
Subtotal	N/A	\$3,602,857	\$3,602,857	\$3,602,857	\$3,602,857	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	0.07 kW
Bill Reduction - Electric	\$8,411,884	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$444,029	N/A	N/A	\$444,029	\$444,029	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$231,559	N/A	N/A	\$231,559	\$231,559	Program Summary All Participants		
Subtotal	\$9,087,472	N/A	N/A	\$675,588	\$675,588	Total Participants	J	75,028
Total Benefits						Total Budget	K	\$806,991
Total Benefits	\$9,087,472	\$3,602,857	\$3,602,857	\$4,278,445	\$4,278,445	Gross kW Saved at Customer	$(J \times I)$	5,585.56 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Utility Administration	N/A	\$362,962	\$362,962	\$362,962	\$362,962	Societal Net Benefits	$(J \times I \times H)$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Rebates	N/A	\$444,029	\$444,029	\$444,029	\$444,029	\$0.0090		
Other	N/A	\$0	\$0	\$0	\$0	\$444		
Subtotal	N/A	\$806,991	\$806,991	\$806,991	\$806,991			
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$8,411,884	N/A	N/A			
Subtotal	N/A	N/A	\$8,411,884	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$1,859,133	N/A	N/A	\$1,859,133	\$1,859,133			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$1,859,133	N/A	N/A	\$1,859,133	\$1,859,133			
Total Costs								
Total Costs	\$1,859,133	\$806,991	\$9,218,875	\$2,666,124	\$2,666,124			
Net Benefit (Cost)								
Net Benefit (Cost)	\$7,228,339	\$2,795,866	(\$5,616,018)	\$1,612,321	\$1,612,321			
Benefit/Cost Ratio								
Benefit/Cost Ratio	4.89	4.46	0.39	1.60	1.60			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Full Executive Summary Table - 2018 Actual Achievements																		
2018	GOAL				ACTUAL										TEST RESULTS			
	Participants	Electric Budget	Generator kW	Generator kWh	Participants	% of Goal	Electric Spend	% of Goal	Generator kW	% of Goal	Generator kWh	Lifetime years	Lifetime kWh	% of Goal	Part Ratio	Utility Ratio	RIM Ratio	TRC Ratio
Business Segment																		
Lighting Efficiency	325	\$ 389,520	509	3,913,384	134	41%	\$394,257	101%	506	99%	3,497,612	16.82	58,841,050	89%	2.56	5.11	0.54	1.27
Business Saver's Switch	12	\$ 37,213	44	108	10	83%	\$44,850	121%	54	123%	129	15.00	1,936	120%	INF	1.30	0.52	1.30
Peak and Energy Control	1	\$ 10,000	102	3,707	3	300%	\$3,876	39%	11	11%	408	5.00	2,041	11%	INF	1.34	0.11	1.34
Business Segment Total	338	\$ 436,733	655	3,917,198	147	43%	\$442,982	101%	571	87%	3,498,149	16.82	58,845,027	89%	2.63	4.69	0.53	1.27
Residential Segment																		
Residential Home Lighting	3,225	\$ 109,598	162	1,480,452	4,601	143%	\$98,643	90%	282	174%	2,558,158	5.27	13,469,186	173%	17.14	5.32	0.37	3.31
Residential Saver's Switch	770	\$ 187,913	565	1,486	637	83%	\$185,091	98%	485	86%	1,391	15.00	20,868	94%	INF	2.86	0.83	2.86
Consumer Education	68,000	\$ 27,165			79,218	116%	\$35,868	132%	0	N/A	0	N/A	N/A	N/A	-	-	-	N/A
Residential Segment Total	71,995	\$ 324,676	727	1,481,938	84,456	117%	\$319,602	98%	767	105%	2,559,550	5.27	13,490,054	173%	22.71	3.30	0.50	2.81
Planning Segment																		
Regulatory Affairs	0	\$ 13,000	0	0	0	N/A	\$14,323	110%	0	N/A	0	N/A	N/A	N/A	-	-	-	N/A
Planning Segment Total	0	\$ 13,000	0	0	0	N/A	\$14,323	110%	0	N/A	0	N/A	N/A	N/A	-	-	-	N/A
PORTFOLIO TOTAL	72,333	\$ 774,408	1,382	5,399,136	84,603	117%	\$776,907	100%	1,338	97%	6,057,698	11.94	72,335,081	112%	3.70	4.03	0.52	1.53

2018 SD DSM Year End Cost-Effectiveness Analysis

LIGHTING EFFICIENCY						2018	ELECTRIC	ACTUAL
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	16.8 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	57.52%
Generation	N/A	\$367,883	\$367,883	\$367,883	\$367,883	Gross Load Factor at Customer	E	46.70%
T & D	N/A	\$218,560	\$218,560	\$218,560	\$218,560	Transmission Loss Factor (Energy)	F	4.710%
Marginal Energy	N/A	\$1,429,765	\$1,429,765	\$1,429,765	\$1,429,765	Transmission Loss Factor (Demand)	G	7.380%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$619
Subtotal	N/A	\$2,016,208	\$2,016,208	\$2,016,208	\$2,016,208	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	6.08 kW
Bill Reduction - Electric	\$3,371,866	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$331,051	N/A	N/A	\$331,051	\$331,051	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$3,702,917	N/A	N/A	\$331,051	\$331,051	Total Participants	J	134
Total Benefits						Total Budget	K	\$394,257
Costs						Gross kW Saved at Customer	$(J \times I)$	814.72 kW
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Utility Administration	N/A	\$63,205	\$63,205	\$63,205	\$63,205	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Societal Net Benefits	$(J \times I \times H)$	
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Rebates	N/A	\$331,051	\$331,051	\$331,051	\$331,051	Utility Program Cost per kW at Gen		
Other	N/A	\$0	\$0	\$0	\$0	\$0.0067		
Subtotal	N/A	\$394,257	\$394,257	\$394,257	\$394,257	\$779		
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$3,371,866	N/A	N/A			
Subtotal	N/A	N/A	\$3,371,866	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$1,334,410	N/A	N/A	\$1,334,410	\$1,334,410			
Incremental O&M Costs	\$114,229	N/A	N/A	\$114,229	\$114,229			
Subtotal	\$1,448,640	N/A	N/A	\$1,448,640	\$1,448,640			
Total Costs								
	\$1,448,640	\$394,257	\$3,766,123	\$1,842,896	\$1,842,896			
Net Benefit (Cost)								
	\$2,254,278	\$1,621,952	(\$1,749,914)	\$504,363	\$504,363			
Benefit/Cost Ratio								
	2.56	5.11	0.54	1.27	1.27			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

BUSINESS SAVER'S SWITCH						2018	ELECTRIC	ACTUAL
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	15.0 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	20.23%
Generation	N/A	\$36,237	\$36,237	\$36,237	\$36,237	Gross Load Factor at Customer	E	0.01%
T & D	N/A	\$22,044	\$22,044	\$22,044	\$22,044	Transmission Loss Factor (Energy)	F	4.710%
Marginal Energy	N/A	\$78	\$78	\$78	\$78	Transmission Loss Factor (Demand)	G	7.380%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$55
Subtotal	N/A	\$58,360	\$58,360	\$58,360	\$58,360	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	24.49 kW
Bill Reduction - Electric	\$67,212	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	5.35 kW
Rebates from Xcel Energy	\$0	N/A	N/A	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	12 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	13 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$67,212	N/A	N/A	\$0	\$0	Total Participants	J	10
Total Benefits						Total Budget	K	\$44,850
Costs						Gross kW Saved at Customer	$(J \times I)$	244.93 kW
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	53 kW
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	123 kWh
Utility Administration	N/A	\$44,574	\$44,574	\$44,574	\$44,574	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	129 kWh
Advertising & Promotion	N/A	\$275	\$275	\$275	\$275	Societal Net Benefits	$(J \times I \times H)$	\$13,510
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Rebates	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Other	N/A	\$0	\$0	\$0	\$0			\$23.1639
Subtotal	N/A	\$44,850	\$44,850	\$44,850	\$44,850			\$838
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$67,212	N/A	N/A			
Subtotal	N/A	N/A	\$67,212	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$0	N/A	N/A	\$0	\$0			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$0	N/A	N/A	\$0	\$0			
Total Costs								
	\$0	\$44,850	\$112,062	\$44,850	\$44,850			
Net Benefit (Cost)								
	\$67,212	\$13,510	(\$53,703)	\$13,510	\$13,510			
Benefit/Cost Ratio								
	INF	1.30	0.52	1.30	1.30			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

