PUBLIC

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 2020 ANNUAL DSM STATUS REPORT, INCLUDING 2020 COST RECOVERY AND INCENTIVE AND APPROVAL OF THE PROPOSED 2022 DSM COST ADJUSTMENT FACTOR AND PROGRAM PLAN	**PETITION FOR 2020 DSM PROGRAM APPROVAL AND PROPOSED 2022 DSM COST ADJUSTMENT FACTOR** DOCKET NO. EL21- ___

Northern States Power Company, doing business as Xcel Energy, submits to the South Dakota Public Utilities Commission, this Petition seeking approval of our 2020 Annual Demand Side Management (DSM) Report and Proposed 2022 DSM Plan (Plan).

With over 11.9 GWh of customer savings in 2020, our DSM portfolio achievement marks the most successful year in our programs history for the second consecutive year. These savings will reduce overall energy consumption and, as a result, lower a customer's electric bill. Our enclosed 2022 Plan builds upon 2021 as we continue our energy efficiency and conservation focus to help customers manage their energy usage and save money.

The remainder of this Petition will provide the following: (1) 2020 DSM results and earned incentive; (2) DSM program portfolio; (3) Report on DSM recovery; (4) DSM cost adjustment factor report; and (5) the Company's 2022 DSM plan.

We respectfully request that the Commission approve the following as part of this Petition:

- The Company's 2020 DSM Tracker account;
- Approve the incentive of $241,467 earned for 2020 program performance;
- Approve the proposed 2022 electric DSM Adjustment Factor of $0.0005368 per kWh; and
- Approve the proposed 2022 DSM Plan.

PETITION

I. 2020 DSM RESULTS AND EARNED INCENTIVE

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. In 2020, we reached our highest energy savings achievement of 11.9 GWh. This achievement is a result of high penetration of LED lighting for both residential and commercial customers. Our total actual expenditures of $839,636 falls above the filed budget, but within the Commission approved budget flexibility.[1]

B. Cross Subsidization Review

In compliance with Commission request, we verify that neither the residential nor the business segment is receiving more benefit than another. [2] Although there have been changes in the percent of spend, as well as percent of kWh over time, the percent of recovery between classes, as shown in Table1, has been consistent over the past six years.

Table 1 – Cross Subsidization Review

	Percent of Spend (excl. Planning)		Percent of kWh		Percent of Recovery	
Year	Residential	Business	Residential	Business	Residential	Business
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%
2019	44%	56%	29%	71%	36%	64%
2020	33%	67%	33%	67%	37%	63%

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

[2] The Commission requested the Company provide a cross-subsidization table in Docket No.EL17-019 during the December 5, 2017 Hearing.

C. Program Achievement

To evaluate the cost-effectiveness of our portfolio for 2020, we looked at the Total Resource Cost (TRC) ratio, which compares total benefits to total costs of the portfolio.[3] If a program or portfolio has a TRC ratio above one, it is considered cost-effective. As shown in the table below, the 2020 portfolio demonstrated a TRC Ratio of 2.08.

Table 2 provides a breakdown of 2020 achievements by program. A full executive summary, which includes both a comparison of 2020 goals versus actuals and cost-effectiveness test results, is provided as Attachment A.

Table 2 – Executive Summary Table of 2020 Actual Achievements

2020	Electric Participants	Electric Budget	Generator kW	Generator kWh	TRC Ratio
Business Segment					
Lighting Efficiency	136	$543,250	1,402	8,010,409	1.58
Business Saver's Switch	2	$5,289	57	8	11.85
Peak and Energy Control	3	$7,721	1,527	3,030	89.17
Business Segment Total	**141**	**$556,260**	**2,986**	**8,013,447**	**1.81**
Residential Segment					
Home Lighting	74,950	$85,291	529	3,920,682	7.27
Residential Demand Response	511	$181,557	479	817	2.04
Consumer Education	5,700	$9,119	N/A	N/A	N/A
Water Heating	1	$392	1	3,820	1.97
Residential Segment Total	**81,162**	**$276,359**	**1,008**	**3,925,319**	**4.49**
Planning Segment					
Regulatory Affairs	N/A	$7,017	N/A	N/A	N/A
Planning Segment Total	**N/A**	**$7,017**	**N/A**	**N/A**	**N/A**
PORTFOLIO TOTAL	**81,303**	**$839,636**	**3,995**	**11,938,766**	**2.08**

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.

[3] A TRC ratio above 1.0 indicates the benefit outweighs the costs.

D. DSM Incentive Report – Calculation Inputs

The Company submits the following 2020 incentive calculation in accordance with the Commission's October 21, 2011 Order, which approved an incentive of 30 percent of expenditures capped at the approved budget.

Approved Budget	$804,891
Actual Spend	$839,636

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 **$804,891 x 30% = $241,467.**

This incentive is accounted for in our 2020 DSM Tracker included in Attachment C.

II. DSM PROGRAM PORTFOLIO

We offer our commercial and residential customers several different opportunities to participate in our energy efficiency programs. In this section, we provide program descriptions, 2020 program activity and results, any changes we anticipate for 2022, and budget and goal considerations. There are no new programs being launched in 2022.

A. Business Portfolio

1. Business Lighting

The Business Lighting program offers retrofit and new construction rebate incentives to commercial and industrial customers who purchase and install qualifying energy efficient lighting fixtures and lamps. Rebates are offered to encourage customers to purchase energy efficient lighting by reducing the up-front costs associated with light emitting diode (LED) lamps and fixtures.

a. 2020 Program Activity and Results

The Business Lighting program broke its record high achievement previously set in 2019 by increasing energy savings to a new record in 2020. The program continued to maintain the low cost per kWh at seven cents. We attribute these results to the success of linear LED tube options for customers which accounted for 46 percent of the total energy

saving for the program. LED tubes are a less costly alternative than upgrading to a new full fixture such as an LED troffer or high bay.

We note rebated and forecasted units in Table 3 below.

Table 3: Business Lighting Efficiency Units

Year	Actual/ Forecasted Units	Additional Information
2017	11,700	Achieved
2018	21,291	Achieved
2019	33,832	Achieved
2020	48,489	Achieved
2021	27,526	Filed/Forecasted
2022	32,489	Filed/Forecasted

b. 2022 Proposed Changes

Our goal is to offer cost-effective programs that will benefit our customers. Using the latest models developed for Northern States Power (NSP) electric system - the generation, transmission and distribution, and marginal energy avoided revenue requirement assumptions have all decreased in 2022. The resulting cost-benefit analysis has determined that the previous mix of measures resulted in the Business Lighting program to be not cost-effective. The Company proposes eliminating the high bay and troffer fixture measures to ensure the program as a whole, is cost-effective. We know this impacts our customers and reduces options for them to participate. Thus, we will add a new Custom Lighting measure to allow customers to submit projects for retrofit and new construction projects.

A Custom Lighting application must be submitted prior to the customer purchasing the equipment, and each project will be evaluated individually for cost-effectiveness. Rebate amounts are determined through an engineering examination of the demand and energy savings attributed to the project. The analysis incorporates engineering principles relative to industry standards and the interactive energy effects of the equipment or system components. If the project is successful in passing the cost-benefit analysis, the customer will receive a rebate. This measure has been available in Minnesota for several years and has been refined over time to be a turn-key process. The new Custom Lighting measure will allow customers to submit projects for equipment that is not covered under the prescriptive products, such as non-DLC (Design Lights) listed LED equipment that tends

to be less expensive. This creates opportunities for customers to obtain rebates on new lighting technologies, removing limits on wattage and type of fixtures.

The Company also proposes a few prescriptive rebate reductions for screw-in lamps, canopy, and parking garage fixtures, as the cost of the technology has declined. These details are shown in Attachment B.

c. Budget and Goal Considerations

With the removal of high-bay and troffer fixtures from the prescriptive program, the Company estimates a drop in energy savings; however, with the new Custom Lighting measure, the savings and budget are forecasted to be approximately the same as 2021.

2. Business Saver's Switch

Business Saver's Switch is a demand 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 using direct mail, email and by our customer representatives at our Business Solutions Center.

a. 2020 Program Activity and Results

The Business Saver's Switch program had a successful year. While only a couple of premises were added to the program, these premises had a substantial number of AC units, leading the program to exceed goals, while coming in under budget.

The Company held one control event in 2020. A minimum of one control event per cooling season is required by the Midwest Independent System Operator (MISO).

b. 2022 Proposed Changes

There are no proposed changes for our 2022 Business Saver's Switch program.

c. Budget and Goal Considerations

The budget and projected achievements for 2022 will be unchanged.

3. Electric Rate Savings: Peak and Energy Controlled Rates

The Electric Rate Savings (ERS) 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 MISO. In return for their load availability, customers receive a monthly discount on their demand charges and can potentially save up to 50 percent on their demand charges over the entire year. ERS is promoted directly to customers through the Company's Account Management and Business Solutions Center teams.

a. 2020 Program Activity and Results

In 2020, the program spent less than its budget and participation was as expected with achievements above target. The program experienced load growth from one existing program participant and additional load from two new program participants. The program had one event in 2020 which required participants to curtail their load down to their predetermined demand level for one hour. This event was required by MISO for load validation registration requirements. Additionally, we performed an annual notification test which does not require program participants to control their load. This notification test is necessary to verify customer contact information to ensure that in the event of an actual curtailment event the correct contacts are notified to ensure program compliance.

Program costs were for administrative and application maintenance costs as the company maintained the notification system used for both the notification test and MISO real power test event.

b. 2022 Proposed Changes

There are no proposed changes for our 2022 ERS program.

c. Budget and Goal Considerations

In 2020, we exceeded our achievement goal and spent less than budgeted. We expect additional growth in participants and achievements over the next two years. Based on this probability the budget will remain the same for 2022.

B. Residential Portfolio

1. 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 lower their monthly electric bills. The Home Lighting program is a gateway product into our energy-efficiency programs due to the low up-front cost to customers and ease of participation. 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/retail partner. Discounted prices are received at the cash register, making it easy to participate without the hassle of mail-in rebates. Incentives are paid upstream, and the discounts are passed directly to customers.

a. 2020 Program Activity and Results

The program surpassed the participation and energy savings goals for 2020. The increased achievements were a result of customers looking for ways to reduce their energy bills with more customers spending time at home due to the COVID-19 pandemic and installing LEDs is an easy way to achieve savings. We were able to exceed our savings goal while spending less than the anticipated budget as our average rebates were lower than expected due to current market pricing. The number of residential versus business bulbs sold is defined in the table below.

