



5000 West Russell Street  
P.O. Box 988  
Sioux Falls, SD 57101-0988

October 12, 2017

—Via Electronic Filing—

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

RE: SUPPLEMENTAL DSM FILING  
2016 DSM STATUS REPORT AND PROPOSED 2018 DSM PLAN

Dear Ms. Van Gerpen:

Northern States Power Company, doing business as Xcel Energy, submits to the South Dakota Public Utilities Commission, this Supplemental DSM Filing. This Supplement serves as an update to our April 28, 2017 Petition by Northern States Power Company (Company) seeking approval of the 2016 Annual Demand Side Management (DSM) Status Report, including 2016 cost recovery and incentive, as well as approval of our Proposed 2018 DSM Plan (Plan) and Cost Adjustment Factor.

We present this Supplement to reflect our request to adjust our Business Lighting program within the proposed Plan. In doing so, customers will have the opportunity to take advantage of rebates for newer, more cost-effective technologies.

Attached you will find the Supplement including program details and the updated Executive Summary. Our request does not adjust the currently requested budget, but will increase savings and adjust the overall cost-effectiveness of the portfolio.

Should you have any questions, please call me at 605-339-8303 or email at [steven.t.kolbeck@xcelenergy.com](mailto:steven.t.kolbeck@xcelenergy.com).

Ms. Van Gerpen  
Page 2 of 2  
October 12, 2017

Sincerely,

A handwritten signature in cursive script that reads "Steve Kolbeck". The signature is written in black ink on a white background.

By: \_\_\_\_\_  
Steve Kolbeck, Principal Manager –South Dakota

**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 2016 ANNUAL  
DSM STATUS REPORT, INCLUDING 2016  
COST RECOVERY AND INCENTIVE AND  
APPROVAL OF THE PROPOSED 2018 DSM  
COST ADJUSTMENT FACTOR AND  
PROGRAM PLAN

**PETITION FOR 2016 DSM  
PROGRAM APPROVAL AND  
PROPOSED 2018 DSM COST  
ADJUSTMENT FACTOR**

DOCKET NO. EL17- 019

Northern States Power Company, doing business as Xcel Energy, submits to the South Dakota Public Utilities Commission, this Supplemental DSM Filing. This Supplement serves as an update to our April 28, 2017 Petition by Northern States Power Company (Company) seeking approval of the 2016 Annual Demand Side Management (DSM) Status Report, including 2016 cost recovery and incentive, as well as approval of our Proposed 2018 DSM Plan (Plan) and Cost Adjustment Factor.

Specifically, the Company requests that the Commission approve our revised 2018 DSM Plan including:

- new measures in the Business Lighting Efficiency program;
- changes to current LED rebates; and
- modifications to our proposed energy savings goal.

The following sections explain our requested update.

- I. ***Business Lighting Efficiency Update*** – Presents an update to Business Lighting Efficiency program including updated Attachments.
- II. ***Updated 2018 Executive Summary*** – Presents the updated 2018 DSM Plan Executive Summary with associated lighting changes.

## UPDATE

### I. Business Lighting Efficiency

The Business Lighting Efficiency program offers retrofit rebate incentives to Xcel Energy commercial and industrial customers who purchase and install qualifying energy efficient lighting products. Rebates are offered to encourage customers to purchase energy efficient lighting by reducing the up-front costs associated with new lighting equipment. Customers apply for rebates by completing the application and providing a detailed invoice for the newly installed equipment.

#### *Proposed Program Changes for 2018*

The Company proposes to adjust the LED portfolio in our Business Lighting Efficiency program in order to better align with the quickly changing LED market. Specifically, we intend to reduce the rebates for outdoor canopy lighting, parking lot lighting and troffers. In addition, we propose adding rebates for linear tubes.

As newer lighting options become more conventional, the cost of LED technologies continues to change. Incremental costs, therefore, have shifted so that certain measures are more than enough to affect adoption. Therefore, we propose to adjust these rebate amounts in 2018 to better align the program with market conditions and allow for the addition of new technologies to our portfolio.

LED linear tubes will be added to the 2018 portfolio as a cost-effective measure for customers. Linear tubes are a less expensive option for customers than replacing an entire troffer fixture. These fixtures are popular customer options because they are low in cost and easy to replace. By decreasing the rebates in the high cost measures such as LED troffers, the Company hopes to reduce the participation in these measures and guide customers to the LED linear tube measure.

In addition, this change has improved the overall cost-effectiveness of the program. The TRC level increased from 1.06 to 1.18. Along with this change, we will continue to monitor market conditions closely and manage the program's offerings to ensure market-appropriate rebate levels and technology requirements.

Table 1 summarizes these changes. We additionally provide the full lighting rebate details as part of Attachment B1 and the updated cost-benefit analyses as Attachment C.