PEAK AND ENERGY CONTROL						2018	ELECTRIC	ACTUAL	
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	5.0 years	
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760	
Benefits						Gross Customer kW	C	1 kW	
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	47.46%	
Generation	N/A	\$3,159	\$3,159	\$3,159	\$3,159	Gross Load Factor at Customer	E	0.20%	
T & D	N/A	\$1,912	\$1,912	\$1,912	\$1,912	Transmission Loss Factor (Energy)	F	4.710%	
Marginal Energy	N/A	\$113	\$113	\$113	\$113	Transmission Loss Factor (Demand)	G	7.380%	
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$59	
Subtotal	N/A	\$5,184	\$5,184	\$5,184	\$5,184	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I	7.33 kW	
Bill Reduction - Electric	\$43,714	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		3.76 kW
Rebates from Xcel Energy	\$0	N/A	N/A	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		130 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		136 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$43,714	N/A	N/A	\$0	\$0	Total Participants	J	3	
Total Benefits						Total Budget	K	\$3,876	
Costs						Gross kW Saved at Customer	$(J \times I)$	22.00 kW	
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		11 kW
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		389 kWh
Utility Administration	N/A	\$3,876	\$3,876	\$3,876	\$3,876	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		408 kWh
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Societal Net Benefits	$(J \times I \times H)$		\$1,308
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			\$1,8989
Rebates	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen			\$344
Other	N/A	\$0	\$0	\$0	\$0				
Subtotal	N/A	\$3,876	\$3,876	\$3,876	\$3,876				
Utility Revenue Reduction									
Revenue Reduction - Electric	N/A	N/A	\$43,714	N/A	N/A				
Subtotal	N/A	N/A	\$43,714	N/A	N/A				
Participant Costs									
Incremental Capital Costs	\$0	N/A	N/A	\$0	\$0				
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0				
Subtotal	\$0	N/A	N/A	\$0	\$0				
Total Costs									
	\$0	\$3,876	\$47,590	\$3,876	\$3,876				
Net Benefit (Cost)									
	\$43,714	\$1,308	(\$42,406)	\$1,308	\$1,308				
Benefit/Cost Ratio									
	INF	1.34	0.11	1.34	1.34				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

BUSINESS SEGMENT TOTAL						2018	ELECTRIC	ACTUAL
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	16.8 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	48.87%
Generation	N/A	\$407,279	\$407,279	\$407,279	\$407,279	Gross Load Factor at Customer	E	35.18%
T & D	N/A	\$242,516	\$242,516	\$242,516	\$242,516	Transmission Loss Factor (Energy)	F	4.710%
Marginal Energy	N/A	\$1,429,957	\$1,429,957	\$1,429,957	\$1,429,957	Transmission Loss Factor (Demand)	G	7.380%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$480
Subtotal	N/A	\$2,079,752	\$2,079,752	\$2,079,752	\$2,079,752	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	7.36 kW
Bill Reduction - Electric	\$3,482,792	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$331,051	N/A	N/A	\$331,051	\$331,051	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$3,813,843	N/A	N/A	\$331,051	\$331,051	Total Participants	J	147
Total Benefits						Total Budget	K	\$442,982
Costs						Gross kW Saved at Customer	$(J \times I)$	1,081.65 kW
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Utility Administration	N/A	\$111,656	\$111,656	\$111,656	\$111,656	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Advertising & Promotion	N/A	\$275	\$275	\$275	\$275	Societal Net Benefits	$(J \times I \times H)$	
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Rebates	N/A	\$331,051	\$331,051	\$331,051	\$331,051	Utility Program Cost per kW at Gen		
Other	N/A	\$0	\$0	\$0	\$0	\$0.0075		
Subtotal	N/A	\$442,982	\$442,982	\$442,982	\$442,982	\$776		
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$3,482,792	N/A	N/A			
Subtotal	N/A	N/A	\$3,482,792	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$1,334,410	N/A	N/A	\$1,334,410	\$1,334,410			
Incremental O&M Costs	\$114,229	N/A	N/A	\$114,229	\$114,229			
Subtotal	\$1,448,640	N/A	N/A	\$1,448,640	\$1,448,640			
Total Costs								
	\$1,448,640	\$442,982	\$3,925,774	\$1,891,622	\$1,891,622			
Net Benefit (Cost)								
	\$2,365,204	\$1,636,769	(\$1,846,023)	\$519,181	\$519,181			
Benefit/Cost Ratio								
	2.63	4.69	0.53	1.27	1.27			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

RESIDENTIAL HOME LIGHTING						2018	ELECTRIC	ACTUAL
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	5.3 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	11.85%
Generation	N/A	\$71,414	\$71,414	\$71,414	\$71,414	Gross Load Factor at Customer	E	12.74%
T & D	N/A	\$43,229	\$43,229	\$43,229	\$43,229	Transmission Loss Factor (Energy)	F	5.132%
Marginal Energy	N/A	\$409,767	\$409,767	\$409,767	\$409,767	Transmission Loss Factor (Demand)	G	8.509%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$191
Subtotal	N/A	\$524,410	\$524,410	\$524,410	\$524,410	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	0.47 kW
Bill Reduction - Electric	\$1,323,601	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$71,587	N/A	N/A	\$71,587	\$71,587	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$1,395,188	N/A	N/A	\$71,587	\$71,587	Total Participants	J	4,601
Total Benefits						Total Budget	K	\$98,643
Costs						Gross kW Saved at Customer	$(J \times I)$	2,174.16 kW
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Utility Administration	N/A	\$21,813	\$21,813	\$21,813	\$21,813	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Advertising & Promotion	N/A	\$5,244	\$5,244	\$5,244	\$5,244	Societal Net Benefits	$(J \times I \times H)$	
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Rebates	N/A	\$71,587	\$71,587	\$71,587	\$71,587	Utility Program Cost per kW at Gen		
Other	N/A	\$0	\$0	\$0	\$0	\$0.0073		
Subtotal	N/A	\$98,643	\$98,643	\$98,643	\$98,643	\$350		
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$1,323,601	N/A	N/A			
Subtotal	N/A	N/A	\$1,323,601	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$81,380	N/A	N/A	\$81,380	\$81,380			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$81,380	N/A	N/A	\$81,380	\$81,380			
Total Costs								
	\$81,380	\$98,643	\$1,422,244	\$180,023	\$180,023			
Net Benefit (Cost)								
	\$1,313,808	\$425,766	(\$897,835)	\$415,973	\$415,973			
Benefit/Cost Ratio								
	17.14	5.32	0.37	3.31	3.31			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

RESIDENTIAL SAVER'S SWITCH						2018	ELECTRIC	ACTUAL	
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	15.0 years	
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760	
Benefits						Gross Customer kW	C	1 kW	
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	27.89%	
Generation	N/A	\$328,601	\$328,601	\$328,601	\$328,601	Gross Load Factor at Customer	E	0.01%	
T & D	N/A	\$199,896	\$199,896	\$199,896	\$199,896	Transmission Loss Factor (Energy)	F	5.260%	
Marginal Energy	N/A	\$654	\$654	\$654	\$654	Transmission Loss Factor (Demand)	G	8.580%	
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$216	
Subtotal	N/A	\$529,150	\$529,150	\$529,150	\$529,150	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I	2.50 kW	
Bill Reduction - Electric	\$452,600	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		0.76 kW
Rebates from Xcel Energy	\$0	N/A	N/A	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		2 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		2 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$452,600	N/A	N/A	\$0	\$0	Total Participants	J	637	
Total Benefits						Total Budget	K	\$185,091	
Costs						Gross kW Saved at Customer	$(J \times I)$	1,590.10 kW	
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		485 kW
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		1,318 kWh
Utility Administration	N/A	\$183,696	\$183,696	\$183,696	\$183,696	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		1,391 kWh
Advertising & Promotion	N/A	\$1,395	\$1,395	\$1,395	\$1,395	Societal Net Benefits	$(J \times I \times H)$		\$344,059
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			\$8.8698
Rebates	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen			\$382
Other	N/A	\$0	\$0	\$0	\$0				
Subtotal	N/A	\$185,091	\$185,091	\$185,091	\$185,091				
Utility Revenue Reduction									
Revenue Reduction - Electric	N/A	N/A	\$452,600	N/A	N/A				
Subtotal	N/A	N/A	\$452,600	N/A	N/A				
Participant Costs									
Incremental Capital Costs	\$0	N/A	N/A	\$0	\$0				
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0				
Subtotal	\$0	N/A	N/A	\$0	\$0				
Total Costs									
	\$0	\$185,091	\$637,690	\$185,091	\$185,091				
Net Benefit (Cost)	\$452,600	\$344,059	(\$108,541)	\$344,059	\$344,059				
Benefit/Cost Ratio	INF	2.86	0.83	2.86	2.86				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