Table 4: Home Lighting Achievement

Type of Customer	LED Bulbs Sold	Percent of Bulbs	Rebate Total
Residential	70,453	94%	$66,480
Business (Generally Small Business)	4,497	6%	$4,243

b. 2022 Proposed Changes

The Company proposes to reduce the average rebate for Aline and specialty LEDs to reflect lower market pricing for those types of bulbs.

c. Budget and Goal Considerations

The Home Lighting goal has increased for 2022, while keeping the budget relatively stable. This is a result of striving to keep the program cost-effective. 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.

2. Heat Pump Water Heaters

In 2020, the Heat Pump Water Heaters program began offering retrofit and new construction rebates to residential customers who purchase and install qualifying energy efficient heat pump water heaters. Rebates are offered to encourage customers to purchase energy efficient equipment by reducing up-front costs associated with new heat pump water heaters. The following water heating measures are rebated at this time:

- Medium Draw Heat Pump Water Heater – Refrigerant Based Cooling & Electric Resistance Heat (30-50 Gallon);
- Medium Draw Heat Pump Water Heater – Refrigerant Based Cooling & ASHP Heat (30-50 Gallon);
- Medium Draw Heat Pump Water Heater – Refrigerant Based Cooling & Natural Gas Heat (30-50 Gallon);
- Medium Draw Heat Pump Water Heater – Non-Refrigerant Based Cooling & Electric Resistance Heat (30-50 Gallon);
- Medium Draw Heat Pump Water Heater – Non-Refrigerant Based Cooling & ASHP Heat (30-50 Gallon); and
- Medium Draw Heat Pump Water Heater – Non-Refrigerant Based Cooling & Natural Gas Heat (30-50 Gallon).

Heat pump water heaters have a much larger incremental cost but save a significant amount of energy over an electric resistance water heater. Rebates were provided at $300 per equipment which funds approximately 50 percent of the incremental cost to purchase and install this energy efficient option. The up-front cost of the technology is a barrier for most customers and the offered rebate helps overcome this barrier by reducing the incremental cost to provide a payback between eight and sixteen months. We want to encourage the use of energy-efficient opportunities with our customers and providing rebates on electric heat pump water heaters will continue to reduce customer barriers that prohibit energy efficient options from being utilized.

a. 2020 Program Activity and Results

In 2020, the program spent much less than its budget and as a result of low participation. The program had only one participant. Program costs were for staff labor, a modest marketing budget, and one participant rebate.

The Company expects that the low rebate amount compared to the high upfront cost partly contributed to the low participation. Additional factors may include a need for additional marketing and promotional efforts and the need to develop a robust trade partner network in the state.

b. 2022 Proposed Changes

The Company proposes increasing the rebate from $300 to $400 and increasing maximum tank size from 50 gallons to 80 gallons. The new proposed measures are shown below.

- Medium Draw Heat Pump Water Heater – Refrigerant Based Cooling & Electric Resistance Heat (30-80 Gallon);
- Medium Draw Heat Pump Water Heater – Refrigerant Based Cooling & ASHP Heat (30-80 Gallon);
- Medium Draw Heat Pump Water Heater – Refrigerant Based Cooling & Natural Gas Heat (30-80 Gallon);
- Medium Draw Heat Pump Water Heater – Non-Refrigerant Based Cooling & Electric Resistance Heat (30-80 Gallon);
- Medium Draw Heat Pump Water Heater – Non-Refrigerant Based Cooling & ASHP Heat (30-80 Gallon); and
- Medium Draw Heat Pump Water Heater – Non-Refrigerant Based Cooling & Natural Gas Heat (30-80 Gallon).

The high up-front cost of the technology has limited participation within the program. Customer demand drives equipment availability through local distributors, retailers and trade partners. The increased rebate is a key factor in developing distribution channels and customer participation. In addition, expanding the eligible models to include larger tank sizes of up to 80 gallons will allow customers to install a water heater that meets the needs of their home. The Company will utilize low cost marketing tactics and trade partner outreach to increase awareness of the program.

c. Budget and Goal Considerations

The program budget includes rebates, promotion and administrative costs. The rebates 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.

3. Residential Demand Response: Saver's Switch, AC Rewards and Smart Thermostat Optimization

We offer two demand response products to our residential customers under the Residential Demand Response program: Saver's Switch® and AC Rewards. Both products target central air conditioners for reducing system load during demand peaks. Both offerings will be promoted primarily via email, direct mail and our 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 enroll this equipment as well. Electric water heaters can be controlled year-round and customers receive incentives for their participation year-round.

The AC Rewards program (smart thermostat offering) was launched in 2020 and 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 needed.

AC Rewards requires customers to "Bring Your Own Thermostat (BYOT)", which means that any customer who has a central AC and a qualifying thermostat is eligible to participate. Customers can qualify to be incentivized with a one-time incentive for thermostat optimization and an additional one-time incentive for enrolling their qualified device in AC Rewards. Customers can enroll their device into AC Rewards at anytime for the enrollment incentive, equipment rebates for new thermostats purchased must be processed within 12 months of the invoice date for thermostat optimization. For customers who do not have a qualifying thermostat, but have a central AC, they can receive a discount for purchasing and installing an ENERGY STAR® rated thermostat that is AC Rewards qualified. The following measures are incentivized at this time:

Table 5: Residential Demand Response Incentives

Measure Offerings	Incentives
Saver Switch for AC	15% discount off electric charges from June through September
Saver Switch for Water Heaters	2% discount off electric charges year-round
AC Rewards	$75 bill credit for enrolling in the demand management program and $25 annual bill credit in October
Thermostat Optimization	$50 incentive for installing a qualifying smart thermostat

a. 2020 Program Activity and Results

In 2020, the Residential Demand Response program under spent its budget while participants and achievements were below target. In all, the company installed about 350 new Saver's Switches and enrolled about 130 thermostats.

The Saver's Switch and AC Rewards products had one control event in 2020. The Company continues to plan for the execution of a minimum of one control event per year.

b. 2022 Proposed Changes

The Company proposes to add townhomes as a qualifying AC Rewards Residential dwelling type.

c. Budget and Goal Considerations

The budget is unchanged compared to the previous filing.

C. Additional Demand Side Efforts

1. Trade Partners

Trade Partners are a key marketing channel for our DSM efforts. Trade Partners educate and promote our programs to customers, verify that the equipment they are installing meets our program specifications and help customers complete the rebate paperwork. We consider our Trade Partners to be contractors, distributors and manufacturers of energy-efficient equipment.

Trade Partner support is conducted through training workshops and Account Manager outreach. Account Management in Sioux Falls plays an important role in supporting the efforts of our South Dakota Trade Partners. Account Management is available to meet with Trade Partners for program training, site visits and help with rebate paperwork.

Other support is provided through phone and email communications from Trade Relations Managers. Xcel Energy's Trade Relations Managers are based in Minneapolis and assist our South Dakota Trade Partners by providing answers to trade questions on our rebate specifications and paperwork. They produce email updates for Trade Partners when there is important information to share. Trade Relations Managers are also available to conduct additional, in depth, trainings on an as-needed basis.

In 2020, the COVID-19 pandemic prohibited Trade Relations Mangers from conducting in person trainings per Company guidelines designed to protect employees and customers alike. Efforts will once again continue when it is safe to do so.

2. Consumer Education

The Consumer Education program creates awareness of energy conservation by providing residential customers with information and resources to reduce their homes' energy use. The Company provides customers with opportunities to actively engage in energy efficiency via community outreach events and advertising within our service territory. Utilizing these different tactics allows us to reach a wide variety of customers.

a. 2020 Program Activity and Results

The program's primary focus at community events is to drive customers to learn more about what they can do to save energy and money. In 2020, the Company did not exceed the participation targets for this program due to the effects of the COVID-19 pandemic. Per Company guidelines designed to protect employees and customers alike, in person events were cancelled beginning in March. The Company looks forward to activating events again starting in late 2021. Additionally, no advertising was purchased in 2020.

In 2020, the company participated in one large community event that occurred prior to March.

- *Empire Home Show*, Sioux Falls Convention Center, Sioux Falls (February 21-23)
    - Xcel Energy generated 1,150 meaningful engagements and delivered 100 targeted program leads and generated 50 direct program signups.

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 and policies 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 onserts and regulatory requests.

III. 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 emissions associated with using fossil fuels. This section reports the actual 2020 spending and cost recovery as well as the Company's carrying charge rates.

In 2020, the total portfolio spend came in at $839,636. This amount is above our approved budget of $804,891, but falls within the ten percent spend flexibility granted by the Commission.[4] In addition to DSM expenses, the Company is requesting recovery of $241,467 in financial incentive earned for our 2020 DSM performance for total recovery of $1,081,103.

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 2020 and found in the 2020 Tracker; and
- Xcel Energy's 2020 DSM Tracker, which documents monthly DSM expenditures and recovered costs.

IV. DSM COST ADJUSTMENT FACTOR

The current DSM Cost Adjustment Factor of $0.0005280 per kWh was implemented on January 1, 2021.[5] The Company requests a new DSM Cost Adjustment Factor of $0.0005368 per kWh to be effective with the first billing cycle of January 2022.

[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] Docket EL20-015, Commission Order December 14, 2020.

Supportive documentation for this rate change request, some of which falls under the category of confidential data, is provided as Attachments D1-D4 of this filing and includes:

- Information specified in South Dakota Administrative Rule 20:10:13:26 regarding the updated DSM Cost Adjustment Factor;
- Forecasted 2021 and 2022 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 $0.0005368 per customer kWh to be effective with the first billing cycle of January 2022 and to remain in effect through December 2022 or until the Commission approves a new DSM Cost Adjustment Factor. This is an increase of $0.0000088 per kWh or approximately two percent compared to the previous DSM Cost Adjustment Factor. The increase is due to over achievement of 11.9 GWh versus planned 6.0 GWh and an increase in energy benefits. However, the bill impact to customers is a 0.02% increase amounting to $0.00 to $0.01 per month.

In the event that Commission approval of the proposed adjustment is delayed beyond the timeframe needed to implement the rate change by January 1, 2022 the Company will continue to apply the current DSM Cost Adjustment of $0.0005280 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 2022. It is based on the forecasted December 2022 unrecovered balance in the Company's DSM Tracker account. This 2022 forecasted balance is based on the forecasted January beginning balance, projected expenditures and the forecasted incentive. The inputs and calculation are shown below.

[CONFIDENTIAL DATA BEGINS HERE

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, 2021 – December 31, 2022 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 2022. To get as close to a possible $0 balance by December 31, 2022, the rate was incrementally decreased to reflect future inclusion of carrying charges, until the balance approached $0 without going negative. The resulting rate is **$0.0005368 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 2022 if timing of each filing allows the ability to do so.