**Table 1: 2018 Rebate Changes for Business Lighting**

| <b>Category</b>  | <b>Measure</b>                                      | <b>2018 Supplement New Rebate</b> | <b>2017 Rebate</b> |
|------------------|---|-----------------------------------|--------------------|
| Retrofit         | LED Parking Garage Lighting 25W-60W                 | \$75                              | \$135              |
| Retrofit         | LED Troffer Fixture 1X4                             | \$20                              | \$50               |
| Retrofit         | LED Troffer Fixture 2X2                             | \$20                              | \$50               |
| Retrofit         | LED Troffer Fixture 2X4                             | \$30                              | \$50               |
| Retrofit         | LED Troffer Retrofit Kit 1X4                        | \$15                              | \$30               |
| Retrofit         | LED Troffer Retrofit Kit 2X2                        | \$15                              | \$30               |
| Retrofit         | LED Troffer Retrofit Kit 2X4                        | \$25                              | \$30               |
| Retrofit         | LED Outdoor Canopy or Soffit lighting<br>25W - 60W  | \$75                              | \$100              |
| Retrofit         | LED Outdoor Canopy or Soffit lighting<br>61W - 150W | \$100                             | \$125              |
| New Construction | LED Troffer Fixture 1X4                             | \$15                              | \$30               |
| New Construction | LED Troffer Fixture 2X2                             | \$15                              | \$30               |
| New Construction | LED Troffer Fixture 2X4                             | \$25                              | \$30               |
| New Construction | LED Outdoor Canopy or Soffit lighting<br>61W - 150W | \$90                              | \$100              |
| Retrofit         | LED Tube Type A 2 foot                              | \$2                               | New                |
| Retrofit         | LED Tube Type C 2 foot                              | \$5                               | New                |
| Retrofit         | LED Tube Type A 4 foot                              | \$2                               | New                |
| Retrofit         | LED Tube Type C 4 foot                              | \$5                               | New                |
| Retrofit         | LED Tube Type B 4 foot                              | \$3                               | New                |

## **II. 2016 Executive Summary**

This section includes an updated summary of the Company’s proposed 2018 DSM Plan.

The impact of this change includes an addition of 548,556 kWh to our original Petition. As shown in the table below, we are increasing participation in the Business Lighting Efficiency program by adding new LED technologies. However, while there

is an increase in savings based on participation growth, we anticipate that the mix of measures, including the reduction of other rebates, will alter in a way that allows us to maintain our originally requested budget.

The summary also shows the total portfolio has a passing TRC Ratio of 1.33. A full Executive Summary, which includes all cost-effectiveness test results, is provided in Attachment A. We respectfully request that the Commission approves this revised 2018 Plan.

**Table 1 – Executive Summary Table of 2018 Forecast**

| <b>Executive Summary Table - 2018</b> |                              |                        |                     |                      |                  |
|---------------------------------------|------------------------------|------------------------|---------------------|----------------------|------------------|
| <b>2018</b>                           | <b>Electric Participants</b> | <b>Electric Budget</b> | <b>Generator kW</b> | <b>Generator kWh</b> | <b>TRC Ratio</b> |
| <b>Business Segment</b>               |                              |                        |                     |                      |                  |
| Lighting Efficiency                   | 325                          | \$389,520              | 509                 | 3,913,384            | 1.18             |
| Business Saver's Switch               | 12                           | \$37,213               | 44                  | 108                  | 1.28             |
| Peak and Energy Control               | 1                            | \$10,000               | 102                 | 3,707                | 4.71             |
| <b>Business Segment Total</b>         | <b>338</b>                   | <b>\$436,733</b>       | <b>655</b>          | <b>3,917,198</b>     | <b>1.20</b>      |
| <b>Residential Segment</b>            |                              |                        |                     |                      |                  |
| Home Lighting                         | 3,225                        | \$109,598              | 162                 | 1,480,452            | 1.22             |
| Residential Saver's Switch            | 770                          | \$187,913              | 565                 | 1,486                | 3.28             |
| Consumer Education                    | 68,000                       | \$27,165               | 0                   | 0                    | -                |
| <b>Residential Segment Total</b>      | <b>71,995</b>                | <b>\$324,676</b>       | <b>727</b>          | <b>1,481,938</b>     | <b>1.85</b>      |
| <b>Planning Segment</b>               |                              |                        |                     |                      |                  |
| Regulatory Affairs                    | 0                            | \$13,000               | 0                   | 0                    | -                |
| <b>Planning Segment Total</b>         | <b>0</b>                     | <b>\$13,000</b>        | <b>0</b>            | <b>0</b>             | <b>-</b>         |
| <b>PORTFOLIO TOTAL</b>                | <b>72,333</b>                | <b>\$774,408</b>       | <b>1,382</b>        | <b>5,399,136</b>     | <b>1.33</b>      |

## Service of Filings

We request that communications regarding this Application be directed to:

Lynnette Sweet

Regulatory Administrator

Xcel Energy Services Inc.

414 Nicollet Mall, 401-07

Minneapolis, MN 55401

Regulatory.records@xcelenergy.com

## CONCLUSION

In summary, the Company respectfully requests that the Commission approve our revised 2018 DSM Plan including:

- new measures in the Business Lighting Efficiency program;
- changes to current LED rebates; and
- modifications to our proposed energy savings goal.

