

# 2018 Consolidated Filing

## Conservation Improvement Program



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# Minnesota Power 2018 Conservation Improvement Program (“CIP”) Consolidated Filing

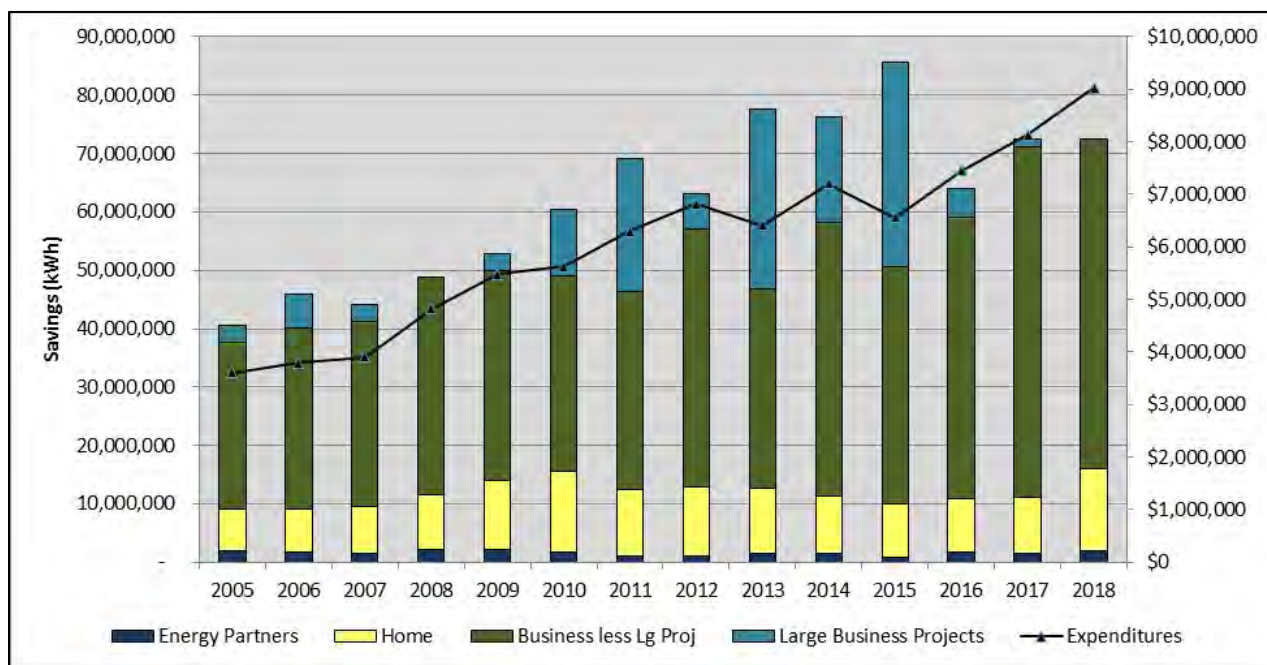
## EXECUTIVE SUMMARY

Minnesota Power (or, “the Company”) is pleased to report its 2018 energy conservation program results:

- Minnesota Power achieved energy savings of **2.6%** of retail energy sales,<sup>1</sup> well above the state’s 1.5% energy-savings goal established in Minn. Stat. § 216B.241.
- The Company achieved energy savings totaling **72,479,534 kWh**, which is **126%** of the approved energy-savings goal for the year. The Company also achieved demand savings of **8,096 kW**, which is **89%** of the approved demand-savings goal. The proposed energy-savings target for 2018 was well above the state 1.5% energy-savings goal for CIP, aligning with the preferred plan in Minnesota Power’s 2015 Integrated Resource Plan.<sup>2</sup>
- Expenditures totaled **\$9,031,446**, which was **87%** of the approved program budget for 2018.

Minnesota Power has met or exceeded Minnesota’s 1.5% energy savings goal since 2010, and this strong level of performance continued in 2018. Figure 1, below, illustrates historical and recent kWh energy-savings achievements, along with CIP expenditures. As noted in the chart below, large customer projects (one million kWh or greater) have become a much smaller portion of Minnesota Power’s overall CIP energy savings, and in 2018 there were no such projects.