V. 2022 DSM Plan

This section includes a summary of our proposed 2022 Plan. Our plan for 2022 is to continue to provide customers energy efficient options and rebates to help them manage future energy bills. Table 7 summarizes our proposed goals and provides updated cost-effectiveness results by program. The total portfolio has a passing TRC Ratio of 1.59. A full executive summary, which includes all cost-effectiveness test results, is provided as Attachment E.

Table 7 – Executive Summary Table of 2022 Forecast

2022	Electric Participants	Electric Budget	Generator kW	Generator kWh	TRC Ratio
Business Segment					
Lighting Efficiency	477	$399,900	742	5,981,518	1.06
Business Saver's Switch	10	$25,250	35	48	1.07
Peak and Energy Control	1	$10,000	174	345	5.64
Business Segment Total	**488**	**$435,150**	**951**	**5,981,911**	**1.08**
Residential Segment					
Home Lighting	6,154	$101,933	587	4,334,997	5.97
Heat Pump Water Heaters	25	$11,850	8	62,033	1.00
Residential Demand Response	1,400	$243,500	781	87,288	2.04
Consumer Education	45,000	$21,165	N/A	N/A	N/A
Residential Segment Total	**52,579**	**$378,448**	**1,376**	**4,484,318**	**3.27**
Planning Segment					
Regulatory Affairs	N/A	$10,000	N/A	N/A	N/A
Planning Segment Total	**N/A**	**$10,000**	**N/A**	**N/A**	**N/A**
PORTFOLIO TOTAL	**53,067**	**$823,598**	**2,327**	**10,466,229**	**1.59**

PUBLIC

Service of Filings

We request that communications regarding this Application be directed to:

Lynnette Sweet
Regulatory Administrator
Xcel Energy
414 Nicollet Mall, 401-7
Minneapolis, MN 55401
(612) 321-3159
Regulatory.Records@xcelenergy.com

CONCLUSION

In summary, the Company respectfully requests that the Commission:

- Approve the Company's 2020 DSM Tracker account;
- Approve the incentive of $241,467 earned for 2020 program performance;
- Approve the proposed 2022 electric DSM Adjustment Factor of $0.0005368 per kWh; and
- Approve the proposed 2022 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 3, 2021

Xcel Energy

By: _____

Steve Kolbeck
Principal Manager –South Dakota

Executive Summary Table - 2020 Actual Achievements

	GOAL				ACTUAL										TEST RESULTS			
2020	Participants	Budget	Generator kW	Generator kWh	Participants	% of Goal	Spend	% of Goal	Generator kW	% of Goal	Generator kWh	Lifetime years	Lifetime Generator kWh	% of Goal	Part Ratio	Utility Ratio	RIM Ratio	TRC Ratio
Business Segment																		
Lighting Efficiency	341	$389,320	453	3,960,428	136	40%	$543,250	140%	1,402	309%	8,010,409	15	122,564,278	202%	3.72	8.29	0.52	1.58
Business Saver's Switch	10	$25,250	28	39	2	20%	$5,289	21%	57	202%	8	15	126	22%	INF	11.85	5.81	11.85
Peak and Energy Control	1	$10,000	101	3,713	3	300%	$7,721	77%	1,527	1518%	3,030	5	15,148	82%	INF	89.17	9.23	89.17
Business Segment Total	**352**	**$424,570**	**582**	**3,964,179**	**141**	**40%**	**$556,260**	**131%**	**2,986**	**513%**	**8,013,447**	**15**	**122,579,552**	**202%**	**3.75**	**9.44**	**0.60**	**1.81**
Residential Segment																		
Home Lighting	5,245	$96,756	408	3,009,728	74,950	1429%	$85,291	88%	529	130%	3,920,682	9	34,293,275	130%	50.07	14.14	0.27	7.27
Residential Demand Response	1,410	$235,500	817	99,889	511	36%	$181,557	77%	479	59%	817	10	8,111	1%	INF	1.99	1.39	2.04
Consumer Education	68,000	$21,165	N/A	N/A	5,700	8%	$9,119	43%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Water Heating	21	$12,900	12	82,115	1	5%	$392	3%	1	5%	3,820	10	38,203	5%	3.96	4.28	0.67	1.97
Residential Segment Total	**74,676**	**$366,321**	**1,237**	**3,191,731**	**81,162**	**109%**	**$276,359**	**75%**	**1,008**	**82%**	**3,925,319**	**9**	**34,339,589**	**123%**	**50.72**	**5.68**	**0.33**	**4.49**
Planning Segment																		
Regulatory Affairs	0	$14,000	N/A	N/A	N/A	N/A	$7,017	50%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Planning Segment Total	**0**	**$14,000**	**N/A**	**N/A**	**N/A**	**N/A**	**$7,017**	50%	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
PORTFOLIO TOTAL	**75,028**	**$804,891**	**1,819**	**7,155,910**	**81,303**	**108%**	**$839,636**	**104%**	**3,995**	**220%**	**11,938,766**	**13**	**156,919,142**	**167%**	**5.52**	**8.12**	**0.50**	**2.08**

2020 SD DSM Plan Cost-Effectiveness Analysis

LIGHTING EFFICIENCY — 2020 — ELECTRIC — ACTUAL

2020 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$908,814	$908,814	$908,814	$908,814
T & D	N/A	$554,076	$554,076	$554,076	$554,076
Marginal Energy	N/A	$3,038,839	$3,038,839	$3,038,839	$3,038,839
Environmental Externality	N/A	N/A	N/A	N/A	$1,898
Subtotal	N/A	$4,501,729	$4,501,729	$4,501,729	$4,503,627
Participant Benefits					
Bill Reduction - Electric	$8,115,556	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$509,873	N/A	N/A	$509,873	$509,873
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$8,625,429	N/A	N/A	$509,873	$509,873
Total Benefits	$8,625,429	$4,501,729	$4,501,729	$5,011,602	$5,013,500
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$33,377	$33,377	$33,377	$33,377
Advertising & Promotion	N/A	$0	$0	$0	$0
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$509,873	$509,873	$509,873	$509,873
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$543,250	$543,250	$543,250	$543,250
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$8,115,556	N/A	N/A
Subtotal	N/A	N/A	$8,115,556	N/A	N/A
Participant Costs					
Incremental Capital Costs	$2,286,222	N/A	N/A	$2,286,222	$2,286,222
Incremental O&M Costs	$32,575	N/A	N/A	$32,575	$32,575
Subtotal	$2,318,797	N/A	N/A	$2,318,797	$2,318,797
Total Costs	$2,318,797	$543,250	$8,658,806	$2,862,047	$2,862,047
Net Benefit (Cost)	$6,306,632	$3,958,479	($4,157,077)	$2,149,555	$2,151,453
Benefit/Cost Ratio	3.72	8.29	0.52	1.75	1.75

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.3 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	73.58%
Gross Load Factor at Customer	E	48.38%
Transmission Loss Factor (Energy)	F	4.873%
Transmission Loss Factor (Demand)	G	5.640%
Societal Net Benefit (Cost)	H	$1,196

Program Summary per Participant		
Gross kW Saved at Customer	I	13.22 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	10.31 kW
Gross Annual kWh Saved at Customer	(B x E x I)	56,030 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	58,900 kWh

Program Summary All Participants		
Total Participants	J	136
Total Budget	K	**$543,250**
Gross kW Saved at Customer	(J x I)	1,798.17 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**1,402 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	7,620,102 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**8,010,409 kWh**
Societal Net Benefits	(J x I x H)	**$2,151,453**

Utility Program Cost per kWh Lifetime	**$0.0044**
Utility Program Cost per kW at Gen	**$387**

2020 SD DSM Plan Cost-Effectiveness Analysis

BUSINESS SAVER'S SWITCH **2020 ELECTRIC** **ACTUAL**

2020 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$38,932	$38,932	$38,932	$38,932
T & D	N/A	$23,740	$23,740	$23,740	$23,740
Marginal Energy	N/A	$4	$4	$4	$4
Environmental Externality	N/A	N/A	N/A	N/A	$24
Subtotal	N/A	$62,676	$62,676	$62,676	$62,699
Participant Benefits					
Bill Reduction - Electric	$5,491	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$0	N/A	N/A	$0	$0
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$5,491	N/A	N/A	$0	$0
Total Benefits	$5,491	$62,676	$62,676	$62,676	$62,699
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$5,289	$5,289	$5,289	$5,289
Advertising & Promotion	N/A	$0	$0	$0	$0
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$0	$0	$0	$0
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$5,289	$5,289	$5,289	$5,289
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$5,491	N/A	N/A
Subtotal	N/A	N/A	$5,491	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	$5,289	$10,780	$5,289	$5,289
Net Benefit (Cost)	$5,491	$57,386	$51,896	$57,386	$57,410
Benefit/Cost Ratio	INF	11.85	5.81	11.85	11.85

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	18.00%
Gross Load Factor at Customer	E	0.00%
Transmission Loss Factor (Energy)	F	4.873%
Transmission Loss Factor (Demand)	G	5.640%
Societal Net Benefit (Cost)	H	$192

Program Summary per Participant		
Gross kW Saved at Customer	I	149.51 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	28.53 kW
Gross Annual kWh Saved at Customer	(B x E x I)	4 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	4 kWh

Program Summary All Participants		
Total Participants	J	2
Total Budget	K	**$5,289**
Gross kW Saved at Customer	(J x I)	299.02 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**57 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	8 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**8 kWh**
Societal Net Benefits	(J x I x H)	**$57,410**

Utility Program Cost per kWh Lifetime	**$41.9281**
Utility Program Cost per kW at Gen	**$93**

2020 SD DSM Plan Cost-Effectiveness Analysis

PEAK AND ENERGY CONTROL **2020** **ELECTRIC** **ACTUAL**

2020 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$428,129	$428,129	$428,129	$428,129
T & D	N/A	$259,725	$259,725	$259,725	$259,725
Marginal Energy	N/A	$590	$590	$590	$590
Environmental Externality	N/A	N/A	N/A	N/A	$0
Subtotal	N/A	$688,444	$688,444	$688,444	$688,444
Participant Benefits					
Bill Reduction - Electric	$66,856	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$0	N/A	N/A	$0	$0
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$66,856	N/A	N/A	$0	$0
Total Benefits	$66,856	$688,444	$688,444	$688,444	$688,444
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$7,721	$7,721	$7,721	$7,721
Advertising & Promotion	N/A	$0	$0	$0	$0
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$0	$0	$0	$0
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$7,721	$7,721	$7,721	$7,721
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$66,856	N/A	N/A
Subtotal	N/A	N/A	$66,856	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	$7,721	$74,577	$7,721	$7,721
Net Benefit (Cost)	$66,856	$680,723	$613,866	$680,723	$680,723
Benefit/Cost Ratio	INF	89.17	9.23	89.17	89.17