Xcel Energy looks forward to continuing our DSM programs in South Dakota. The Company appreciates the interest and efforts of South Dakota policy makers in supporting this DSM portfolio.

Dated: October 12, 2017

Xcel Energy



By: \_\_\_\_\_

Steve Kolbeck  
Principal Manager –South Dakota



### Executive Summary Table - 2018

| 2018                             | Electric Participants | Electric Budget   | Generator kW | Generator kWh    | Participant Test Ratio | Utility Test Ratio | Ratepayer Impact Measure Test Ratio | TRC Ratio   |
|----------------------------------|-----------------------|-------------------|--------------|------------------|------------------------|--------------------|-------------------------------------|-------------|
| <b>Business Segment</b>          |                       |                   |              |                  |                        |                    |                                     |             |
| Lighting Efficiency              | 325                   | \$ 389,520        | 509          | 3,913,384        | 2.42                   | 5.49               | 0.52                                | 1.18        |
| Business Saver's Switch          | 12                    | \$ 37,213         | 44           | 108              | INF                    | 1.28               | 0.64                                | 1.28        |
| Peak and Energy Control          | 1                     | \$ 10,000         | 102          | 3,707            | INF                    | 4.71               | 1.80                                | 4.71        |
| <b>Business Segment Total</b>    | <b>338</b>            | <b>\$ 436,733</b> | <b>655</b>   | <b>3,917,198</b> | <b>2.45</b>            | <b>5.11</b>        | <b>0.53</b>                         | <b>1.20</b> |
| <b>Residential Segment</b>       |                       |                   |              |                  |                        |                    |                                     |             |
| Home Lighting                    | 3,225                 | \$ 109,598        | 162          | 1,480,452        | 3.77                   | 3.10               | 0.37                                | 1.22        |
| Residential Saver's Switch       | 770                   | \$ 187,913        | 565          | 1,486            | INF                    | 3.28               | 0.86                                | 3.28        |
| Consumer Education               | 68,000                | \$ 27,165         |              |                  | -                      | -                  | -                                   | -           |
| <b>Residential Segment Total</b> | <b>71,995</b>         | <b>\$ 324,676</b> | <b>727</b>   | <b>1,481,938</b> | <b>5.99</b>            | <b>2.95</b>        | <b>0.57</b>                         | <b>1.85</b> |
| <b>Planning Segment</b>          |                       |                   |              |                  |                        |                    |                                     |             |
| Regulatory Affairs               | 0                     | \$ 13,000         | 0            | 0                |                        |                    |                                     |             |
| <b>Planning Segment Total</b>    | <b>0</b>              | <b>\$ 13,000</b>  | <b>0</b>     | <b>0</b>         |                        |                    |                                     |             |
| <b>PORTFOLIO TOTAL</b>           |                       |                   |              |                  |                        |                    |                                     |             |
|                                  | <b>72,333</b>         | <b>\$ 774,408</b> | <b>1,382</b> | <b>5,399,136</b> | <b>2.90</b>            | <b>4.12</b>        | <b>0.54</b>                         | <b>1.33</b> |