RESIDENTIAL SEGMENT TOTAL						2018	ELECTRIC	ACTUAL
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	5.3 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	18.63%
Generation	N/A	\$400,015	\$400,015	\$400,015	\$400,015	Gross Load Factor at Customer	E	7.36%
T & D	N/A	\$243,124	\$243,124	\$243,124	\$243,124	Transmission Loss Factor (Energy)	F	5.132%
Marginal Energy	N/A	\$410,421	\$410,421	\$410,421	\$410,421	Transmission Loss Factor (Demand)	G	8.539%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$192
Subtotal	N/A	\$1,053,560	\$1,053,560	\$1,053,560	\$1,053,560	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	0.04 kW
Bill Reduction - Electric	\$1,776,201	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	0.01 kW
Rebates from Xcel Energy	\$71,587	N/A	N/A	\$71,587	\$71,587	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	29 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	30 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$1,847,787	N/A	N/A	\$71,587	\$71,587	Total Participants	J	84,456
Total Benefits						Total Budget	K	\$319,602
Costs						Gross kW Saved at Customer	$(J \times I)$	3,764.26 kW
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	767 kW
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	2,428,202 kWh
Utility Administration	N/A	\$212,498	\$212,498	\$212,498	\$212,498	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	2,559,550 kWh
Advertising & Promotion	N/A	\$35,518	\$35,518	\$35,518	\$35,518	Societal Net Benefits	$(J \times I \times H)$	\$724,164
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Rebates	N/A	\$71,587	\$71,587	\$71,587	\$71,587	Utility Program Cost per kW at Gen		
Other	N/A	\$0	\$0	\$0	\$0			\$0.0237
Subtotal	N/A	\$319,602	\$319,602	\$319,602	\$319,602			\$417
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$1,776,201	N/A	N/A			
Subtotal	N/A	N/A	\$1,776,201	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$81,380	N/A	N/A	\$81,380	\$81,380			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$81,380	N/A	N/A	\$81,380	\$81,380			
Total Costs								
	\$81,380	\$319,602	\$2,095,803	\$400,982	\$400,982			
Net Benefit (Cost)								
	\$1,766,408	\$733,958	(\$1,042,243)	\$724,164	\$724,164			
Benefit/Cost Ratio								
	22.71	3.30	0.50	2.81	2.81			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2018 SD DSM Year End Cost-Effectiveness Analysis

PORTFOLIO TOTAL						2018	ELECTRIC	ACTUAL	
2018 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	11.9 years	
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760	
Benefits						Gross Customer kW	C	1 kW	
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	25.32%	
Generation	N/A	\$807,294	\$807,294	\$807,294	\$807,294	Gross Load Factor at Customer	E	13.57%	
T & D	N/A	\$485,640	\$485,640	\$485,640	\$485,640	Transmission Loss Factor (Energy)	F	4.888%	
Marginal Energy	N/A	\$1,840,377	\$1,840,377	\$1,840,377	\$1,840,377	Transmission Loss Factor (Demand)	G	8.283%	
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$254	
Subtotal	N/A	\$3,133,311	\$3,133,311	\$3,133,311	\$3,133,311	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I	0.06 kW	
Bill Reduction - Electric	\$5,258,993	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		0.02 kW
Rebates from Xcel Energy	\$402,638	N/A	N/A	\$402,638	\$402,638	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		68 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		72 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$5,661,631	N/A	N/A	\$402,638	\$402,638	Total Participants	J	84,603	
Total Benefits						Total Budget	K	\$776,907	
Costs						Gross kW Saved at Customer	$(J \times I)$	4,845.91 kW	
Utility Project Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		1,338 kW
Customer Services	N/A	\$0	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		5,761,588 kWh
Utility Administration	N/A	\$338,492	\$338,492	\$338,492	\$338,492	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		6,057,698 kWh
Advertising & Promotion	N/A	\$35,778	\$35,778	\$35,778	\$35,778	Societal Net Benefits	$(J \times I \times H)$		\$1,229,022
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			\$0.0107
Rebates	N/A	\$402,638	\$402,638	\$402,638	\$402,638	Utility Program Cost per kW at Gen			\$581
Other	N/A	\$0	\$0	\$0	\$0				
Subtotal	N/A	\$776,907	\$776,907	\$776,907	\$776,907				
Utility Revenue Reduction									
Revenue Reduction - Electric	N/A	N/A	\$5,258,993	N/A	N/A				
Subtotal	N/A	N/A	\$5,258,993	N/A	N/A				
Participant Costs									
Incremental Capital Costs	\$1,415,790	N/A	N/A	\$1,415,790	\$1,415,790				
Incremental O&M Costs	\$114,229	N/A	N/A	\$114,229	\$114,229				
Subtotal	\$1,530,019	N/A	N/A	\$1,530,019	\$1,530,019				
Total Costs									
	\$1,530,019	\$776,907	\$6,035,900	\$2,306,927	\$2,306,927				
Net Benefit (Cost)									
	\$4,131,611	\$2,356,404	(\$2,902,589)	\$1,229,022	\$1,229,022				
Benefit/Cost Ratio									
	3.70	4.03	0.52	1.53	1.53				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 Lighting Measures