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	5.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	100.00%
Gross Load Factor at Customer	E	0.02%
Transmission Loss Factor (Energy)	F	4.873%
Transmission Loss Factor (Demand)	G	5.640%
Societal Net Benefit (Cost)	H	$472

Program Summary per Participant		
Gross kW Saved at Customer	I	480.33 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	509.04 kW
Gross Annual kWh Saved at Customer	(B x E x I)	961 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	1,010 kWh

Program Summary All Participants		
Total Participants	J	3
Total Budget	K	**$7,721**
Gross kW Saved at Customer	(J x I)	1,441.00 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**1,527 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	2,882 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**3,030 kWh**
Societal Net Benefits	(J x I x H)	**$680,723**

Utility Program Cost per kWh Lifetime	**$0.5097**
Utility Program Cost per kW at Gen	**$5**

2020 SD DSM Plan Cost-Effectiveness Analysis

BUSINESS SEGMENT TOTAL **2020 ELECTRIC** **ACTUAL**

2020 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$1,375,875	$1,375,875	$1,375,875	$1,375,875
T & D	N/A	$837,541	$837,541	$837,541	$837,541
Marginal Energy	N/A	$3,039,433	$3,039,433	$3,039,433	$3,039,433
Environmental Externality	N/A	N/A	N/A	N/A	$1,922
Subtotal	N/A	$5,252,848	$5,252,848	$5,252,848	$5,254,770
Participant Benefits					
Bill Reduction - Electric	$8,187,902	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$509,873	N/A	N/A	$509,873	$509,873
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$8,697,776	N/A	N/A	$509,873	$509,873
Total Benefits	$8,697,776	$5,252,848	$5,252,848	$5,762,721	$5,764,644
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$46,387	$46,387	$46,387	$46,387
Advertising & Promotion	N/A	$0	$0	$0	$0
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$509,873	$509,873	$509,873	$509,873
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$556,260	$556,260	$556,260	$556,260
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$8,187,902	N/A	N/A
Subtotal	N/A	N/A	$8,187,902	N/A	N/A
Participant Costs					
Incremental Capital Costs	$2,286,222	N/A	N/A	$2,286,222	$2,286,222
Incremental O&M Costs	$32,575	N/A	N/A	$32,575	$32,575
Subtotal	$2,318,797	N/A	N/A	$2,318,797	$2,318,797
Total Costs	$2,318,797	$556,260	$8,744,163	$2,875,057	$2,875,057
Net Benefit (Cost)	$6,378,979	$4,696,588	($3,491,315)	$2,887,664	$2,889,586
Benefit/Cost Ratio	3.75	9.44	0.60	2.00	2.01

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.3 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	79.64%
Gross Load Factor at Customer	E	24.59%
Transmission Loss Factor (Energy)	F	4.873%
Transmission Loss Factor (Demand)	G	5.640%
Societal Net Benefit (Cost)	H	$817

Program Summary per Participant		
Gross kW Saved at Customer	I	25.09 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	21.18 kW
Gross Annual kWh Saved at Customer	(B x E x I)	54,064 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	56,833 kWh

Program Summary All Participants		
Total Participants	J	141
Total Budget	K	**$556,260**
Gross kW Saved at Customer	(J x I)	3,538.19 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**2,986 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	7,622,992 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**8,013,447 kWh**
Societal Net Benefits	(J x I x H)	**$2,889,586**

Utility Program Cost per kWh Lifetime	**$0.0045**
Utility Program Cost per kW at Gen	**$186**

2020 SD DSM Plan Cost-Effectiveness Analysis

HOME LIGHTING — 2020 — ELECTRIC — ACTUAL

2020 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$204,346	$204,346	$204,346	$204,346
T & D	N/A	$124,453	$124,453	$124,453	$124,453
Marginal Energy	N/A	$877,558	$877,558	$877,558	$877,558
Environmental Externality	N/A	N/A	N/A	N/A	$141
Subtotal	N/A	$1,206,357	$1,206,357	$1,206,357	$1,206,498
Participant Benefits					
Bill Reduction - Electric	$4,448,948	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$70,723	N/A	N/A	$70,723	$70,723
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$4,519,671	N/A	N/A	$70,723	$70,723
Total Benefits	$4,519,671	$1,206,357	$1,206,357	$1,277,081	$1,277,221
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$13,334	$13,334	$13,334	$13,334
Advertising & Promotion	N/A	$1,234	$1,234	$1,234	$1,234
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$70,723	$70,723	$70,723	$70,723
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$85,291	$85,291	$85,291	$85,291
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$4,448,948	N/A	N/A
Subtotal	N/A	N/A	$4,448,948	N/A	N/A
Participant Costs					
Incremental Capital Costs	$90,276	N/A	N/A	$90,276	$90,276
Incremental O&M Costs	$0	N/A	N/A	$0	$0
Subtotal	$90,276	N/A	N/A	$90,276	$90,276
Total Costs	$90,276	$85,291	$4,534,239	$175,567	$175,567
Net Benefit (Cost)	$4,429,396	$1,121,066	($3,327,882)	$1,101,514	$1,101,655
Benefit/Cost Ratio	50.07	14.14	0.27	7.27	7.27

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	8.7 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	16.20%
Gross Load Factor at Customer	E	13.86%
Transmission Loss Factor (Energy)	F	5.698%
Transmission Loss Factor (Demand)	G	6.797%
Societal Net Benefit (Cost)	H	$362

Program Summary per Participant		
Gross kW Saved at Customer	I	0.04 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	0.01 kW
Gross Annual kWh Saved at Customer	(B x E x I)	49 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	52 kWh

Program Summary All Participants		
Total Participants	J	74,950
Total Budget	K	**$85,291**
Gross kW Saved at Customer	(J x I)	3,044.11 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**529 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	3,697,292 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**3,920,682 kWh**
Societal Net Benefits	(J x I x H)	**$1,101,655**

Utility Program Cost per kWh Lifetime	**$0.0025**
Utility Program Cost per kW at Gen	**$161**

2020 SD DSM Plan Cost-Effectiveness Analysis

RESIDENTIAL DEMAND RESPONSE **2020** **ELECTRIC** **ACTUAL**

2020 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$223,987	$223,987	$223,987	$223,987
T & D	N/A	$136,535	$136,535	$136,535	$136,535
Marginal Energy	N/A	$380	$380	$380	$380
Environmental Externality	N/A	N/A	N/A	N/A	$59
Subtotal	N/A	$360,902	$360,902	$360,902	$360,961
Participant Benefits					
Bill Reduction - Electric	$78,099	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$9,450	N/A	N/A	$9,450	$9,450
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$87,549	N/A	N/A	$9,450	$9,450
Total Benefits	$87,549	$360,902	$360,902	$370,352	$370,411
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$172,107	$172,107	$172,107	$172,107
Advertising & Promotion	N/A	$0	$0	$0	$0
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$9,450	$9,450	$9,450	$9,450
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$181,557	$181,557	$181,557	$181,557
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$78,099	N/A	N/A
Subtotal	N/A	N/A	$78,099	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	$181,557	$259,656	$181,557	$181,557
Net Benefit (Cost)	$87,549	$179,345	$101,246	$188,795	$188,854
Benefit/Cost Ratio	INF	1.99	1.39	2.04	2.04

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	9.9 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	28.88%
Gross Load Factor at Customer	E	0.01%
Transmission Loss Factor (Energy)	F	5.950%
Transmission Loss Factor (Demand)	G	7.220%
Societal Net Benefit (Cost)	H	$123

Program Summary per Participant		
Gross kW Saved at Customer	I	3.01 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	0.94 kW
Gross Annual kWh Saved at Customer	(B x E x I)	2 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	2 kWh

Program Summary All Participants		
Total Participants	J	511
Total Budget	K	**$181,557**
Gross kW Saved at Customer	(J x I)	1,537.89 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**479 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	768 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**817 kWh**
Societal Net Benefits	(J x I x H)	**$188,854**

Utility Program Cost per kWh Lifetime	**$22.3852**
Utility Program Cost per kW at Gen	**$379**

2020 SD DSM Plan Cost-Effectiveness Analysis

WATER HEATING **2020 ELECTRIC** **ACTUAL**

2020 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$314	$314	$314	$314
T & D	N/A	$191	$191	$191	$191
Marginal Energy	N/A	$1,169	$1,169	$1,169	$1,169
Environmental Externality	N/A	N/A	N/A	N/A	$0
Subtotal	N/A	$1,674	$1,674	$1,674	$1,674
Participant Benefits					
Bill Reduction - Electric	$2,119	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$300	N/A	N/A	$300	$300
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$2,419	N/A	N/A	$300	$300
Total Benefits	$2,419	$1,674	$1,674	$1,974	$1,974
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$92	$92	$92	$92
Advertising & Promotion	N/A	$0	$0	$0	$0
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$300	$300	$300	$300
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$392	$392	$392	$392
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$2,119	N/A	N/A
Subtotal	N/A	N/A	$2,119	N/A	N/A
Participant Costs					
Incremental Capital Costs	$611	N/A	N/A	$611	$611
Incremental O&M Costs	$0	N/A	N/A	$0	$0
Subtotal	$611	N/A	N/A	$611	$611
Total Costs	$611	$392	$2,511	$1,003	$1,003
Net Benefit (Cost)	$1,808	$1,283	($836)	$971	$971
Benefit/Cost Ratio	3.96	4.28	0.67	1.97	1.97

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	10.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	100.00%
Gross Load Factor at Customer	E	70.84%
Transmission Loss Factor (Energy)	F	5.950%
Transmission Loss Factor (Demand)	G	7.220%
Societal Net Benefit (Cost)	H	$1,678

Program Summary per Participant		
Gross kW Saved at Customer	I	0.58 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	0.62 kW
Gross Annual kWh Saved at Customer	(B x E x I)	3,593 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	3,820 kWh

Program Summary All Participants		
Total Participants	J	1
Total Budget	K	**$392**
Gross kW Saved at Customer	(J x I)	0.58 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**1 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	3,593 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**3,820 kWh**
Societal Net Benefits	(J x I x H)	**$971**

Utility Program Cost per kWh Lifetime	**$0.0102**
Utility Program Cost per kW at Gen	**$627**