## 2018 Lighting Measures

| Type             | Lighting Efficiency   | Rebate Amount (\$) |
|------------------|---|--------------------|
| Retrofit         | Wall mount occupancy sensor - 50 Watts to 300 Watts Controlled Load     | \$ 15.00           |
| Retrofit         | Wall mount occupancy sensor - Greater than 300 Watts Controlled Load    | \$ 25.00           |
| Retrofit         | Ceiling mount occupancy sensor - 50 Watts to 300 Watts Controlled Load  | \$ 30.00           |
| Retrofit         | Ceiling mount occupancy sensor - Greater than 300 Watts Controlled Load | \$ 40.00           |
| Retrofit         | Occupancy Sensor - Photocell  | \$ 25.00           |
| Retrofit         | Stairwell Fixture with Integral Occupancy Sensor                        | \$ 25.00           |
| Retrofit         | LED/LEEC Exit Sign  | \$ 25.00           |
| Retrofit         | LED Interior Screw In Fixture Retrofit                                  | \$ 15.00           |
| Retrofit         | LED Interior Fixture <= 25W   | \$ 35.00           |
| Retrofit         | LED Interior Fixture 26W - 50W  | \$ 50.00           |
| Retrofit         | LED Ref and Frz Cases 5' or 6' doors                                    | \$ 100.00          |
| Retrofit         | LED Parking Garage Lighting 25W-60W                                     | \$ 75.00           |
| Retrofit         | LED Area Lighting - 45-65W  | \$ 25.00           |
| Retrofit         | LED Area Lighting - 66-89W  | \$ 25.00           |
| Retrofit         | LED Area Lighting - 90-119W   | \$ 50.00           |
| Retrofit         | LED Area Lighting - 120-140W  | \$ 50.00           |
| Retrofit         | LED Troffer Fixture 1X4   | \$ 20.00           |
| Retrofit         | LED Troffer Fixture 2X2   | \$ 20.00           |
| Retrofit         | LED Troffer Fixture 2X4   | \$ 30.00           |
| Retrofit         | LED Troffer Retrofit Kit 1X4  | \$ 15.00           |
| Retrofit         | LED Troffer Retrofit Kit 2X2  | \$ 15.00           |
| Retrofit         | LED Troffer Retrofit Kit 2X4  | \$ 25.00           |
| Retrofit         | LED Exterior Wall Pack <= 25W   | \$ 35.00           |
| Retrofit         | LED Exterior Wall Pack 26W - 60W  | \$ 75.00           |
| Retrofit         | LED Exterior Wall Pack 61W - 150W                                       | \$ 100.00          |
| Retrofit         | LED Parking Garage Wall Pack <= 25W                                     | \$ 35.00           |
| Retrofit         | LED Parking Garage Wall Pack 26W - 60W                                  | \$ 75.00           |
| Retrofit         | LED Parking Garage Wall Pack 61W - 150W                                 | \$ 100.00          |
| Retrofit         | LED Outdoor Canopy or Soffit lighting 25W - 60W                         | \$ 75.00           |
| Retrofit         | LED Outdoor Canopy or Soffit lighting 61W - 150W                        | \$ 100.00          |
| Retrofit         | LED Interior Lamp <= 5W   | \$ 7.00            |
| Retrofit         | LED Interior Lamp 6W - 10W  | \$ 12.00           |
| Retrofit         | LED Interior Lamp 11W - 20W   | \$ 15.00           |
| New Construction | LED Interior Lamp <= 5W   | \$ 7.00            |
| New Construction | LED Interior Lamp 6W - 10W  | \$ 12.00           |
| New Construction | LED Interior Lamp 11W - 20W   | \$ 15.00           |
| New Construction | LED Interior Fixture <= 25W   | \$ 25.00           |
| New Construction | LED Interior Fixture 26W - 50W  | \$ 40.00           |
| New Construction | LED Ref and Frz Cases 5' or 6' doors                                    | \$ 70.00           |
| New Construction | LED Parking Garage Lighting 25W-60W                                     | \$ 35.00           |
| New Construction | LED Area Lighting - 45-65W  | \$ 15.00           |
| New Construction | LED Area Lighting - 66-89W  | \$ 15.00           |
| New Construction | LED Area Lighting - 90-119W   | \$ 30.00           |
| New Construction | LED Area Lighting - 120-140W  | \$ 30.00           |
| New Construction | LED Troffer Fixture 1X4   | \$ 15.00           |
| New Construction | LED Troffer Fixture 2X2   | \$ 15.00           |
| New Construction | LED Troffer Fixture 2X4   | \$ 25.00           |
| New Construction | LED Exterior Wall Pack <= 25W   | \$ 15.00           |
| New Construction | LED Exterior Wall Pack 26W - 60W  | \$ 30.00           |
| New Construction | LED Exterior Wall Pack 61W - 150W                                       | \$ 50.00           |
| New Construction | LED Parking Garage Wall Pack <= 25W                                     | \$ 15.00           |
| New Construction | LED Parking Garage Wall Pack 26W - 60W                                  | \$ 30.00           |
| New Construction | LED Parking Garage Wall Pack 61W - 150W                                 | \$ 50.00           |
| New Construction | LED Outdoor Canopy or Soffit lighting 25W - 60W                         | \$ 50.00           |
| New Construction | LED Outdoor Canopy or Soffit lighting 61W - 150W                        | \$ 90.00           |
| Retrofit         | LED Tube Type A 2 foot  | \$ 2.00            |
| Retrofit         | LED Tube Type C 2 foot  | \$ 5.00            |
| Retrofit         | LED Tube Type A 4 foot  | \$ 2.00            |
| Retrofit         | LED Tube Type C 4 foot  | \$ 5.00            |
| Retrofit         | LED Tube Type B 4 foot  | \$ 3.00            |

| Home Lighting                            | Rebate Amount (\$) |
|--|--------------------|
| Average CFL Wattage Purchased In program | \$ 1.25            |
| LED Bulb                                 | \$ 2.40            |
| Residential Value LED Bulb*              | \$ 9.00            |

\*Residential Value LED Bulbs include fully loaded cost to install the bulb through the *HomeCheck Assessment* program