Type	Lighting Efficiency	2018 Rebate Amount (\$)	2019 Rebate Amount (\$)	2020 Rebate Amount (\$)	Rebate Adjustment	Justification
Retrofit	Wall mount occupancy sensor - 50 Watts to 300 Watts Controlled Load	\$ 15.00	\$ 15.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Wall mount occupancy sensor - Greater than 300 Watts Controlled Load	\$ 25.00	\$ 25.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Ceiling mount occupancy sensor - 50 Watts to 300 Watts Controlled Load	\$ 30.00	\$ 30.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Ceiling mount occupancy sensor - Greater than 300 Watts Controlled Load	\$ 40.00	\$ 40.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Occupancy Sensor - Photozell	\$ 25.00	\$ 25.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Stairwell Fixture with Integral Occupancy Sensor	\$ 25.00	\$ 25.00	\$ -	Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Stairwell Fixture	\$ -	\$ -	\$ 40	New in 2020	Decoupled integral control and fixture rebate. Customers can obtain standalone or networked lighting controls in addition to fixture rebate.
Retrofit	Networked Lighting Controls	\$ -	\$ -	\$ 40/watt	New in 2020	New Technology
Retrofit	Standalone Occupancy sensor	\$ -	\$ -	\$ 05/watt	New in 2020	New Technology
Retrofit	Standalone Daylighting sensor	\$ -	\$ -	\$ 10/watt	New in 2020	New Technology
Retrofit	Standalone Daylighting & Occupancy sensors	\$ -	\$ -	\$ 015/watt	New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 30-39W	\$ -	\$ -	\$ 30.00	New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 40-49W	\$ -	\$ -	\$ 40.00	New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 50-79W	\$ -	\$ -	\$ 50.00	New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 80-119W	\$ -	\$ -	\$ 60.00	New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 120-230W	\$ -	\$ -	\$ 75.00	New in 2020	New Technology
Retrofit	LED/LFC Exit Sign	\$ 25.00	\$ 25.00	\$ 25.00	NA	
Retrofit	LED Interior Screw In Fixture Retrofit	\$ 15.00	\$ 15.00	\$ 10.00	Rebate reduced in 2020	Change in incremental cost
Retrofit	LED Interior Fixture <= 25W	\$ 35.00	\$ 20.00	\$ 20.00	Change in 2020	Add CFL baseline
Retrofit	LED Interior Fixture 26W - 50W	\$ 50.00	\$ 40.00	\$ 40.00	Change in 2020	Add CFL baseline
Retrofit	LED Ref and Frz Cases 5' or 6' doors	\$ 100.00	\$ 100.00	\$ 45.00	Rebate reduced in 2020	Increase in rebate to promote technology
Retrofit	LED Parking Garage Lighting 25W-60W	\$ 75.00	\$ 75.00	\$ 75.00	NA	
Retrofit	LED Area Lighting - 45-65W	\$ 25.00	\$ 25.00	\$ 25.00	NA	
Retrofit	LED Area Lighting - 66-89W	\$ 25.00	\$ 25.00	\$ 25.00	NA	
Retrofit	LED Area Lighting - 90-119W	\$ 50.00	\$ 50.00	\$ 50.00	NA	
Retrofit	LED Area Lighting - 120-140W	\$ 50.00	\$ 50.00	\$ 50.00	NA	
Retrofit	LED Troffer Fixture 1X4	\$ 20.00	\$ 20.00	\$ 20.00	NA	
Retrofit	LED Troffer Fixture 2X2	\$ 20.00	\$ 20.00	\$ 20.00	NA	
Retrofit	LED Troffer Fixture 2X4	\$ 30.00	\$ 30.00	\$ 30.00	NA	
Retrofit	LED Troffer Retrofit Kit 1X4	\$ 15.00	\$ 15.00	\$ 15.00	NA	
Retrofit	LED Troffer Retrofit Kit 2X2	\$ 15.00	\$ 15.00	\$ 15.00	NA	
Retrofit	LED Troffer Retrofit Kit 2X4	\$ 25.00	\$ 25.00	\$ 25.00	NA	
Retrofit	LED Exterior Wall Pack <= 25W	\$ 35.00	\$ 25.00	\$ 25.00	NA	
Retrofit	LED Exterior Wall Pack 26W - 60W	\$ 75.00	\$ 50.00	\$ 50.00	NA	
Retrofit	LED Exterior Wall Pack 61W - 150W	\$ 100.00	\$ 80.00	\$ 80.00	NA	
Retrofit	LED Parking Garage Wall Pack <= 25W	\$ 35.00	\$ 35.00	\$ 35.00	NA	
Retrofit	LED Parking Garage Wall Pack 26W - 60W	\$ 75.00	\$ 75.00	\$ 75.00	NA	
Retrofit	LED Parking Garage Wall Pack 61W - 150W	\$ 100.00	\$ 100.00	\$ 100.00	NA	
Retrofit	LED Outdoor Canopy or Soffit lighting 25W - 60W	\$ 75.00	\$ 75.00	\$ 75.00	NA	
Retrofit	LED Outdoor Canopy or Soffit lighting 61W - 150W	\$ 100.00	\$ 100.00	\$ 100.00	NA	
Retrofit	LED Interior Lamp <= 5W	\$ 7.00	\$ 4.00	\$ 4.00	NA	
Retrofit	LED Interior Lamp 6W - 10W	\$ 12.00	\$ 6.00	\$ 6.00	NA	
Retrofit	LED Interior Lamp 11W - 20W	\$ 15.00	\$ 8.00	\$ 8.00	NA	
Retrofit	LED Tube Type A 2 foot	\$ 2.00	\$ 2.00	\$ 2.00	NA	
Retrofit	LED Tube Type C 2 foot	\$ 5.00	\$ 5.00	\$ 5.00	NA	
Retrofit	LED Tube Type A 4 foot	\$ 2.00	\$ 2.00	\$ 2.00	NA	
Retrofit	LED Tube Type C 4 foot	\$ 5.00	\$ 5.00	\$ 5.00	NA	
Retrofit	LED Tube Type B 4 foot	\$ 3.00	\$ 3.00	\$ 3.00	NA	
Retrofit	LED High Bay Fixture - 95-189W replaces HID	\$ -	\$ 100.00	\$ 100.00	New in 2019	New Technology
Retrofit	LED High Bay Fixture - 190-290W replaces HID	\$ -	\$ 120.00	\$ 120.00	New in 2019	New Technology
Retrofit	LED High Bay Fixture - 291-464W replaces HID	\$ -	\$ 150.00	\$ 150.00	New in 2019	New Technology
Retrofit	LED High Bay Fixture - 465-625W replaces HID	\$ -	\$ 200.00	\$ 200.00	New in 2019	New Technology
Retrofit	LED High Bay Retrofit Kit - 95-189W replaces HID	\$ -	\$ -	\$ 40.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 190-290W replaces HID	\$ -	\$ -	\$ 50.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 291-464W replaces HID	\$ -	\$ -	\$ 80.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 465-625W replaces HID	\$ -	\$ -	\$ 160.00	New in 2020	New Technology
Retrofit	LED High Bay Fixture - 95-189W replaces fluorescent	\$ -	\$ -	\$ 100.00	New in 2020	New Baseline
Retrofit	LED High Bay Fixture - 190-290W replaces fluorescent	\$ -	\$ -	\$ 120.00	New in 2020	New Baseline
Retrofit	LED High Bay Fixture - 291-464W replaces fluorescent	\$ -	\$ -	\$ 150.00	New in 2020	New Baseline
Retrofit	LED High Bay Fixture - 465-625W replaces fluorescent	\$ -	\$ -	\$ 200.00	New in 2020	New Baseline
Retrofit	LED High Bay Retrofit Kit - 95-189W replaces fluorescent	\$ -	\$ -	\$ 40.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 190-290W replaces fluorescent	\$ -	\$ -	\$ 50.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 291-464W replaces fluorescent	\$ -	\$ -	\$ 80.00	New in 2020	New Technology
Retrofit	LED High Bay Retrofit Kit - 465-625W replaces fluorescent	\$ -	\$ -	\$ 160.00	New in 2020	New Technology
New Construction	LED Interior Lamp <= 5W	\$ 7.00	\$ 4.00	\$ 4.00	NA	
New Construction	LED Interior Lamp 6W - 10W	\$ 12.00	\$ 6.00	\$ 6.00	NA	
New Construction	LED Interior Lamp 11W - 20W	\$ 15.00	\$ 8.00	\$ 8.00	NA	
New Construction	LED Interior Fixture <= 25W	\$ 25.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Interior Fixture 26W - 50W	\$ 40.00	\$ 20.00	\$ 20.00	NA	
New Construction	LED Ref and Frz Cases 5' or 6' doors	\$ 70.00	\$ 70.00	\$ 35.00	Rebate reduced in 2020	
New Construction	LED Parking Garage Lighting 25W-60W	\$ 35.00	\$ 35.00	\$ 35.00	NA	Increase in rebate to promote technology
New Construction	LED Area Lighting - 45-65W	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Area Lighting - 66-89W	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Area Lighting - 90-119W	\$ 30.00	\$ 30.00	\$ 30.00	NA	
New Construction	LED Area Lighting - 120-140W	\$ 30.00	\$ 30.00	\$ 30.00	NA	
New Construction	LED Troffer Fixture 1X4	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Troffer Fixture 2X2	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Troffer Fixture 2X4	\$ 25.00	\$ 25.00	\$ 25.00	NA	
New Construction	LED Exterior Wall Pack <= 25W	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Exterior Wall Pack 26W - 60W	\$ 30.00	\$ 30.00	\$ 30.00	NA	
New Construction	LED Exterior Wall Pack 61W - 150W	\$ 50.00	\$ 50.00	\$ 50.00	NA	
New Construction	LED Parking Garage Wall Pack <= 25W	\$ 15.00	\$ 15.00	\$ 15.00	NA	
New Construction	LED Parking Garage Wall Pack 26W - 60W	\$ 30.00	\$ 30.00	\$ 30.00	NA	
New Construction	LED Parking Garage Wall Pack 61W - 150W	\$ 50.00	\$ 50.00	\$ 50.00	NA	
New Construction	LED Outdoor Canopy or Soffit lighting 25W - 60W	\$ 50.00	\$ 50.00	\$ 50.00	NA	
New Construction	LED Outdoor Canopy or Soffit lighting 61W - 150W	\$ 90.00	\$ 90.00	\$ 50.00	Rebate reduced in 2020	Change in incremental cost

Home Lighting	Rebate Amount (\$)	Rebate Adjustment	Justification
LED Bulb - A-Line	\$1.06	Yes - \$2.10 in 2019	Change in incremental cost
LED Bulb - Specialty	\$1.10	Yes - \$2.10 in 2019	Change in incremental cost
LED Bulb - Linear Tube	\$2.00	New in 2020	New Technology

Northern States Power Company
State of South Dakota- Electric Utility
DSM Cost Recovery & Incentive Mechanism - Total
2018 Actual

2018	January	February	March	April	May	June	July	August	September	October	November	December	Total
EXPENSES	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	
[CONFIDENTIAL DATA BEGINS													
1. Beg. Balance													
2. DSM Program Expenditures													
3. Accrued Incentive													
4. Total Expenditures + Incentive (Line 2 + 3)													
RECOVERY													
5. Calendar Month Sales Volume (MWh)													
6. DSM Adjustment Factor (\$/MWh)													
7. Cost and Incentive Recovery													
8. Sub-Balance (Over)/Under Recovery (Sum Lines 1 - 3, minus Line 7)													
9. Accumulated Deferred Income Tax (Line 8 x 21%)													
10. Net Investment (Line 8 - 9)													
11. Carrying Charge Rate													
12. Carrying Charge (Line 10 x Line 11)													
13. End of Month Balance (over)/under recovered (Line 8 + 12)													

[CONFIDENTIAL DATA ENDS]

[CONFIDENTIAL DATA BEGINS

[CONFIDENTIAL DATA ENDS]

Supporting Documentation for Updated DSM Cost Adjustment Factor

The following is information specified in South Dakota Administrative Rule 20:10:13:26 regarding the updated DSM Cost Adjustment Factor:

(1) Name and address of the public utility;

Xcel Energy
500 West Russell Street
Sioux Falls, South Dakota 57104
(605) 339-8350

(2) Section and sheet number of tariff schedule;

Xcel Energy proposes to update DSM Rate tariff sheet number 73 in Section 5 of the Xcel Energy South Dakota Electric Rate Book. Pages 7-10 of this attachment include the proposed tariff sheets with the updated DSM Rate.

(3) Description of the change;

The proposed updated DSM Rate is designed to true up the cost recovery, which is over our forecasted budget in the time period of 2019-2020 timeframe, as well as recover all forecasted 2020 DSM expenditures and incentives.

(4) Reason for the change;

As proposed in the South Dakota DSM Plan and described in the DSM Cost Adjustment Factor tariff sheet, the Company plans to update the DSM Cost Adjustment Factor on an annual basis in the May 1 Status Report filing. The updated DSM Rate is designed to true up any over-recovery or under-recovery that exists in the tracker as well as recover the forecasted DSM expenditures and incentives for the upcoming year.

(5) Present rate;

Pursuant to the Commission's December 18, 2018 Order,¹ Xcel Energy implemented the approved rate of \$0.000464 per kWh effective January 1, 2019.

(6) Proposed rate;

Xcel Energy requests a new DSM Cost Adjustment Factor of \$0.000475 per customer kWh.