2020 SD DSM Plan Cost-Effectiveness Analysis

RESIDENTIAL SEGMENT TOTAL **2020 ELECTRIC** **ACTUAL**

2020 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$428,647	$428,647	$428,647	$428,647
T & D	N/A	$261,179	$261,179	$261,179	$261,179
Marginal Energy	N/A	$879,107	$879,107	$879,107	$879,107
Environmental Externality	N/A	N/A	N/A	N/A	$200
Subtotal	N/A	$1,568,934	$1,568,934	$1,568,934	$1,569,134
Participant Benefits					
Bill Reduction - Electric	$4,529,166	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$80,473	N/A	N/A	$80,473	$80,473
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$4,609,639	N/A	N/A	$80,473	$80,473
Total Benefits	$4,609,639	$1,568,934	$1,568,934	$1,649,407	$1,649,607
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$185,966	$185,966	$185,966	$185,966
Advertising & Promotion	N/A	$9,920	$9,920	$9,920	$9,920
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$80,473	$80,473	$80,473	$80,473
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$276,359	$276,359	$276,359	$276,359
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$4,529,166	N/A	N/A
Subtotal	N/A	N/A	$4,529,166	N/A	N/A
Participant Costs					
Incremental Capital Costs	$90,887	N/A	N/A	$90,887	$90,887
Incremental O&M Costs	$0	N/A	N/A	$0	$0
Subtotal	$90,887	N/A	N/A	$90,887	$90,887
Total Costs	$90,887	$276,359	$4,805,525	$367,246	$367,246
Net Benefit (Cost)	$4,518,752	$1,292,575	($3,236,591)	$1,282,161	$1,282,361
Benefit/Cost Ratio	50.72	5.68	0.33	4.49	4.49

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	8.7 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	20.46%
Gross Load Factor at Customer	E	9.22%
Transmission Loss Factor (Energy)	F	5.698%
Transmission Loss Factor (Demand)	G	6.998%
Societal Net Benefit (Cost)	H	$280

Program Summary per Participant		
Gross kW Saved at Customer	I	0.06 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	0.01 kW
Gross Annual kWh Saved at Customer	(B x E x I)	46 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	48 kWh

Program Summary All Participants		
Total Participants	J	81,162
Total Budget	K	**$276,359**
Gross kW Saved at Customer	(J x I)	4,582.58 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**1,008 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	3,701,653 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**3,925,319 kWh**
Societal Net Benefits	(J x I x H)	**$1,282,361**

Utility Program Cost per kWh Lifetime	**$0.0080**
Utility Program Cost per kW at Gen	**$274**

2020 SD DSM Plan Cost-Effectiveness Analysis

PORTFOLIO TOTAL **2020 ELECTRIC** **ACTUAL**

2020 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$1,804,522	$1,804,522	$1,804,522	$1,804,522
T & D	N/A	$1,098,720	$1,098,720	$1,098,720	$1,098,720
Marginal Energy	N/A	$3,918,540	$3,918,540	$3,918,540	$3,918,540
Environmental Externality	N/A	N/A	N/A	N/A	$2,122
Subtotal	N/A	$6,821,782	$6,821,782	$6,821,782	$6,823,904
Participant Benefits					
Bill Reduction - Electric	$12,717,068	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$590,347	N/A	N/A	$590,347	$590,347
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$13,307,415	N/A	N/A	$590,347	$590,347
Total Benefits	$13,307,415	$6,821,782	$6,821,782	$7,412,128	$7,414,251
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$239,370	$239,370	$239,370	$239,370
Advertising & Promotion	N/A	$9,920	$9,920	$9,920	$9,920
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$590,347	$590,347	$590,347	$590,347
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$839,636	$839,636	$839,636	$839,636
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$12,717,068	N/A	N/A
Subtotal	N/A	N/A	$12,717,068	N/A	N/A
Participant Costs					
Incremental Capital Costs	$2,377,109	N/A	N/A	$2,377,109	$2,377,109
Incremental O&M Costs	$32,575	N/A	N/A	$32,575	$32,575
Subtotal	$2,409,684	N/A	N/A	$2,409,684	$2,409,684
Total Costs	$2,409,684	$839,636	$13,556,704	$3,249,320	$3,249,320
Net Benefit (Cost)	$10,897,731	$5,982,145	($6,734,923)	$4,162,808	$4,164,931
Benefit/Cost Ratio	5.52	8.12	0.50	2.28	2.28

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	64.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	46.25%
Gross Load Factor at Customer	E	15.92%
Transmission Loss Factor (Energy)	F	32.215%
Transmission Loss Factor (Demand)	G	5.983%
Societal Net Benefit (Cost)	H	$513

Program Summary per Participant		
Gross kW Saved at Customer	I	0.10 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	0.05 kW
Gross Annual kWh Saved at Customer	(B x E x I)	139 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	205 kWh

Program Summary All Participants		
Total Participants	J	81,303
Total Budget	K	**$839,636**
Gross kW Saved at Customer	(J x I)	8,120.77 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**3,995 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	11,324,645 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**16,706,770 kWh**
Societal Net Benefits	(J x I x H)	**$4,164,931**

Utility Program Cost per kWh Lifetime	**$0.0008**
Utility Program Cost per kW at Gen	**$210**

2022 Lighting Measures

Type	Lighting Efficiency	2019 Rebate Amount ($)	2020 Rebate Amount ($)	2021 Rebate Amount ($)	2022 Rebate Amount ($)	Rebate Adjustment	Justification
Retrofit	Wall mount occupancy sensor - 50 Watts to 300 Watts Controlled Load	$ 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	$ -			Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Ceiling mount occupancy sensor - 50 Watts to 300 Watts Controlled Load	$ 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	$ -			Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Occupancy Sensor - Photocell	$ 25.00	$ -			Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Stairwell Fixture with Integral Occupancy Sensor	$ 25.00	$ -			Eliminated in 2020	Removed to align with Networked Lighting Controls
Retrofit	Stairwell Fixture	$ -	$40	$40		New in 2020	Decoupled integral control and fixture rebate. Customers can obtain standalone or networked lighting controls in additional to fixture rebate.
Retrofit	Networked Lighting Controls	$ -	$.40/watt	$.40/watt		New in 2020	New Technology
Retrofit	Standalone Occupancy sensor	$ -	$.05/watt	$.05/watt		New in 2020	New Technology
Retrofit	Standalone Daylighting sensor	$ -	$.10/watt	$.10/watt		New in 2020	New Technology
Retrofit	Standalone Daylighting & Occupancy sensors	$ -	$.015/watt	$.015/watt		New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 30-39W	$ -	$ 30.00	$ 30.00		New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 40-49W	$ -	$ 40.00	$ 40.00		New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 50-79W	$ -	$ 50.00	$ 50.00		New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 80-119W	$ -	$ 60.00	$ 60.00		New in 2020	New Technology
Retrofit	LED Mogul Screw-base lamp 120-230W	$ -	$ 75.00	$ 75.00		New in 2020	New Technology
Retrofit	LED/LEC Exit Sign	$ 25.00	$ 25.00	$ 25.00		NA	
Retrofit	LED Interior Screw In Fixture Retrofit	$ 15.00	$ 10.00	$ 10.00		Rebate reduced in 2020	Change in incremental cost
Retrofit	LED Interior Fixture <= 25W	$ 20.00	$ 20.00	$ 20.00		Change in 2020	Add CFL baseline
Retrofit	LED Interior Fixture 26W - 50W	$ 40.00	$ 40.00	$ 40.00		Change in 2020	Add CFL baseline
Retrofit	LED Ref and Frz Cases 5' or 6' doors	$ 100.00	$ 45.00	$ 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	$0.00	Rebate reduced in 2022	Lower cost of technology
Retrofit	LED Troffer Fixture 2X2	$ 20.00	$ 20.00	$ 20.00	$0.00	Rebate reduced in 2022	Lower cost of technology
Retrofit	LED Troffer Fixture 2X4	$ 30.00	$ 30.00	$ 30.00	$0.00	Rebate reduced in 2022	Lower cost of technology
Retrofit	LED Troffer Retrofit Kit 1X4	$ 15.00	$ 15.00	$ 15.00	$0.00	Rebate reduced in 2022	Lower cost of technology
Retrofit	LED Troffer Retrofit Kit 2X2	$ 15.00	$ 15.00	$ 15.00	$0.00	Rebate reduced in 2022	Lower cost of technology
Retrofit	LED Troffer Retrofit Kit 2X4	$ 25.00	$ 25.00	$ 25.00	$0.00	Rebate reduced in 2022	Lower cost of technology
Retrofit	LED Exterior Wall Pack <= 25W	$ 25.00	$ 25.00	$ 25.00		NA	
Retrofit	LED Exterior Wall Pack 26W - 60W	$ 50.00	$ 50.00	$ 50.00		NA	
Retrofit	LED Exterior Wall Pack 61W - 150W	$ 80.00	$ 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	$ 4.00	$ 4.00	$ 4.00	$ 2.00	Rebate reduced in 2022	Lower cost of technology
Retrofit	LED Interior Lamp 6W - 10W	$ 6.00	$ 6.00	$ 6.00	$ 3.00	Rebate reduced in 2022	Lower cost of technology
Retrofit	LED Interior Lamp 11W - 20W	$ 8.00	$ 8.00	$ 8.00	$ 4.00	Rebate reduced in 2022	Lower cost of technology
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	$ 100.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Fixture - 190-290W replaces HID	$ 120.00	$ 120.00	$ 120.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Fixture - 291-464W replaces HID	$ 150.00	$ 150.00	$ 150.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Fixture - 465-625W replaces HID	$ 200.00	$ 200.00	$ 200.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Retrofit Kit - 95-189W replaces HID	$ -	$ 40.00	$ 40.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Retrofit Kit - 190-290W replaces HID	$ -	$ 50.00	$ 50.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Retrofit Kit - 291-464W replaces HID	$ -	$ 80.00	$ 80.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Retrofit Kit - 465-625W replaces HID	$ -	$ 160.00	$ 160.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Fixture - 95-189W replaces fluorescent	$ -	$ 100.00	$ 100.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Fixture - 190-290W replaces fluorescent	$ -	$ 120.00	$ 120.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Fixture - 291-464W replaces fluorescent	$ -	$ 150.00	$ 150.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Fixture - 465-625W replaces fluorescent	$ -	$ 200.00	$ 200.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Retrofit Kit - 95-189W replaces fluorescent	$ -	$ 40.00	$ 40.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Retrofit Kit - 190-290W replaces fluorescent	$ -	$ 50.00	$ 50.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Retrofit Kit - 291-464W replaces fluorescent	$ -	$ 80.00	$ 80.00	$0.00	Deleted in 2022	Not cost-effective
Retrofit	LED High Bay Retrofit Kit - 465-625W replaces fluorescent	$ -	$ 160.00	$ 160.00	$0.00	Deleted in 2022	Not cost-effective
New Construction	LED Interior Lamp <= 5W	$ 4.00	$ 4.00	$ 4.00	$ 2.00	Rebate reduced in 2022	Lower cost of technology
New Construction	LED Interior Lamp 6W - 10W	$ 6.00	$ 6.00	$ 6.00	$ 3.00	Rebate reduced in 2022	Lower cost of technology
New Construction	LED Interior Lamp 11W - 20W	$ 8.00	$ 8.00	$ 8.00	$ 4.00	Rebate reduced in 2022	Lower cost of technology
New Construction	LED Interior Fixture <= 25W	$ 15.00	$ 15.00	$ 15.00		NA	
New Construction	LED Interior Fixture 26W - 50W	$ 20.00	$ 20.00	$ 20.00		NA	
New Construction	LED Ref and Frz Cases 5' or 6' doors	$ 70.00	$ 35.00	$ 35.00		Reduced in 2020	
New Construction	LED Parking Garage Lighting 25W-60W	$ 35.00	$ 35.00	$ 35.00	$ 25.00	Rebate reduced in 2022	Lower cost of 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	$0.00	Deleted in 2022	Not cost-effective
New Construction	LED Troffer Fixture 2X2	$ 15.00	$ 15.00	$ 15.00	$0.00	Deleted in 2022	Not cost-effective
New Construction	LED Troffer Fixture 2X4	$ 25.00	$ 25.00	$ 25.00	$0.00	Deleted in 2022	Not cost-effective
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	$ 20.00	Rebate reduced in 2022	Lower cost of technology
New Construction	LED Outdoor Canopy or Soffit lighting 61W - 150W	$ 90.00	$ 50.00	$ 50.00	$ 25.00	Rebate reduced in 2022	Lower cost of technology
Custom Lighting	Average rebate amount estimated				$ 7,023.00	Added in 2022	Expand options for customers