2018 SD DSM Plan Cost-Effectiveness Analysis

| <b>LIGHTING EFFICIENCY</b>   |                                   |                               |                                   |                                      |                                | <b>2018 ELECTRIC</b>                         |  | <b>GOAL</b>      |
|--|-----------------------------------|-------------------------------|-----------------------------------|--------------------------------------|--------------------------------|--|--|------------------|
| <b>2018 Net Present Cost Benefit Summary Analysis For All Participants</b> |                                   |                               |                                   |                                      |                                | <b>Input Summary and Totals</b>              |  |                  |
|  | <b>Participant Test (\$Total)</b> | <b>Utility Test (\$Total)</b> | <b>Rate Impact Test (\$Total)</b> | <b>Total Resource Test (\$Total)</b> | <b>Societal Test (\$Total)</b> | <b>Program "Inputs" per Customer kW</b>      |  |                  |
| <b>Benefits</b>  |                                   |                               |                                   |                                      |                                | Lifetime (Weighted on Generator kWh)         | A  | 18.2 years       |
| <b>Avoided Revenue Requirements</b>  |                                   |                               |                                   |                                      |                                | Annual Hours                                 | B  | 8760             |
| Generation   | N/A                               | \$373,158                     | \$373,158                         | \$373,158                            | \$373,158                      | Gross Customer kW                            | C  | 1 kW             |
| T & D  | N/A                               | \$227,295                     | \$227,295                         | \$227,295                            | \$227,295                      | Generator Peak Coincidence Factor            | D  | 56.21%           |
| Marginal Energy  | N/A                               | \$1,536,530                   | \$1,536,530                       | \$1,536,530                          | \$1,536,530                    | Gross Load Factor at Customer                | E  | 50.79%           |
| Environmental Externality  | N/A                               | N/A                           | N/A                               | N/A                                  | \$0                            | Transmission Loss Factor (Energy)            | F  | 4.455%           |
| Transmission Loss Factor (Demand)  |                                   |                               |                                   |                                      |                                | Transmission Loss Factor (Demand)            | G  | 7.106%           |
| Subtotal   | N/A                               | \$2,136,983                   | \$2,136,983                       | \$2,136,983                          | \$2,136,983                    | Societal Net Benefit (Cost)                  | H  | \$443            |
| <b>Participant Benefits</b>  |                                   |                               |                                   |                                      |                                | <b>Program Summary per Participant</b>       |  |                  |
| Bill Reduction - Electric  | \$3,745,737                       | N/A                           | N/A                               | N/A                                  | N/A                            | Gross kW Saved at Customer                   | I  | 2.59 kW          |
| Rebates from Xcel Energy   | \$293,165                         | N/A                           | N/A                               | \$293,165                            | \$293,165                      | Net coincident kW Saved at Generator         | $(I \times D) / (1 - G)$                     |                  |
| Incremental Capital Savings  | \$0                               | N/A                           | N/A                               | \$0                                  | \$0                            | Gross Annual kWh Saved at Customer           | $(B \times E \times I)$                      |                  |
| Incremental O&M Savings  | \$0                               | N/A                           | N/A                               | \$0                                  | \$0                            | Net Annual kWh Saved at Generator            | $(B \times E \times I) / (1 - F)$            |                  |
| Subtotal   | \$4,038,902                       | N/A                           | N/A                               | \$293,165                            | \$293,165                      | <b>Program Summary All Participants</b>      |  |                  |