(7) Proposed effective date of modified rate;

Xcel Energy requests this new DSM Cost Adjustment Factor of \$0.000475 per customer kWh become effective with the first billing cycle of January 2020. We request this rate remain in effect through December 2020 or until the Commission approves a new DSM Cost Adjustment Factor.

(8) Approximation of annual amount of increase or decrease in revenue;

This new DSM Cost Adjustment Factor of \$0.000475 per customer kWh is a increase of \$0.000011 per kWh or two percent.

(9) Points affected;

The proposed updated DSM Rate would be applicable to all areas served by Xcel Energy in South Dakota.

(10) Estimation of the number of customers whose cost of service will be affected and annual amounts of either increases or decreases, or both, in cost of service to those customers;

The proposed electric tariff will apply to all customers throughout all customer classes as described within the filing. Xcel Energy presently serves just over 95,666 electric customers in 36 communities in eastern South Dakota.

¹ Docket No. EL18-023

(11) Statement of facts, expert opinions, documents, and exhibits to support the proposed changes.

A narrative for the calculation of the updated rate is included in the DSM Cost Adjustment Factor Report section of this filing. The following pages of this attachment include the forecasted 2019 and 2020 DSM Trackers, which are referenced in the narrative, along with the proposed customer bill insert message and the proposed updated tariff sheets in both redline and clean versions.

Northern States Power Company State of South Dakota- Electric Utility DSM Cost Recovery & Incentive Mechanism - Total 2019 Forecast														
	2019	January	February	March	April	May	June	July	August	September	October	November	December	Total
	EXPENSES	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
1.	Balance													
2.	DSM Program Expenditures													
3.	Total Incentive													
	(Line 2 * 30%)													
4.	Total Expenditures + Incentive													
	(Line 2 + 3)													
	RECOVERY													
5.	DSM Adjustment Factor (\$/MWh)													
6.	Calendar Month Sales Volume Forecast (MWh)													
7.	Total Cost Recovery (Line 5*6)													
8.	Sub-Balance (Over/Under Recovery)													
	(Line 1 + 4 - 7)													
9.	Accum Deferred Tax													
	(Line 8 *21%)													
10.	Net Investment													
	(Line 8 - 9)													
11.	Carrying Charge Rate													
12.	Carrying Charge													
	(Line 10 * carrying charge)													
13.	13. End of Month Balance (over)/under recovered													
	(Line 8 + 12)													

Table 1: 2019 DSM Tracker Forecast, With Cost Recovery in 2020

[CONFIDENTIAL DATA BEGINS

CONFIDENTIAL DATA ENDS]

CONFIDENTIAL DATA ENDS]

Northern States Power Company State of South Dakota- Electric Utility DSM Cost Recovery & Incentive Mechanism - Total 2020 Forecast													
2020	January	February	March	April	May	June	July	August	September	October	November	December	Total
EXPENSES	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
CONFIDENTIAL DATA BEGINS													
1. Balance													
2. DSM Program Expenditures													
3. Total Incentive (Line 2 * 30%)													
4. Total Expenditures + Incentive (Line 2 + 3)													
RECOVERY													
5. DSM Adjustment Factor (\$/MWh)													
6. Calendar Month Sales Volume Forecast (MWh)													
7. Total Cost Recovery													
8. Sub-Balance (Over)/Under Recovery (Line 1 + 4 - 7)													
9. Accum Deferred Tax (Line 8 * 21%)													
10. Net Investment (Line 8 - 9)													
11. Carrying Charge Rate													
12. Carrying Charge (Line 10 * carrying charge)													
13. End of Month Balance (Line 8 + 12)													
CONFIDENTIAL DATA ENDS													

Table 2: 2020 DSM Tracker Forecast, With Cost Recovery in 2021

CONFIDENTIAL DATA BEGINS

CONFIDENTIAL DATA ENDS

Proposed Customer Bill Onsert Language

DSM Cost Adjustment Factor Increase Effective January 1, 2020

Xcel Energy offers a variety of load management and demand side management (DSM) programs to our South Dakota customers to help them reduce their home’s usage. The South Dakota Public Utilities Commission has approved a new Demand Side Management (DSM) Cost Adjustment Factor as a separate line item on your monthly electric bill to recover the cost of our load management and DSM programs. Beginning January 1, 2020 the rate factor will increase from \$0.000464 per kWh to \$0.000475 per kWh.

Residential Electric Service – Winter Month Bill Example

This chart provides a comparison of customer bills by applying the prior DSM rate versus the new DSM rate. The table below shows the DSM Rider rate increase only and does not factor in any other rate change that may occur concurrently.

Usage (kWh)	Prior Rates				New Rates				Change in Bill	Percent Increase
	Other Rates	Prior DSM Factor	Prior DSM	Prior Bill	Other Rates	New DSM Factor	New DSM	New Bill		
400	\$52.90	\$0.000464	\$0.19	\$53.09	\$52.90	\$0.000475	\$0.19	\$53.09	0.00	0.00%
500	\$64.06	\$0.000464	\$0.23	\$64.29	\$64.06	\$0.000475	\$0.24	\$64.30	0.01	0.02%
600	\$75.22	\$0.000464	\$0.28	\$75.50	\$75.22	\$0.000475	\$0.29	\$75.51	0.01	0.01%
750	\$91.96	\$0.000464	\$0.35	\$92.31	\$91.96	\$0.000475	\$0.36	\$92.32	0.01	0.01%
1000	\$119.86	\$0.000464	\$0.46	\$120.32	\$119.86	\$0.000475	\$0.48	\$120.34	0.02	0.02%
2000	\$231.48	\$0.000464	\$0.93	\$232.41	\$231.48	\$0.000475	\$0.95	\$232.43	0.02	0.01%

For more information

You may call **800.895.4999** with questions or examine the new rates by visiting our website at xcelenergy.com/SDRates.

Legislative

PUBLIC

Northern States Power Company, a Minnesota corporation
Minneapolis, MN 55401

SOUTH DAKOTA ELECTRIC RATE BOOK - SDPUC NO. 2

DEMAND SIDE MANAGEMENT COST

Section No. 5

ADJUSTMENT FACTOR

~~6th~~^{7th} Revised Sheet No. 73

Cancelling ~~5th~~^{6th} Revised Sheet No. 73

APPLICATION

Applicable to bills for electric service provided under the Company's retail rate schedules.

RIDER

There shall be included on each customer's monthly bill a Demand Side Management Cost Adjustment, which shall be calculated by multiplying the monthly applicable billing kilowatt hours (kWh) by the Demand Side Management Factor (DSM Factor). This Demand Side Management Cost Adjustment shall be calculated before city surcharge and sales tax.

DETERMINATION OF DSM FACTOR

A DSM Factor shall be calculated by dividing the forecasted balance of the DSM Tracker Account (Tracker), including any True Up, by the Forecasted Retail Sales for the Next Recovery Period. The DSM Factor shall be rounded to the nearest \$0.000001 per kWh.

The DSM Factor may be adjusted annually with approval of the South Dakota Public Utilities Commission (Commission). The DSM Factor is:

All Customers ~~\$0.000464~~^{\$0.000475} per kWh

~~R1~~

DSM Tracker shall include all annual expenses, costs and incentives associated with demand side management programs and that are approved by the Commission. All revenues recovered pursuant to the Demand Side Management Cost Adjustment shall be credited to the Tracker.

Forecasted Retail Sales shall be the estimated total retail electric sales for the Next Recovery Period.

Next Recovery Period shall be that period that begins January 1 and ends December 31 following the Company's most recent May 1 filing.

TRUE-UP

True Up shall include the difference between the revenues received from customers and actual expenditures for the most recent recovery period ending December 31.

A True Up will be included in each annual May 1 filing beginning with the May 1, 2013 filing. The 2012 DSM Factor calculation will not include a True Up due to no previous cost or revenue activity prior to implementation of the Demand Side Management Cost Adjustment in 2012. Beginning with the Company's request submitted on May 1, 2013, the DSM Factor may include a True Up.

Date Filed: ~~05-01-18~~⁰⁵⁻⁰¹⁻¹⁹

By: Christopher B. Clark

Effective Date: ~~01-01-19~~

President, Northern States Power Company, a Minnesota corporation

Docket No. ~~EL18-023~~^{EL19-}

Order Date: ~~12-18-18~~

Non-Legislative

PUBLIC

Northern States Power Company, a Minnesota corporation
Minneapolis, MN 55401

SOUTH DAKOTA ELECTRIC RATE BOOK - SDPUC NO. 2

**DEMAND SIDE MANAGEMENT COST
ADJUSTMENT FACTOR**

Section No. 5
7th Revised Sheet No. 73
Cancelling 6th Revised Sheet No. 73

APPLICATION

Applicable to bills for electric service provided under the Company's retail rate schedules.

RIDER

There shall be included on each customer's monthly bill a Demand Side Management Cost Adjustment, which shall be calculated by multiplying the monthly applicable billing kilowatt hours (kWh) by the Demand Side Management Factor (DSM Factor). This Demand Side Management Cost Adjustment shall be calculated before city surcharge and sales tax.