Home Lighting	2019 Rebate Amount ($)	2020 Rebate Amount ($)	2021 Rebate Amount ($)	2022 Rebate Amount ($)	Rebate Adjustment	Justification
LED Bulb - A-Line	$ 2.10	$1.06	$1.07	$0.90	Rebate decreased	Updated to average A-Line rebate in 2020
LED Bulb - Specialty	$ 2.10	$1.10	$1.54	$1.30	Rebate decreased	Updated to average Specialty rebate in 2020
LED Bulb - Linear Tube - Residential portion	n/a	$2.00	$2.00	$2.00	n/a	n/a
LED Bulb - Linear Tube - Business portion	n/a	$2.00	$3.92	$3.92	n/a	n/a

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:		**Percent**	**Cost**	**Weighted Cost**	
Long-term Debt	[CONFIDENTIAL DATA BEGINS HERE				
Short-term Debt					
Perferred Stock					CONFIDENTIAL DATA ENDS HERE]
Common Equity					
				7.22%	

Weighted Cost of Capital			
Equity	[CONFIDENTIAL DATA BEGINS HERE		
Debt			CONFIDENTIAL DATA ENDS HERE]
Total			
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 =	28.1100%	
Property Tax Exempt =	0	

Use these values beginning January 1, 2018:

(b) Composite SD Tax Rate 21%

(c) Carrying Charge Rate =

[CONFIDENTIAL DATA BEGINS HERE

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PUBLIC

Northern States Power Company
State of South Dakota- Electric Utility
DSM Cost Recovery & Incentive Mechanism - Total
2020 Actual

2020	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]		

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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. Attachment D4 includes 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 2021-2022 timeframe, as well as recover all forecasted 2022 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 3 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 14, 2020 Order,[1] Xcel Energy implemented the approved rate of $0.0005280 per kWh effective January 1, 2021.

(6) Proposed rate;

Xcel Energy requests a new DSM Cost Adjustment Factor of $0.0005368 per customer kWh.

(7) Proposed effective date of modified rate;

Xcel Energy requests this new DSM Cost Adjustment Factor of $0.0005368 per customer kWh become effective with the first billing cycle of January 2022. We request this rate remain in effect through December 2022 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 $0.0005368 per customer kWh is an increase of $0.0000088 per kWh or 1.67 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 97,547 electric customers in 36 communities in eastern South Dakota.[2]

[1] Docket No. EL20-015
[2] Data current as of April 1, 2021.

(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 2021 and 2022 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
2021 Forecast

	2021	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	
	[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 (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)													
												CONFIDENTIAL DATA ENDS]		

Table 1: 2021 DSM Tracker Actual, With Cost Recovery in 2022

[CONFIDENTIAL DATA BEGINS

CONFIDENTIAL DATA ENDS]

Northern States Power Company
State of South Dakota- Electric Utility
DSM Cost Recovery & Incentive Mechanism - Total
2022 Forecast

	2022	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 2a: 2022 DSM Tracker Forecast, With Cost Recovery in 2023

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Proposed Customer Bill Onsert Language

DSM Cost Adjustment Factor Increase
Effective January 1, 2022

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 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, 2022, the rate factor will increase from $0.000528 per kWh to $0.0005368 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 at the same time.

	Prior Rates				New Rates				Amount of Bill Increase	Percent Increase
Usage (kWh)	Other Rates	Prior DSM Factor	Prior DSM	Prior Bill	Other Rates	New DSM Factor	New DSM	New Bill		
400	$53.35	$0.000528	**$0.21**	$53.56	$53.35	$0.0005368	**$0.21**	$53.56	$0.00	0.00%
500	$64.62	$0.000528	**$0.26**	$64.88	$64.62	$0.0005368	**$0.27**	$64.89	$0.01	0.02%
600	$75.89	$0.000528	**$0.32**	$76.21	$75.89	$0.0005368	**$0.32**	$76.21	$0.00	0.00%
750	$92.80	$0.000528	**$0.40**	$93.20	$92.80	$0.0005368	**$0.40**	$93.20	$0.00	0.00%
1000	$120.99	$0.000528	**$0.53**	$121.52	$120.99	$0.0005368	**$0.54**	$121.53	$0.01	0.01%
2000	$233.73	$0.000528	**$1.06**	$234.79	$233.73	$0.0005368	**$1.07**	$234.80	$0.01	0.00%

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

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	~~$0.000528~~$0.0005368 per kWh

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.

Non-Legislative

DEMAND SIDE MANAGEMENT COST ADJUSTMENT FACTOR

Section No. 5
9th Revised Sheet No. 73
Cancelling 8th 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	$0.0005368 per kWh	I

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.

Executive Summary Table-2022

2021	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	477	$399,900	742	5,981,518	3.05	5.08	0.36	1.06
Business Saver's Switch	10	$25,250	35	48	INF	1.07	0.85	1.07
Peak and Energy Control	1	$10,000	174	345	INF	5.64	5.43	5.64
Business Segment Total	**488**	**$435,150**	**951**	**5,981,911**	**3.05**	**4.86**	**0.37**	**1.08**
Residential Segment								
Home Lighting	6,154	$101,933	587	4,334,997	37.33	12.48	0.27	5.97
Heat Pump Water Heaters	25	$11,850	8	62,033	4.51	1.67	0.24	1.00
Reidential Demand Response	1,400	$243,500	781	87,288	2.71	2.00	1.47	2.04
Consumer Education	52,579	$378,448	N/A	N/A				
Residential Segment Total	**52,579**	**378,448**	**1,376**	**4,484,318**	**17.88**	**1.29**	**1.29**	**0.00**
Planning Segment								
Regulatory Affairs	0	$10,000	0	0				
Planning Segment Total	**0**	**10,000**	**0**	**0**				
PORTFOLIO TOTAL	**53,067**	**823,598**	**2,327**	**10,466,229**	**5.23**	**4.73**	**0.36**	**1.59**

2022 SD DSM Plan Cost-Effectiveness Analysis

LIGHTING EFFICIENCY **2022 ELECTRIC** **GOAL**

2022 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$467,523	$467,523	$467,523	$467,523
T & D	N/A	$83,111	$83,111	$83,111	$83,111
Marginal Energy	N/A	$1,479,300	$1,479,300	$1,479,300	$1,479,300
Environmental Externality	N/A	N/A	N/A	N/A	$1,511
Subtotal	N/A	$2,029,934	$2,029,934	$2,029,934	$2,031,445
Participant Benefits					
Bill Reduction - Electric	$5,275,038	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$361,625	N/A	N/A	$361,625	$361,625
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$5,636,663	N/A	N/A	$361,625	$361,625
Total Benefits	$5,636,663	$2,029,934	$2,029,934	$2,391,559	$2,393,070
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$22,275	$22,275	$22,275	$22,275
Advertising & Promotion	N/A	$16,000	$16,000	$16,000	$16,000
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$361,625	$361,625	$361,625	$361,625
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$399,900	$399,900	$399,900	$399,900
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$5,275,038	N/A	N/A
Subtotal	N/A	N/A	$5,275,038	N/A	N/A
Participant Costs					
Incremental Capital Costs	$1,758,769	N/A	N/A	$1,758,769	$1,758,769
Incremental O&M Costs	$91,623	N/A	N/A	$91,623	$91,623
Subtotal	$1,850,393	N/A	N/A	$1,850,393	$1,850,393
Total Costs	$1,850,393	$399,900	$5,674,938	$2,250,293	$2,250,293
Net Benefit (Cost)	$3,786,270	$1,630,034	($3,645,004)	$141,266	$142,777
Benefit/Cost Ratio	3.05	5.08	0.36	1.06	1.06

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.1 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	56.04%
Gross Load Factor at Customer	E	51.98%
Transmission Loss Factor (Energy)	F	4.752%
Transmission Loss Factor (Demand)	G	5.520%
Societal Net Benefit (Cost)	H	$114

Program Summary per Participant		
Gross kW Saved at Customer	I	2.62 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	1.56 kW
Gross Annual kWh Saved at Customer	(B x E x I)	11,944 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	12,540 kWh

Program Summary All Participants		
Total Participants	J	477
Total Budget	K	**$399,900**
Gross kW Saved at Customer	(J x I)	1,251.22 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**742 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	5,697,246 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**5,981,518 kWh**
Societal Net Benefits	(J x I x H)	**$142,777**
Utility Program Cost per kWh Lifetime		**$0.0044**
Utility Program Cost per kW at Gen		**$539**