| <b>Total Benefits</b>  | <b>\$4,038,902</b>                | <b>\$2,136,983</b>            | <b>\$2,136,983</b>                | <b>\$2,430,148</b>                   | <b>\$2,430,148</b>             | Total Participants                           | J  | 325              |
| <b>Costs</b>   |                                   |                               |                                   |                                      |                                | <b>Total Budget</b>                          | K  | <b>\$389,520</b> |
| <b>Utility Project Costs</b>   |                                   |                               |                                   |                                      |                                | Gross kW Saved at Customer                   | $(J \times I)$                               | 840 kW           |
| Customer Services  | N/A                               | \$22,100                      | \$22,100                          | \$22,100                             | \$22,100                       | <b>Net coincident kW Saved at Generator</b>  | $(I \times D) / (1 - G) \times J$            |                  |
| Utility Administration   | N/A                               | \$2,500                       | \$2,500                           | \$2,500                              | \$2,500                        | Gross Annual kWh Saved at Customer           | $(B \times E \times I) \times J$             |                  |
| Advertising & Promotion  | N/A                               | \$71,755                      | \$71,755                          | \$71,755                             | \$71,755                       | <b>Net Annual kWh Saved at Generator</b>     | $((B \times E \times I) / (1 - F)) \times J$ |                  |
| Measurement & Verification   | N/A                               | \$0                           | \$0                               | \$0                                  | \$0                            | <b>Societal Net Benefits</b>                 | $(J \times I \times H)$                      |                  |
| Rebates  | N/A                               | \$293,165                     | \$293,165                         | \$293,165                            | \$293,165                      | <b>Utility Program Cost per kWh Lifetime</b> | <b>\$0.0055</b>                              |                  |
| Other  | N/A                               | \$0                           | \$0                               | \$0                                  | \$0                            | <b>Utility Program Cost per kW at Gen</b>    | <b>\$766</b>                                 |                  |
| Subtotal   | N/A                               | \$389,520                     | \$389,520                         | \$389,520                            | \$389,520                      |  |  |                  |
| <b>Utility Revenue Reduction</b>   |                                   |                               |                                   |                                      |                                |  |  |                  |
| Revenue Reduction - Electric   | N/A                               | N/A                           | \$3,745,737                       | N/A                                  | N/A                            |  |  |                  |
| Subtotal   | N/A                               | N/A                           | \$3,745,737                       | N/A                                  | N/A                            |  |  |                  |
| <b>Participant Costs</b>   |                                   |                               |                                   |                                      |                                |  |  |                  |
| Incremental Capital Costs  | \$1,590,778                       | N/A                           | N/A                               | \$1,590,778                          | \$1,590,778                    |  |  |                  |
| Incremental O&M Costs  | \$77,266                          | N/A                           | N/A                               | \$77,266                             | \$77,266                       |  |  |                  |
| Subtotal   | \$1,668,044                       | N/A                           | N/A                               | \$1,668,044                          | \$1,668,044                    |  |  |                  |
| <b>Total Costs</b>   | <b>\$1,668,044</b>                | <b>\$389,520</b>              | <b>\$4,135,257</b>                | <b>\$2,057,564</b>                   | <b>\$2,057,564</b>             |  |  |                  |
| <b>Net Benefit (Cost)</b>  | <b>\$2,370,858</b>                | <b>\$1,747,463</b>            | <b>(\$1,998,274)</b>              | <b>\$372,584</b>                     | <b>\$372,584</b>               |  |  |                  |
| <b>Benefit/Cost Ratio</b>  | <b>2.42</b>                       | <b>5.49</b>                   | <b>0.52</b>                       | <b>1.18</b>                          | <b>1.18</b>                    |  |  |                  |