DETERMINATION OF DSM FACTOR

A DSM Factor shall be calculated by dividing the forecasted balance of the DSM Tracker Account (Tracker), including any True Up, by the Forecasted Retail Sales for the Next Recovery Period. The DSM Factor shall be rounded to the nearest \$0.000001 per kWh.

The DSM Factor may be adjusted annually with approval of the South Dakota Public Utilities Commission (Commission). The DSM Factor is:

All Customers	\$0.000475 per kWh	I
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DSM Tracker shall include all annual expenses, costs and incentives associated with demand side management programs and that are approved by the Commission. All revenues recovered pursuant to the Demand Side Management Cost Adjustment shall be credited to the Tracker.

Forecasted Retail Sales shall be the estimated total retail electric sales for the Next Recovery Period.

Next Recovery Period shall be that period that begins January 1 and ends December 31 following the Company's most recent May 1 filing.

TRUE-UP

True Up shall include the difference between the revenues received from customers and actual expenditures for the most recent recovery period ending December 31.

A True Up will be included in each annual May 1 filing beginning with the May 1, 2013 filing. The 2012 DSM Factor calculation will not include a True Up due to no previous cost or revenue activity prior to implementation of the Demand Side Management Cost Adjustment in 2012. Beginning with the Company's request submitted on May 1, 2013, the DSM Factor may include a True Up.

Date Filed:	05-01-19	By: Christopher B. Clark	Effective Date:
		President, Northern States Power Company, a Minnesota corporation	
Docket No.	EL19-		Order Date:

Executive Summary Table - 2020

2020	Electric Participants	Electric Budget	Generator kW	Generator kWh	Participant Test Ratio	Utility Test Ratio	Ratepayer Impact Measure Test Ratio	TRC Ratio
Business Segment								
Lighting Efficiency	341	\$389,320	453	3,960,428	2.67	5.74	0.47	1.20
Business Saver's Switch	10	\$25,250	28	39	INF	1.23	0.50	1.23
Peak and Energy Control	1	\$10,000	101	3,713	INF	4.60	1.03	4.60
Business Segment Total	352	\$424,570	582	3,964,179	2.71	5.44	0.48	1.21
Residential Segment								
Home Lighting	5,245	\$96,756	408	3,009,728	36.68	6.34	0.17	3.57
Residential Demand Response	1,410	\$235,500	817	99,889	6.78	2.74	0.83	2.82
Consumer Education	68,000	\$21,165	N/A	N/A				
Water Heating	21	\$15,000	12	82,115	4.35	2.32	0.43	1.35
Residential Segment Total	74,676	\$368,421	1,237	3,191,731	18.18	3.51	0.29	2.89
Planning Segment								
Regulatory Affairs	0	\$14,000	N/A	N/A				
Planning Segment Total	0	\$0	N/A	N/A				
PORTFOLIO TOTAL								
	75,028	\$806,991	1,819	7,155,910	4.89	4.46	0.39	1.60

2020 SD DSM Plan Cost-Effectiveness Analysis

LIGHTING EFFICIENCY						2020 ELECTRIC			GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A		18.2 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B		8760
Benefits						Gross Customer kW	C		1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D		48.56%
Generation	N/A	\$338,439	\$338,439	\$338,439	\$338,439	Gross Load Factor at Customer	E		48.84%
T & D	N/A	\$206,552	\$206,552	\$206,552	\$206,552	Transmission Loss Factor (Energy)	F		4.873%
Marginal Energy	N/A	\$1,688,254	\$1,688,254	\$1,688,254	\$1,688,254	Transmission Loss Factor (Demand)	G		5.640%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H		\$477
Subtotal	N/A	\$2,233,245	\$2,233,245	\$2,233,245	\$2,233,245	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I		2.58 kW
Bill Reduction - Electric	\$4,322,713	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		1.33 kW
Rebates from Xcel Energy	\$315,210	N/A	N/A	\$315,210	\$315,210	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		11,036 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		11,602 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$4,637,923	N/A	N/A	\$315,210	\$315,210	Total Participants	J		341
Total Benefits						Total Budget	K		\$389,320
	\$4,637,923	\$2,233,245	\$2,233,245	\$2,548,454	\$2,548,454	Gross kW Saved at Customer	$(J \times I)$		880.62 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		453 kW
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		3,767,456 kWh
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		3,960,428 kWh
Utility Administration	N/A	\$74,110	\$74,110	\$74,110	\$74,110	Societal Net Benefits	$(J \times I \times H)$		\$419,945
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen			
Rebates	N/A	\$315,210	\$315,210	\$315,210	\$315,210				\$0.0054
Other	N/A	\$0	\$0	\$0	\$0				\$859
Subtotal	N/A	\$389,320	\$389,320	\$389,320	\$389,320	Utility Program Cost per kWh Lifetime			
Utility Revenue Reduction						Utility Program Cost per kW at Gen			
Revenue Reduction - Electric	N/A	N/A	\$4,322,713	N/A	N/A				\$0.0054
Subtotal	N/A	N/A	\$4,322,713	N/A	N/A				\$859
Participant Costs						Utility Program Cost per kWh Lifetime			
Incremental Capital Costs	\$1,611,263	N/A	N/A	\$1,611,263	\$1,611,263				\$0.0054
Incremental O&M Costs	\$127,926	N/A	N/A	\$127,926	\$127,926				\$859
Subtotal	\$1,739,189	N/A	N/A	\$1,739,189	\$1,739,189				\$0.0054
Total Costs									\$859
	\$1,739,189	\$389,320	\$4,712,033	\$2,128,509	\$2,128,509				\$0.0054
Net Benefit (Cost)									\$859
	\$2,898,734	\$1,843,925	(\$2,478,789)	\$419,945	\$419,945				\$0.0054
Benefit/Cost Ratio									\$859
	2.67	5.74	0.47	1.20	1.20				\$0.0054

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

BUSINESS SAVER'S SWITCH						2020	ELECTRIC	GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	15.0 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	16.76%
Generation	N/A	\$19,301	\$19,301	\$19,301	\$19,301	Gross Load Factor at Customer	E	0.00%
T & D	N/A	\$11,769	\$11,769	\$11,769	\$11,769	Transmission Loss Factor (Energy)	F	4.872%
Marginal Energy	N/A	\$20	\$20	\$20	\$20	Transmission Loss Factor (Demand)	G	5.640%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$37
Subtotal	N/A	\$31,089	\$31,089	\$31,089	\$31,089	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	15.93 kW
Bill Reduction - Electric	\$36,940	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$0	N/A	N/A	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$36,940	N/A	N/A	\$0	\$0	Total Participants	J	10
Total Benefits						Total Budget	K	\$25,250
	\$36,940	\$31,089	\$31,089	\$31,089	\$31,089	Gross kW Saved at Customer	$(J \times I)$	159.27 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Utility Administration	N/A	\$25,250	\$25,250	\$25,250	\$25,250	Societal Net Benefits	$(J \times I \times H)$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Rebates	N/A	\$0	\$0	\$0	\$0			\$43,4116
Other	N/A	\$0	\$0	\$0	\$0			\$893
Subtotal	N/A	\$25,250	\$25,250	\$25,250	\$25,250	Utility Program Cost per kWh Lifetime		
Utility Revenue Reduction						Utility Program Cost per kW at Gen		
Revenue Reduction - Electric	N/A	N/A	\$36,940	N/A	N/A			\$893
Subtotal	N/A	N/A	\$36,940	N/A	N/A	Net Benefit (Cost)		
Participant Costs								\$5,839
Incremental Capital Costs	\$0	N/A	N/A	\$0	\$0	Benefit/Cost Ratio		
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			1.23
Subtotal	\$0	N/A	N/A	\$0	\$0	Net Benefit (Cost)		
Total Costs								\$5,839
	\$0	\$25,250	\$62,190	\$25,250	\$25,250	Benefit/Cost Ratio		
	\$0	\$25,250	\$62,190	\$25,250	\$25,250			1.23
Net Benefit (Cost)								\$5,839
Benefit/Cost Ratio								1.23

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

PEAK AND ENERGY CONTROL						2020	ELECTRIC	GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	5.0 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	47.46%
Generation	N/A	\$28,201	\$28,201	\$28,201	\$28,201	Gross Load Factor at Customer	E	0.20%
T & D	N/A	\$17,108	\$17,108	\$17,108	\$17,108	Transmission Loss Factor (Energy)	F	4.873%
Marginal Energy	N/A	\$723	\$723	\$723	\$723	Transmission Loss Factor (Demand)	G	5.640%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$180
Subtotal	N/A	\$46,032	\$46,032	\$46,032	\$46,032	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	200.00 kW
Bill Reduction - Electric	\$34,880	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$0	N/A	N/A	\$0	\$0	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$34,880	N/A	N/A	\$0	\$0	Total Participants	J	1
Total Benefits						Total Budget	K	\$10,000
Total Benefits	\$34,880	\$46,032	\$46,032	\$46,032	\$46,032	Gross kW Saved at Customer	$(J \times I)$	200.00 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Utility Administration	N/A	\$10,000	\$10,000	\$10,000	\$10,000	Societal Net Benefits	$(J \times I \times H)$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Rebates	N/A	\$0	\$0	\$0	\$0	\$0.5387		
Other	N/A	\$0	\$0	\$0	\$0	\$99		
Subtotal	N/A	\$10,000	\$10,000	\$10,000	\$10,000			
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$34,880	N/A	N/A			
Subtotal	N/A	N/A	\$34,880	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$0	N/A	N/A	\$0	\$0			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$0	N/A	N/A	\$0	\$0			
Total Costs								
Total Costs	\$0	\$10,000	\$44,880	\$10,000	\$10,000			
Net Benefit (Cost)								
Net Benefit (Cost)	\$34,880	\$36,032	\$1,152	\$36,032	\$36,032			
Benefit/Cost Ratio								
Benefit/Cost Ratio	INF	4.60	1.03	4.60	4.60			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