2022 SD DSM Plan Cost-Effectiveness Analysis

BUSINESS SAVER'S SWITCH **2022** **ELECTRIC** **GOAL**

2022 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$22,872	$22,872	$22,872	$22,872
T & D	N/A	$4,066	$4,066	$4,066	$4,066
Marginal Energy	N/A	$12	$12	$12	$12
Environmental Externality	N/A	N/A	N/A	N/A	$2
Subtotal	N/A	$26,950	$26,950	$26,950	$26,952
Participant Benefits					
Bill Reduction - Electric	$6,374	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$0	N/A	N/A	$0	$0
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$6,374	N/A	N/A	$0	$0
Total Benefits	$6,374	$26,950	$26,950	$26,950	$26,952
Costs					
Utility Project Costs					
Customer Services	N/A	$15,750	$15,750	$15,750	$15,750
Utility Administration	N/A	$7,000	$7,000	$7,000	$7,000
Advertising & Promotion	N/A	$2,500	$2,500	$2,500	$2,500
Measurement & Verification	N/A	$0	$0	$0	$0
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	$6,374	N/A	N/A
Subtotal	N/A	N/A	$6,374	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	$25,250	$31,624	$25,250	$25,250
Net Benefit (Cost)	$6,374	$1,700	($4,674)	$1,700	$1,702
Benefit/Cost Ratio	INF	1.07	0.85	1.07	1.07

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	16.79%
Gross Load Factor at Customer	E	0.00%
Transmission Loss Factor (Energy)	F	4.752%
Transmission Loss Factor (Demand)	G	5.520%
Societal Net Benefit (Cost)	H	$9

Program Summary per Participant		
Gross kW Saved at Customer	I	19.56 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	3.48 kW
Gross Annual kWh Saved at Customer	(B x E x I)	5 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	5 kWh

Program Summary All Participants		
Total Participants	J	10
Total Budget	K	**$25,250**
Gross kW Saved at Customer	(J x I)	195.60 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**35 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	45 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**48 kWh**
Societal Net Benefits	(J x I x H)	**$1,702**
Utility Program Cost per kWh Lifetime		**$35.3311**
Utility Program Cost per kW at Gen		**$727**

2022 SD DSM Plan Cost-Effectiveness Analysis

PEAK AND ENERGY CONTROL **2022** **ELECTRIC** **GOAL**

2022 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$47,994	$47,994	$47,994	$47,994
T & D	N/A	$8,408	$8,408	$8,408	$8,408
Marginal Energy	N/A	$38	$38	$38	$38
Environmental Externality	N/A	N/A	N/A	N/A	$0
Subtotal	N/A	$56,441	$56,441	$56,441	$56,441
Participant Benefits					
Bill Reduction - Electric	$394	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$0	N/A	N/A	$0	$0
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$394	N/A	N/A	$0	$0
Total Benefits	$394	$56,441	$56,441	$56,441	$56,441
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$10,000	$10,000	$10,000	$10,000
Advertising & Promotion	N/A	$0	$0	$0	$0
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$0	$0	$0	$0
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$10,000	$10,000	$10,000	$10,000
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$394	N/A	N/A
Subtotal	N/A	N/A	$394	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	$10,000	$10,394	$10,000	$10,000
Net Benefit (Cost)	$394	$46,441	$46,047	$46,441	$46,441
Benefit/Cost Ratio	INF	5.64	5.43	5.64	5.64

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	5.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	100.00%
Gross Load Factor at Customer	E	0.02%
Transmission Loss Factor (Energy)	F	4.752%
Transmission Loss Factor (Demand)	G	5.520%
Societal Net Benefit (Cost)	H	$283

Program Summary per Participant		
Gross kW Saved at Customer	I	164.29 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	173.89 kW
Gross Annual kWh Saved at Customer	(B x E x I)	329 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	345 kWh

Program Summary All Participants		
Total Participants	J	1
Total Budget	K	**$10,000**
Gross kW Saved at Customer	(J x I)	164.29 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**174 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	329 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**345 kWh**
Societal Net Benefits	(J x I x H)	**$46,441**
Utility Program Cost per kWh Lifetime		**$5.7976**
Utility Program Cost per kW at Gen		**$58**

2022 SD DSM Plan Cost-Effectiveness Analysis

BUSINESS SEGMENT TOTAL **2022 ELECTRIC** **GOAL**

2022 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$538,389	$538,389	$538,389	$538,389
T & D	N/A	$95,586	$95,586	$95,586	$95,586
Marginal Energy	N/A	$1,479,350	$1,479,350	$1,479,350	$1,479,350
Environmental Externality	N/A	N/A	N/A	N/A	$1,513
Subtotal	N/A	$2,113,325	$2,113,325	$2,113,325	$2,114,838
Participant Benefits					
Bill Reduction - Electric	$5,281,806	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$361,625	N/A	N/A	$361,625	$361,625
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$5,643,432	N/A	N/A	$361,625	$361,625
Total Benefits	$5,643,432	$2,113,325	$2,113,325	$2,474,950	$2,476,463
Costs					
Utility Project Costs					
Customer Services	N/A	$15,750	$15,750	$15,750	$15,750
Utility Administration	N/A	$39,275	$39,275	$39,275	$39,275
Advertising & Promotion	N/A	$18,500	$18,500	$18,500	$18,500
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$361,625	$361,625	$361,625	$361,625
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$435,150	$435,150	$435,150	$435,150
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$5,281,806	N/A	N/A
Subtotal	N/A	N/A	$5,281,806	N/A	N/A
Participant Costs					
Incremental Capital Costs	$1,758,769	N/A	N/A	$1,758,769	$1,758,769
Incremental O&M Costs	$91,623	N/A	N/A	$91,623	$91,623
Subtotal	$1,850,393	N/A	N/A	$1,850,393	$1,850,393
Total Costs	$1,850,393	$435,150	$5,716,957	$2,285,543	$2,285,543
Net Benefit (Cost)	$3,793,039	$1,678,175	($3,603,631)	$189,407	$190,920
Benefit/Cost Ratio	3.05	4.86	0.37	1.08	1.08

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.1 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	55.76%
Gross Load Factor at Customer	E	40.37%
Transmission Loss Factor (Energy)	F	4.752%
Transmission Loss Factor (Demand)	G	5.520%
Societal Net Benefit (Cost)	H	$119

Program Summary per Participant		
Gross kW Saved at Customer	I	3.30 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	1.95 kW
Gross Annual kWh Saved at Customer	(B x E x I)	11,675 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	12,258 kWh

Program Summary All Participants		
Total Participants	J	488
Total Budget	K	**$435,150**
Gross kW Saved at Customer	(J x I)	1,611.11 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**951 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	5,697,620 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**5,981,911 kWh**
Societal Net Benefits	(J x I x H)	**$190,920**

Utility Program Cost per kWh Lifetime	**$0.0048**
Utility Program Cost per kW at Gen	**$458**

2022 SD DSM Plan Cost-Effectiveness Analysis

HOME LIGHTING **2022 ELECTRIC** **GOAL**

2022 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$310,720	$310,720	$310,720	$310,720
T & D	N/A	$55,215	$55,215	$55,215	$55,215
Marginal Energy	N/A	$905,782	$905,782	$905,782	$905,782
Environmental Externality	N/A	N/A	N/A	N/A	$5,083
Subtotal	N/A	$1,271,717	$1,271,717	$1,271,717	$1,276,800
Participant Benefits					
Bill Reduction - Electric	$4,583,063	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$82,200	N/A	N/A	$82,200	$82,200
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$4,665,263	N/A	N/A	$82,200	$82,200
Total Benefits	$4,665,263	$1,271,717	$1,271,717	$1,353,917	$1,359,000
Costs					
Utility Project Costs					
Customer Services	N/A	$13,500	$13,500	$13,500	$13,500
Utility Administration	N/A	$4,949	$4,949	$4,949	$4,949
Advertising & Promotion	N/A	$1,284	$1,284	$1,284	$1,284
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$82,200	$82,200	$82,200	$82,200
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$101,933	$101,933	$101,933	$101,933
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$4,583,063	N/A	N/A
Subtotal	N/A	N/A	$4,583,063	N/A	N/A
Participant Costs					
Incremental Capital Costs	$124,960	N/A	N/A	$124,960	$124,960
Incremental O&M Costs	$0	N/A	N/A	$0	$0
Subtotal	$124,960	N/A	N/A	$124,960	$124,960
Total Costs	$124,960	$101,933	$4,684,996	$226,893	$226,893
Net Benefit (Cost)	$4,540,303	$1,169,784	($3,413,279)	$1,127,024	$1,132,107
Benefit/Cost Ratio	37.33	12.48	0.27	5.97	5.99

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	12.6 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	16.68%
Gross Load Factor at Customer	E	14.28%
Transmission Loss Factor (Energy)	F	5.553%
Transmission Loss Factor (Demand)	G	7.005%
Societal Net Benefit (Cost)	H	$346

Program Summary per Participant		
Gross kW Saved at Customer	I	0.53 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	0.10 kW
Gross Annual kWh Saved at Customer	(B x E x I)	665 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	704 kWh

Program Summary All Participants		
Total Participants	J	6,154
Total Budget	K	**$101,933**
Gross kW Saved at Customer	(J x I)	3,273.65 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**587 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	4,094,288 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**4,334,997 kWh**
Societal Net Benefits	(J x I x H)	**$1,132,107**
Utility Program Cost per kWh Lifetime		**$0.0019**
Utility Program Cost per kW at Gen		**$174**

2022 SD DSM Plan Cost-Effectiveness Analysis

HEAT PUMP WATER HEATERS — 2022 — ELECTRIC — GOAL

2022 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$4,768	$4,768	$4,768	$4,768
T & D	N/A	$845	$845	$845	$845
Marginal Energy	N/A	$14,186	$14,186	$14,186	$14,186
Environmental Externality	N/A	N/A	N/A	N/A	$1
Subtotal	N/A	$19,800	$19,800	$19,800	$19,801
Participant Benefits					
Bill Reduction - Electric	$70,941	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$10,000	N/A	N/A	$10,000	$10,000
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$0	N/A	N/A	$0	$0
Subtotal	$80,941	N/A	N/A	$10,000	$10,000
Total Benefits	$80,941	$19,800	$19,800	$29,800	$29,801
Costs					
Utility Project Costs					
Customer Services	N/A	$0	$0	$0	$0
Utility Administration	N/A	$1,850	$1,850	$1,850	$1,850
Advertising & Promotion	N/A	$0	$0	$0	$0
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$10,000	$10,000	$10,000	$10,000
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$11,850	$11,850	$11,850	$11,850
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$70,941	N/A	N/A
Subtotal	N/A	N/A	$70,941	N/A	N/A
Participant Costs					
Incremental Capital Costs	$16,464	N/A	N/A	$16,464	$16,464
Incremental O&M Costs	$1,476	N/A	N/A	$1,476	$1,476
Subtotal	$17,940	N/A	N/A	$17,940	$17,940
Total Costs	$17,940	$11,850	$82,791	$29,790	$29,790
Net Benefit (Cost)	$63,001	$7,950	($62,991)	$10	$11
Benefit/Cost Ratio	4.51	1.67	0.24	1.00	1.00