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

2018 SD DSM Plan Cost-Effectiveness Analysis

| <b>BUSINESS SEGMENT TOTAL</b>  |                    |                  |                  |                  |                  | <b>2018</b>                                  | <b>ELECTRIC</b>                              | <b>GOAL</b>      |
|--|--------------------|------------------|------------------|------------------|------------------|--|--|------------------|
| <b>2018 Net Present Cost Benefit Summary Analysis For All Participants</b> |                    |                  |                  |                  |                  | <b>Input Summary and Totals</b>              |  |                  |
|  | <b>Participant</b> | <b>Utility</b>   | <b>Rate</b>      | <b>Total</b>     | <b>Societal</b>  | <b>Program "Inputs" per Customer kW</b>      |  |                  |
|  | <b>Test</b>        | <b>Test</b>      | <b>Impact</b>    | <b>Resource</b>  | <b>Test</b>      | Lifetime (Weighted on Generator kWh)         | A  | 18.2 years       |
|  | <b>(\$Total)</b>   | <b>(\$Total)</b> | <b>(\$Total)</b> | <b>(\$Total)</b> | <b>(\$Total)</b> | Annual Hours                                 | B  | 8760             |
| <b>Benefits</b>  |                    |                  |                  |                  |                  | Gross Customer kW                            | C  | 1 kW             |
| <b>Avoided Revenue Requirements</b>  |                    |                  |                  |                  |                  | Generator Peak Coincidence Factor            | D  | 48.91%           |
| Generation   | N/A                | \$431,348        | \$431,348        | \$431,348        | \$431,348        | Gross Load Factor at Customer                | E  | 34.40%           |
| T & D  | N/A                | \$262,605        | \$262,605        | \$262,605        | \$262,605        | Transmission Loss Factor (Energy)            | F  | 4.455%           |
| Marginal Energy  | N/A                | \$1,537,623      | \$1,537,623      | \$1,537,623      | \$1,537,623      | Transmission Loss Factor (Demand)            | G  | 7.195%           |
| Environmental Externality  | N/A                | N/A              | N/A              | N/A              | \$0              | Societal Net Benefit (Cost)                  | H  | \$338            |
| Subtotal   | N/A                | \$2,231,576      | \$2,231,576      | \$2,231,576      | \$2,231,576      | <b>Program Summary per Participant</b>       |  |                  |
| <b>Participant Benefits</b>  |                    |                  |                  |                  |                  | Gross kW Saved at Customer                   | I  | 3.67 kW          |
| Bill Reduction - Electric  | \$3,798,497        | N/A              | N/A              | N/A              | N/A              | Net coincident kW Saved at Generator         | $(I \times D) / (1 - G)$                     |                  |
| Rebates from Xcel Energy   | \$293,165          | N/A              | N/A              | \$293,165        | \$293,165        | Gross Annual kWh Saved at Customer           | $(B \times E \times I)$                      |                  |
| Incremental Capital Savings  | \$0                | N/A              | N/A              | \$0              | \$0              | Net Annual kWh Saved at Generator            | $(B \times E \times I) / (1 - F)$            |                  |
| Incremental O&M Savings  | \$0                | N/A              | N/A              | \$0              | \$0              | <b>Program Summary All Participants</b>      |  |                  |
| Subtotal   | \$4,091,662        | N/A              | N/A              | \$293,165        | \$293,165        | Total Participants                           | J  | 338              |
| <b>Total Benefits</b>  |                    |                  |                  |                  |                  | <b>Total Budget</b>                          | K  | <b>\$436,733</b> |
|  | \$4,091,662        | \$2,231,576      | \$2,231,576      | \$2,524,741      | \$2,524,741      | Gross kW Saved at Customer                   | $(J \times I)$                               | 1,242 kW         |
| <b>Costs</b>   |                    |                  |                  |                  |                  | <b>Net coincident kW Saved at Generator</b>  | $(I \times D) / (1 - G) \times J$            |                  |
| <b>Utility Project Costs</b>   |                    |                  |                  |                  |                  | Gross Annual kWh Saved at Customer           | $(B \times E \times I) \times J$             |                  |
| Customer Services  | N/A                | \$44,000         | \$44,000         | \$44,000         | \$44,000         | <b>Net Annual kWh Saved at Generator</b>     | $((B \times E \times I) / (1 - F)) \times J$ |                  |
| Utility Administration   | N/A                | \$21,050         | \$21,050         | \$21,050         | \$21,050         | <b>Societal Net Benefits</b>                 | $(J \times I \times H)$                      |                  |
| Advertising & Promotion  | N/A                | \$78,518         | \$78,518         | \$78,518         | \$78,518         | <b>Utility Program Cost per kWh Lifetime</b> |  |                  |
| Measurement & Verification   | N/A                | \$0              | \$0              | \$0              | \$0              | <b>Utility Program Cost per kW at Gen</b>    |  |                  |
| Rebates  | N/A                | \$293,165        | \$293,165        | \$293,165        | \$293,165        | <b>\$0.0061</b>                              |  |                  |
| Other  | N/A                | \$0              | \$0              | \$0              | \$0              | <b>\$667</b>                                 |  |                  |
| Subtotal   | N/A                | \$436,733        | \$436,733        | \$436,733        | \$436,733        |  |  |                  |
| <b>Utility Revenue Reduction</b>   |                    |                  |                  |                  |                  |  |  |                  |
| Revenue Reduction - Electric   | N/A                | N/A              | \$3,798,497      | N/A              | N/A              |  |  |                  |
| Subtotal   | N/A                | N/A              | \$3,798,497      | N/A              | N/A              |  |  |                  |
| <b>Participant Costs</b>   |                    |                  |                  |                  |                  |  |  |                  |
| Incremental Capital Costs  | \$1,590,778        | N/A              | N/A              | \$1,590,778      | \$1,590,778      |  |  |                  |
| Incremental O&M Costs  | \$77,266           | N/A              | N/A              | \$77,266         | \$77,266         |  |  |                  |
| Subtotal   | \$1,668,044        | N/A              | N/A              | \$1,668,044      | \$1,668,044      |  |  |                  |
| <b>Total Costs</b>   |                    |                  |                  |                  |                  |  |  |                  |
|  | \$1,668,044        | \$436,733        | \$4,235,230      | \$2,104,776      | \$2,104,776      |  |  |                  |
| <b>Net Benefit (Cost)</b>  |                    |                  |                  |                  |                  |  |  |                  |
|  | \$2,423,619        | \$1,794,844      | (\$2,003,653)    | \$419,965        | \$419,965        |  |  |                  |
| <b>Benefit/Cost Ratio</b>  |                    |                  |                  |                  |                  |  |  |                  |
|  | 2.45               | 5.11             | 0.53             | 1.20             | 1.20             |  |  |                  |