BUSINESS SEGMENT TOTAL						2020	ELECTRIC	GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	18.2 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	44.30%
Generation	N/A	\$385,941	\$385,941	\$385,941	\$385,941	Gross Load Factor at Customer	E	34.72%
T & D	N/A	\$235,430	\$235,430	\$235,430	\$235,430	Transmission Loss Factor (Energy)	F	4.873%
Marginal Energy	N/A	\$1,688,996	\$1,688,996	\$1,688,996	\$1,688,996	Transmission Loss Factor (Demand)	G	5.640%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$372
Subtotal	N/A	\$2,310,366	\$2,310,366	\$2,310,366	\$2,310,366	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	3.52 kW
Bill Reduction - Electric	\$4,394,533	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$315,210	N/A	N/A	\$315,210	\$315,210	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants		
Subtotal	\$4,709,743	N/A	N/A	\$315,210	\$315,210	Total Participants	J	352
Total Benefits						Total Budget	K	\$424,570
Total Benefits	\$4,709,743	\$2,310,366	\$2,310,366	\$2,625,576	\$2,625,576	Gross kW Saved at Customer	$(J \times I)$	1,239.90 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Utility Administration	N/A	\$109,360	\$109,360	\$109,360	\$109,360	Societal Net Benefits	$(J \times I \times H)$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Rebates	N/A	\$315,210	\$315,210	\$315,210	\$315,210	Utility Program Cost per kWh Lifetime		
Other	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Subtotal	N/A	\$424,570	\$424,570	\$424,570	\$424,570	Utility Program Cost per kWh Lifetime		
Utility Revenue Reduction						Utility Program Cost per kW at Gen		
Revenue Reduction - Electric	N/A	N/A	\$4,394,533	N/A	N/A	Utility Program Cost per kWh Lifetime		
Subtotal	N/A	N/A	\$4,394,533	N/A	N/A	Utility Program Cost per kW at Gen		
Participant Costs						Utility Program Cost per kWh Lifetime		
Incremental Capital Costs	\$1,611,263	N/A	N/A	\$1,611,263	\$1,611,263	Utility Program Cost per kW at Gen		
Incremental O&M Costs	\$127,926	N/A	N/A	\$127,926	\$127,926	Utility Program Cost per kWh Lifetime		
Subtotal	\$1,739,189	N/A	N/A	\$1,739,189	\$1,739,189	Utility Program Cost per kWh Lifetime		
Total Costs						Utility Program Cost per kWh Lifetime		
Total Costs	\$1,739,189	\$424,570	\$4,819,103	\$2,163,759	\$2,163,759	Utility Program Cost per kW at Gen		
Net Benefit (Cost)						Utility Program Cost per kWh Lifetime		
Net Benefit (Cost)	\$2,970,554	\$1,885,796	(\$2,508,737)	\$461,817	\$461,817	Utility Program Cost per kW at Gen		
Benefit/Cost Ratio						Utility Program Cost per kW at Gen		
Benefit/Cost Ratio	2.71	5.44	0.48	1.21	1.21	Utility Program Cost per kW at Gen		

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

HOME LIGHTING						2020 ELECTRIC			GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A		5.2 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B		8760
Benefits						Gross Customer kW	C		1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D		16.21%
Generation	N/A	\$107,872	\$107,872	\$107,872	\$107,872	Gross Load Factor at Customer	E		13.87%
T & D	N/A	\$65,521	\$65,521	\$65,521	\$65,521	Transmission Loss Factor (Energy)	F		5.696%
Marginal Energy	N/A	\$440,051	\$440,051	\$440,051	\$440,051	Transmission Loss Factor (Demand)	G		7.127%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H		\$211
Subtotal	N/A	\$613,444	\$613,444	\$613,444	\$613,444	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I		0.45 kW
Bill Reduction - Electric	\$3,415,253	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		0.08 kW
Rebates from Xcel Energy	\$70,419	N/A	N/A	\$70,419	\$70,419	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		541 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		574 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$3,485,672	N/A	N/A	\$70,419	\$70,419	Total Participants	J		5,245
Total Benefits						Total Budget	K		\$96,756
Total Benefits	\$3,485,672	\$613,444	\$613,444	\$683,863	\$683,863	Gross kW Saved at Customer	$(J \times I)$		2,336.05 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		408 kW
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		2,838,286 kWh
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		3,009,728 kWh
Utility Administration	N/A	\$26,337	\$26,337	\$26,337	\$26,337	Societal Net Benefits	$(J \times I \times H)$		\$492,078
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen			
Rebates	N/A	\$70,419	\$70,419	\$70,419	\$70,419	\$0.0062			
Other	N/A	\$0	\$0	\$0	\$0	\$237			
Subtotal	N/A	\$96,756	\$96,756	\$96,756	\$96,756				
Utility Revenue Reduction									
Revenue Reduction - Electric	N/A	N/A	\$3,415,253	N/A	N/A				
Subtotal	N/A	N/A	\$3,415,253	N/A	N/A				
Participant Costs									
Incremental Capital Costs	\$95,029	N/A	N/A	\$95,029	\$95,029				
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0				
Subtotal	\$95,029	N/A	N/A	\$95,029	\$95,029				
Total Costs									
Total Costs	\$95,029	\$96,756	\$3,512,009	\$191,785	\$191,785				
Net Benefit (Cost)									
Net Benefit (Cost)	\$3,390,643	\$516,688	(\$2,898,565)	\$492,078	\$492,078				
Benefit/Cost Ratio									
Benefit/Cost Ratio	36.68	6.34	0.17	3.57	3.57				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

RESIDENTIAL DEMAND RESPONSE						2020	ELECTRIC	GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	10.0 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	37.93%
Generation	N/A	\$378,810	\$378,810	\$378,810	\$378,810	Gross Load Factor at Customer	E	0.54%
T & D	N/A	\$230,791	\$230,791	\$230,791	\$230,791	Transmission Loss Factor (Energy)	F	5.950%
Marginal Energy	N/A	\$34,592	\$34,592	\$34,592	\$34,592	Transmission Loss Factor (Demand)	G	7.220%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$341
Subtotal	N/A	\$644,193	\$644,193	\$644,193	\$644,193	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	1.42 kW
Bill Reduction - Electric	\$536,077	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$50,000	N/A	N/A	\$50,000	\$50,000	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$363,741	N/A	N/A	\$363,741	\$363,741	Program Summary All Participants		
Subtotal	\$949,817	N/A	N/A	\$413,741	\$413,741	Total Participants	J	1,410
Total Benefits						Total Budget	K	\$235,500
Total Benefits	\$949,817	\$644,193	\$644,193	\$1,057,934	\$1,057,934	Gross kW Saved at Customer	$(J \times I)$	1,998.47 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Utility Administration	N/A	\$185,500	\$185,500	\$185,500	\$185,500	Societal Net Benefits	$(J \times I \times H)$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Rebates	N/A	\$50,000	\$50,000	\$50,000	\$50,000	\$0.2358		
Other	N/A	\$0	\$0	\$0	\$0	\$288		
Subtotal	N/A	\$235,500	\$235,500	\$235,500	\$235,500			
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$536,077	N/A	N/A			
Subtotal	N/A	N/A	\$536,077	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$140,000	N/A	N/A	\$140,000	\$140,000			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$140,000	N/A	N/A	\$140,000	\$140,000			
Total Costs								
Total Costs	\$140,000	\$235,500	\$771,577	\$375,500	\$375,500			
Net Benefit (Cost)								
Net Benefit (Cost)	\$809,817	\$408,693	(\$127,384)	\$682,434	\$682,434			
Benefit/Cost Ratio								
Benefit/Cost Ratio	6.78	2.74	0.83	2.82	2.82			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