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	13.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	100.00%
Gross Load Factor at Customer	E	89.75%
Transmission Loss Factor (Energy)	F	5.830%
Transmission Loss Factor (Demand)	G	7.100%
Societal Net Benefit (Cost)	H	$2

Program Summary per Participant		
Gross kW Saved at Customer	I	0.30 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	0.32 kW
Gross Annual kWh Saved at Customer	(B x E x I)	2,337 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	2,481 kWh

Program Summary All Participants		
Total Participants	J	25
Total Budget	K	**$11,850**
Gross kW Saved at Customer	(J x I)	7.43 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**8 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	58,416 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**62,033 kWh**
Societal Net Benefits	(J x I x H)	**$11**
Utility Program Cost per kWh Lifetime		**$0.0147**
Utility Program Cost per kW at Gen		**$1,482**

2022 SD DSM Plan Cost-Effectiveness Analysis

RESIDENTIAL DEMAND RESPONSE **2022** **ELECTRIC** **GOAL**

2022 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$399,577	$399,577	$399,577	$399,577
T & D	N/A	$70,787	$70,787	$70,787	$70,787
Marginal Energy	N/A	$17,612	$17,612	$17,612	$17,612
Environmental Externality	N/A	N/A	N/A	N/A	$71
Subtotal	N/A	$487,976	$487,976	$487,976	$488,047
Participant Benefits					
Bill Reduction - Electric	$88,039	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$65,000	N/A	N/A	$65,000	$65,000
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$242,418	N/A	N/A	$242,418	$242,418
Subtotal	$395,457	N/A	N/A	$307,418	$307,418
Total Benefits	$395,457	$487,976	$487,976	$795,393	$795,465
Costs					
Utility Project Costs					
Customer Services	N/A	$126,000	$126,000	$126,000	$126,000
Utility Administration	N/A	$42,500	$42,500	$42,500	$42,500
Advertising & Promotion	N/A	$10,000	$10,000	$10,000	$10,000
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$65,000	$65,000	$65,000	$65,000
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$243,500	$243,500	$243,500	$243,500
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$88,039	N/A	N/A
Subtotal	N/A	N/A	$88,039	N/A	N/A
Participant Costs					
Incremental Capital Costs	$146,000	N/A	N/A	$146,000	$146,000
Incremental O&M Costs	$0	N/A	N/A	$0	$0
Subtotal	$146,000	N/A	N/A	$146,000	$146,000
Total Costs	$146,000	$243,500	$331,539	$389,500	$389,500
Net Benefit (Cost)	$249,457	$244,476	$156,436	$405,893	$405,965
Benefit/Cost Ratio	2.71	2.00	1.47	2.04	2.04

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	10.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	37.00%
Gross Load Factor at Customer	E	0.48%
Transmission Loss Factor (Energy)	F	5.830%
Transmission Loss Factor (Demand)	G	7.100%
Societal Net Benefit (Cost)	H	$207

Program Summary per Participant		
Gross kW Saved at Customer	I	1.40 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	0.56 kW
Gross Annual kWh Saved at Customer	(B x E x I)	59 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	62 kWh

Program Summary All Participants		
Total Participants	J	1,400
Total Budget	K	**$243,500**
Gross kW Saved at Customer	(J x I)	1,960.05 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**781 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	82,200 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**87,288 kWh**
Societal Net Benefits	(J x I x H)	**$405,965**

Utility Program Cost per kWh Lifetime	**$0.2786**
Utility Program Cost per kW at Gen	**$312**

2022 SD DSM Plan Cost-Effectiveness Analysis

RESIDENTIAL SEGMENT TOTAL **2022 ELECTRIC** **GOAL**

2022 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$715,066	$715,066	$715,066	$715,066
T & D	N/A	$126,848	$126,848	$126,848	$126,848
Marginal Energy	N/A	$937,580	$937,580	$937,580	$937,580
Environmental Externality	N/A	N/A	N/A	N/A	$5,155
Subtotal	N/A	$1,779,493	$1,779,493	$1,779,493	$1,784,648
Participant Benefits					
Bill Reduction - Electric	$4,742,044	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$157,200	N/A	N/A	$157,200	$157,200
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$240,942	N/A	N/A	$240,942	$240,942
Subtotal	$5,140,185	N/A	N/A	$398,142	$398,142
Total Benefits	$5,140,185	$1,779,493	$1,779,493	$2,177,635	$2,182,790
Costs					
Utility Project Costs					
Customer Services	N/A	$160,665	$160,665	$160,665	$160,665
Utility Administration	N/A	$49,299	$49,299	$49,299	$49,299
Advertising & Promotion	N/A	$11,284	$11,284	$11,284	$11,284
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$157,200	$157,200	$157,200	$157,200
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$378,448	$378,448	$378,448	$378,448
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$4,742,044	N/A	N/A
Subtotal	N/A	N/A	$4,742,044	N/A	N/A
Participant Costs					
Incremental Capital Costs	$287,424	N/A	N/A	$287,424	$287,424
Incremental O&M Costs	$0	N/A	N/A	$0	$0
Subtotal	$287,424	N/A	N/A	$287,424	$287,424
Total Costs	$287,424	$378,448	$5,120,492	$665,872	$665,872
Net Benefit (Cost)	$4,852,761	$1,401,045	($3,340,999)	$1,511,763	$1,516,918
Benefit/Cost Ratio	17.88	4.70	0.35	3.27	3.28

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	12.6 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	24.40%
Gross Load Factor at Customer	E	9.22%
Transmission Loss Factor (Energy)	F	5.562%
Transmission Loss Factor (Demand)	G	7.041%
Societal Net Benefit (Cost)	H	$289

Program Summary per Participant		
Gross kW Saved at Customer	I	0.10 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	0.03 kW
Gross Annual kWh Saved at Customer	(B x E x I)	81 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	85 kWh

Program Summary All Participants		
Total Participants	J	52,579
Total Budget	K	**$378,448**
Gross kW Saved at Customer	(J x I)	5,241.12 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**1,376 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	4,234,904 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**4,484,318 kWh**
Societal Net Benefits	(J x I x H)	**$1,516,918**

Utility Program Cost per kWh Lifetime	**$0.0067**
Utility Program Cost per kW at Gen	**$275**

2022 SD DSM Plan Cost-Effectiveness Analysis

PORTFOLIO TOTAL **2022 ELECTRIC** **GOAL**

2022 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Total Resource Test ($Total)	Societal Test ($Total)
Benefits					
Avoided Revenue Requirements					
Generation	N/A	$1,253,455	$1,253,455	$1,253,455	$1,253,455
T & D	N/A	$222,434	$222,434	$222,434	$222,434
Marginal Energy	N/A	$2,416,929	$2,416,929	$2,416,929	$2,416,929
Environmental Externality	N/A	N/A	N/A	N/A	$6,668
Subtotal	N/A	$3,892,818	$3,892,818	$3,892,818	$3,899,486
Participant Benefits					
Bill Reduction - Electric	$10,023,850	N/A	N/A	N/A	N/A
Rebates from Xcel Energy	$518,825	N/A	N/A	$518,825	$518,825
Incremental Capital Savings	$0	N/A	N/A	$0	$0
Incremental O&M Savings	$149,318	N/A	N/A	$149,318	$149,318
Subtotal	$10,691,994	N/A	N/A	$668,144	$668,144
Total Benefits	$10,691,994	$3,892,818	$3,892,818	$4,560,962	$4,567,630
Costs					
Utility Project Costs					
Customer Services	N/A	$176,415	$176,415	$176,415	$176,415
Utility Administration	N/A	$98,574	$98,574	$98,574	$98,574
Advertising & Promotion	N/A	$29,784	$29,784	$29,784	$29,784
Measurement & Verification	N/A	$0	$0	$0	$0
Rebates	N/A	$518,825	$518,825	$518,825	$518,825
Other	N/A	$0	$0	$0	$0
Subtotal	N/A	$823,598	$823,598	$823,598	$823,598
Utility Revenue Reduction					
Revenue Reduction - Electric	N/A	N/A	$10,023,850	N/A	N/A
Subtotal	N/A	N/A	$10,023,850	N/A	N/A
Participant Costs					
Incremental Capital Costs	$2,046,194	N/A	N/A	$2,046,194	$2,046,194
Incremental O&M Costs	$0	N/A	N/A	$0	$0
Subtotal	$2,046,194	N/A	N/A	$2,046,194	$2,046,194
Total Costs	$2,046,194	$823,598	$10,847,448	$2,869,792	$2,869,792
Net Benefit (Cost)	$8,645,800	$3,069,220	($6,954,630)	$1,691,170	$1,697,838
Benefit/Cost Ratio	5.23	4.73	0.36	1.59	1.59

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

Input Summary and Totals

Program "Inputs" per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.0 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	31.68%
Gross Load Factor at Customer	E	16.55%
Transmission Loss Factor (Energy)	F	5.099%
Transmission Loss Factor (Demand)	G	6.688%
Societal Net Benefit (Cost)	H	$248

Program Summary per Participant		
Gross kW Saved at Customer	I	0.13 kW
Net coincident kW Saved at Generator	(I x D) / (1 - G)	0.04 kW
Gross Annual kWh Saved at Customer	(B x E x I)	187 kWh
Net Annual kWh Saved at Generator	(B x E x I) / (1 - F)	197 kWh

Program Summary All Participants		
Total Participants	J	53,067
Total Budget	K	**$823,598**
Gross kW Saved at Customer	(J x I)	6,852.23 kW
Net coincident kW Saved at Generator	**(I x D) / (1 - G) x J**	**2,327 kW**
Gross Annual kWh Saved at Customer	(B x E x I) x J	9,932,524 kWh
Net Annual kWh Saved at Generator	**((B x E x I) / (1 - F)) x J**	**10,466,229 kWh**
Societal Net Benefits	(J x I x H)	**$1,697,838**
Utility Program Cost per kWh Lifetime		**$0.0056**
Utility Program Cost per kW at Gen		**$354**