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

2018 SD DSM Plan Cost-Effectiveness Analysis

| <b>PORTFOLIO TOTAL</b>   |                    |                  |                  |                  |                  | <b>2018</b>                                  | <b>ELECTRIC</b>                              | <b>GOAL</b>      |
|--|--------------------|------------------|------------------|------------------|------------------|--|--|------------------|
| <b>2018 Net Present Cost Benefit Summary Analysis For All Participants</b> |                    |                  |                  |                  |                  | <b>Input Summary and Totals</b>              |  |                  |
|  | <b>Participant</b> | <b>Utility</b>   | <b>Rate</b>      | <b>Total</b>     | <b>Societal</b>  | <b>Program "Inputs" per Customer kW</b>      |  |                  |
|  | <b>Test</b>        | <b>Test</b>      | <b>Impact</b>    | <b>Resource</b>  | <b>Test</b>      | Lifetime (Weighted on Generator kWh)         | A  | 14.8 years       |
|  | <b>(\$Total)</b>   | <b>(\$Total)</b> | <b>(\$Total)</b> | <b>(\$Total)</b> | <b>(\$Total)</b> | Annual Hours                                 | B  | 8760             |
| <b>Benefits</b>  |                    |                  |                  |                  |                  | Gross Customer kW                            | C  | 1 kW             |
| <b>Avoided Revenue Requirements</b>  |                    |                  |                  |                  |                  | Generator Peak Coincidence Factor            | D  | 28.82%           |
| Generation   | N/A                | \$862,637        | \$862,637        | \$862,637        | \$862,637        | Gross Load Factor at Customer                | E  | 13.35%           |
| T & D  | N/A                | \$524,825        | \$524,825        | \$524,825        | \$524,825        | Transmission Loss Factor (Energy)            | F  | 4.642%           |
| Marginal Energy  | N/A                | \$1,800,623      | \$1,800,623      | \$1,800,623      | \$1,800,623      | Transmission Loss Factor (Demand)            | G  | 8.174%           |
| Environmental Externality  | N/A                | N/A              | N/A              | N/A              | \$0              | Societal Net Benefit (Cost)                  | H  | \$201            |
| Subtotal   | N/A                | \$3,188,085      | \$3,188,085      | \$3,188,085      | \$3,188,085      | <b>Program Summary per Participant</b>       |  |                  |
| <b>Participant Benefits</b>  |                    |                  |                  |                  |                  | Gross kW Saved at Customer                   | I  | 0.06 kW          |
| Bill Reduction - Electric  | \$5,143,968        | N/A              | N/A              | N/A              | N/A              | Net coincident kW Saved at Generator         | $(I \times D) / (1 - G)$                     |                  |
| Rebates from Xcel Energy   | \$377,063          | N/A              | N/A              | \$377,063        | \$377,063        | Gross Annual kWh Saved at Customer           | $(B \times E \times I)$                      |                  |
| Incremental Capital Savings  | \$0                | N/A              | N/A              | \$0              | \$0              | Net Annual kWh Saved at Generator            | $(B \times E \times I) / (1 - F)$            |                  |
| Incremental O&M Savings  | \$0                | N/A              | N/A              | \$0              | \$0              | <b>Program Summary All Participants</b>      |  |                  |
| Subtotal   | \$5,521,031        | N/A              | N/A              | \$377,063        | \$377,063        | Total Participants                           | J  | 72,333           |
| <b>Total Benefits</b>  |                    |                  |                  |                  |                  | <b>Total Budget</b>                          | K  | <b>\$774,408</b> |
|  | \$5,521,031        | \$3,188,085      | \$3,188,085      | \$3,565,148      | \$3,565,148      | Gross kW Saved at Customer                   | $(J \times I)$                               | 4,403 kW         |
| <b>Costs</b>   |                    |                  |                  |                  |                  | <b>Net coincident kW Saved at Generator</b>  | $(I \times D) / (1 - G) \times J$            |                  |
| <b>Utility Project Costs</b>   |                    |                  |                  |                  |                  | Gross Annual kWh Saved at Customer           | $(B \times E \times I) \times J$             |                  |
| Customer Services  | N/A                | \$161,550        | \$161,550        | \$161,550        | \$161,550        | <b>Net Annual kWh Saved at Generator</b>     | $((B \times E \times I) / (1 - F)) \times J$ |                  |
| Utility Administration   | N/A                | \$117,950        | \$117,950        | \$117,950        | \$117,950        | <b>Societal Net Benefits</b>                 | $(J \times I \times H)$                      |                  |
| Advertising & Promotion  | N/A                | \$117,845        | \$117,845        | \$117,845        | \$117,845        | <b>Utility Program Cost per kWh Lifetime</b> |  |                  |
| Measurement & Verification   | N/A                | \$0              | \$0              | \$0              | \$0              | <b>Utility Program Cost per kW at Gen</b>    |  |                  |
| Rebates  | N/A                | \$377,063        | \$377,063        | \$377,063        | \$377,063        | <b>\$0.0097</b>                              |  |                  |
| Other  | N/A                | \$0              | \$0              | \$0              | \$0              | <b>\$560</b>                                 |  |                  |
| Subtotal   | N/A                | \$774,408        | \$774,408        | \$774,408        | \$774,408        |  |  |                  |
| <b>Utility Revenue Reduction</b>   |                    |                  |                  |                  |                  |  |  |                  |
| Revenue Reduction - Electric   | N/A                | N/A              | \$5,143,968      | N/A              | N/A              |  |  |                  |
| Subtotal   | N/A                | N/A              | \$5,143,968      | N/A              | N/A              |  |  |                  |
| <b>Participant Costs</b>   |                    |                  |                  |                  |                  |  |  |                  |
| Incremental Capital Costs  | \$1,829,505        | N/A              | N/A              | \$1,829,505      | \$1,829,505      |  |  |                  |
| Incremental O&M Costs  | \$77,266           | N/A              | N/A              | \$77,266         | \$77,266         |  |  |                  |
| Subtotal   | \$1,906,770        | N/A              | N/A              | \$1,906,770      | \$1,906,770      |  |  |                  |
| <b>Total Costs</b>   |                    |                  |                  |                  |                  |  |  |                  |
|  | \$1,906,770        | \$774,408        | \$5,918,376      | \$2,681,178      | \$2,681,178      |  |  |                  |
| <b>Net Benefit (Cost)</b>  |                    |                  |                  |                  |                  |  |  |                  |
|  | \$3,614,260        | \$2,413,677      | (\$2,730,290)    | \$883,970        | \$883,970        |  |  |                  |
| <b>Benefit/Cost Ratio</b>  |                    |                  |                  |                  |                  |  |  |                  |
|  | 2.90               | 4.12             | 0.54             | 1.33             | 1.33             |  |  |                  |

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