WATER HEATING						2020 ELECTRIC			GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals			
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW			
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A		10.0 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B		8760
Benefits						Gross Customer kW	C		1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D		100.00%
Generation	N/A	\$6,042	\$6,042	\$6,042	\$6,042	Gross Load Factor at Customer	E		79.10%
T & D	N/A	\$3,675	\$3,675	\$3,675	\$3,675	Transmission Loss Factor (Energy)	F		5.950%
Marginal Energy	N/A	\$25,136	\$25,136	\$25,136	\$25,136	Transmission Loss Factor (Demand)	G		7.220%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H		\$1,001
Subtotal	N/A	\$34,853	\$34,853	\$34,853	\$34,853	Program Summary per Participant			
Participant Benefits						Gross kW Saved at Customer	I		0.53 kW
Bill Reduction - Electric	\$66,021	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$		0.57 kW
Rebates from Xcel Energy	\$8,400	N/A	N/A	\$8,400	\$8,400	Gross Annual kWh Saved at Customer	$(B \times E \times I)$		3,678 kWh
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$		3,910 kWh
Incremental O&M Savings	\$0	N/A	N/A	\$0	\$0	Program Summary All Participants			
Subtotal	\$74,421	N/A	N/A	\$8,400	\$8,400	Total Participants	J		21
Total Benefits						Total Budget	K		\$15,000
	\$74,421	\$34,853	\$34,853	\$43,253	\$43,253	Gross kW Saved at Customer	$(J \times I)$		11.14 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$		12 kW
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$		77,229 kWh
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$		82,115 kWh
Utility Administration	N/A	\$6,600	\$6,600	\$6,600	\$6,600	Societal Net Benefits	$(J \times I \times H)$		\$11,157
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime			
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen			
Rebates	N/A	\$8,400	\$8,400	\$8,400	\$8,400				\$0.0183
Other	N/A	\$0	\$0	\$0	\$0				\$1,249
Subtotal	N/A	\$15,000	\$15,000	\$15,000	\$15,000	Utility Program Cost per kWh Lifetime			
Utility Revenue Reduction						Utility Program Cost per kW at Gen			
Revenue Reduction - Electric	N/A	N/A	\$66,021	N/A	N/A				\$0.0183
Subtotal	N/A	N/A	\$66,021	N/A	N/A				\$1,249
Participant Costs						Utility Program Cost per kWh Lifetime			
Incremental Capital Costs	\$12,841	N/A	N/A	\$12,841	\$12,841				\$0.0183
Incremental O&M Costs	\$4,255	N/A	N/A	\$4,255	\$4,255				\$1,249
Subtotal	\$17,096	N/A	N/A	\$17,096	\$17,096				
Total Costs									
	\$17,096	\$15,000	\$81,021	\$32,096	\$32,096				
Net Benefit (Cost)									
	\$57,325	\$19,853	(\$46,168)	\$11,157	\$11,157				
Benefit/Cost Ratio									
	4.35	2.32	0.43	1.35	1.35				

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

RESIDENTIAL SEGMENT TOTAL						2020	ELECTRIC	GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	5.5 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	26.42%
Generation	N/A	\$492,723	\$492,723	\$492,723	\$492,723	Gross Load Factor at Customer	E	7.91%
T & D	N/A	\$299,987	\$299,987	\$299,987	\$299,987	Transmission Loss Factor (Energy)	F	5.711%
Marginal Energy	N/A	\$499,780	\$499,780	\$499,780	\$499,780	Transmission Loss Factor (Demand)	G	7.170%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$268
Subtotal	N/A	\$1,292,491	\$1,292,491	\$1,292,491	\$1,292,491	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	0.06 kW
Bill Reduction - Electric	\$4,017,350	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$128,819	N/A	N/A	\$128,819	\$128,819	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$359,485	N/A	N/A	\$359,485	\$359,485	Program Summary All Participants		
Subtotal	\$4,505,655	N/A	N/A	\$488,304	\$488,304	Total Participants	J	74,676
Total Benefits						Total Budget	K	\$368,421
Total Benefits	\$4,505,655	\$1,292,491	\$1,292,491	\$1,780,795	\$1,780,795	Gross kW Saved at Customer	$(J \times I)$	4,345.66 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Utility Administration	N/A	\$239,602	\$239,602	\$239,602	\$239,602	Societal Net Benefits	$(J \times I \times H)$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Rebates	N/A	\$128,819	\$128,819	\$128,819	\$128,819	\$0.0210		
Other	N/A	\$0	\$0	\$0	\$0	\$298		
Subtotal	N/A	\$368,421	\$368,421	\$368,421	\$368,421			
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$4,017,350	N/A	N/A			
Subtotal	N/A	N/A	\$4,017,350	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$247,870	N/A	N/A	\$247,870	\$247,870			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$247,870	N/A	N/A	\$247,870	\$247,870			
Total Costs								
Total Costs	\$247,870	\$368,421	\$4,385,771	\$616,291	\$616,291			
Net Benefit (Cost)								
Net Benefit (Cost)	\$4,257,785	\$924,070	(\$3,093,281)	\$1,164,504	\$1,164,504			
Benefit/Cost Ratio								
Benefit/Cost Ratio	18.18	3.51	0.29	2.89	2.89			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2020 SD DSM Plan Cost-Effectiveness Analysis

PORTFOLIO TOTAL						2020	ELECTRIC	GOAL
2020 Net Present Cost Benefit Summary Analysis For All Participants						Input Summary and Totals		
	Participant	Utility	Rate	Total	Societal	Program "Inputs" per Customer kW		
	Test	Test	Impact	Resource	Test	Lifetime (Weighted on Generator kWh)	A	12.5 years
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Annual Hours	B	8760
Benefits						Gross Customer kW	C	1 kW
Avoided Revenue Requirements						Generator Peak Coincidence Factor	D	30.34%
Generation	N/A	\$878,664	\$878,664	\$878,664	\$878,664	Gross Load Factor at Customer	E	13.86%
T & D	N/A	\$535,417	\$535,417	\$535,417	\$535,417	Transmission Loss Factor (Energy)	F	5.246%
Marginal Energy	N/A	\$2,188,776	\$2,188,776	\$2,188,776	\$2,188,776	Transmission Loss Factor (Demand)	G	6.835%
Environmental Externality	N/A	N/A	N/A	N/A	\$0	Societal Net Benefit (Cost)	H	\$289
Subtotal	N/A	\$3,602,857	\$3,602,857	\$3,602,857	\$3,602,857	Program Summary per Participant		
Participant Benefits						Gross kW Saved at Customer	I	0.07 kW
Bill Reduction - Electric	\$8,411,884	N/A	N/A	N/A	N/A	Net coincident kW Saved at Generator	$(I \times D) / (1 - G)$	
Rebates from Xcel Energy	\$444,029	N/A	N/A	\$444,029	\$444,029	Gross Annual kWh Saved at Customer	$(B \times E \times I)$	
Incremental Capital Savings	\$0	N/A	N/A	\$0	\$0	Net Annual kWh Saved at Generator	$(B \times E \times I) / (1 - F)$	
Incremental O&M Savings	\$231,559	N/A	N/A	\$231,559	\$231,559	Program Summary All Participants		
Subtotal	\$9,087,472	N/A	N/A	\$675,588	\$675,588	Total Participants	J	75,028
Total Benefits						Total Budget	K	\$806,991
Total Benefits	\$9,087,472	\$3,602,857	\$3,602,857	\$4,278,445	\$4,278,445	Gross kW Saved at Customer	$(J \times I)$	5,585.56 kW
Costs						Net coincident kW Saved at Generator	$(I \times D) / (1 - G) \times J$	
Utility Project Costs						Gross Annual kWh Saved at Customer	$(B \times E \times I) \times J$	
Customer Services	N/A	\$0	\$0	\$0	\$0	Net Annual kWh Saved at Generator	$((B \times E \times I) / (1 - F)) \times J$	
Utility Administration	N/A	\$362,962	\$362,962	\$362,962	\$362,962	Societal Net Benefits	$(J \times I \times H)$	
Advertising & Promotion	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kWh Lifetime		
Measurement & Verification	N/A	\$0	\$0	\$0	\$0	Utility Program Cost per kW at Gen		
Rebates	N/A	\$444,029	\$444,029	\$444,029	\$444,029	\$0.0090		
Other	N/A	\$0	\$0	\$0	\$0	\$444		
Subtotal	N/A	\$806,991	\$806,991	\$806,991	\$806,991			
Utility Revenue Reduction								
Revenue Reduction - Electric	N/A	N/A	\$8,411,884	N/A	N/A			
Subtotal	N/A	N/A	\$8,411,884	N/A	N/A			
Participant Costs								
Incremental Capital Costs	\$1,859,133	N/A	N/A	\$1,859,133	\$1,859,133			
Incremental O&M Costs	\$0	N/A	N/A	\$0	\$0			
Subtotal	\$1,859,133	N/A	N/A	\$1,859,133	\$1,859,133			
Total Costs								
Total Costs	\$1,859,133	\$806,991	\$9,218,875	\$2,666,124	\$2,666,124			
Net Benefit (Cost)								
Net Benefit (Cost)	\$7,228,339	\$2,795,866	(\$5,616,018)	\$1,612,321	\$1,612,321			
Benefit/Cost Ratio								
Benefit/Cost Ratio	4.89	4.46	0.39	1.60	1.60			

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.