**Figure 1: Minnesota Power’s 2005–2018 CIP Achievements**



<sup>1</sup> In accordance with Minnesota Rules part 7690.1200, 2013–2015, weather-normalized average retail energy sales were used to calculate the electric savings goal for Minnesota Power’s 2017–2019 Triennial CIP. This equated to 2,939,363,960 kWh, net of CIP exempt customers at the time of the Triennial Filing. Minnesota Power had one newly exempt customer in 2017. Adjusted weather-normalized average retail energy sales excluding this customer is 2,749,752,960 kWh. Savings for 2018 are calculated as a percentage of this adjusted figure.

<sup>2</sup> Docket No. E015/RP-15-690.

**Table 1: Minnesota Power's 2018 CIP Expenditures and Energy Savings**

| <i>2018</i>                                                                         | <i>Expenditures</i> | <i>Energy Savings (kWh) at busbar</i> |
|-------------------------------------------------------------------------------------|---------------------|---------------------------------------|
| <b>Direct Savings Programs:</b>                                                     |                     |                                       |
| Energy Partners (Low Income)                                                        | \$557,678           | 1,863,183                             |
| Power of One <sup>®</sup> Home (Residential)                                        | \$1,933,950         | 14,133,230                            |
| Power of One <sup>®</sup> Business<br>(Business/Commercial/Industrial/Agricultural) | \$3,842,799         | 56,483,120                            |
| <b>Indirect Savings Programs:</b>                                                   |                     |                                       |
| Customer Engagement                                                                 | \$676,420           |                                       |
| Energy Analysis                                                                     | \$912,559           |                                       |
| Research & Development                                                              | \$232,861           |                                       |
| Evaluation & Program Development                                                    | \$735,067           |                                       |
| Regulatory Charges                                                                  | \$140,113           |                                       |
| <b>Total</b>                                                                        | <b>\$9,031,446</b>  | <b>72,479,534</b>                     |

**STATE OF MINNESOTA  
BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION**

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In the Matter of Minnesota Power's  
2018 Conservation Improvement Program  
Consolidated Filing

Reporting on CIP Tracker Account Activity,  
Financial Incentives Report, Proposed CPA  
Factors and 2018 Project Evaluations

Docket No. E-015/M-19-31  
E-015/CIP-16-117.02

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**SUMMARY OF FILING**

Minnesota Power (or, "the Company") hereby files with the Minnesota Public Utilities Commission ("MPUC or Commission") and the Department of Commerce, Division of Energy Resources ("Department") its annual Conservation Improvement Program ("CIP") Consolidated Filing in compliance with Minn. Stat. § 216B.241. Minnesota Power requests approval of the following:

- Recovery of the 2018 CIP Tracker Account activity year-end balance of (\$1,519,260)
- A revised Conservation Program Adjustment (CPA), to be first implemented without proration on July 1, 2019, of (\$0.000137)/kWh
- A variance of Minn. Rules 7820.3500 and 7825.2600 to permit the continued combination of the Conservation Program Adjustment with the Fuel and Purchased Power Clause Adjustment on customer bills

Minnesota Power submits its Conservation Improvement Program Consolidated Filing via eFiling with the Department of Commerce, Division of Energy Resources to comply with annual CIP project evaluation filing requirements.

**STATE OF MINNESOTA  
BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION**

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In the Matter of Minnesota Power’s  
2018 Conservation Improvement Program  
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E-015/CIP-16-117.02

**Minnesota Power’s Report**

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## **SECTION 1**

### **INTRODUCTION AND BACKGROUND**

In its August 4, 1993 Order in Docket No. E015/M-91-458, the Minnesota Public Utilities Commission combined future CIP tracker reports and Demand Side Management (“DSM”) financial incentives reports into a single submittal filed annually. This is the twenty-sixth annual filing by Minnesota Power in compliance with that Order. In addition, when the Commission established the Conservation Program Adjustment (“CPA”) in Docket No. E015/M-93-996, it required Minnesota Power to file each April 1 for a revised CPA factor. This submittal includes Minnesota Power’s proposed revised CPA factor. The Department requires each utility to annually file an evaluation of its authorized CIP programs. Since each program evaluation is the basis for the financial incentives to which Minnesota Power is authorized, a separate evaluation section of this filing has been included to fulfill those Department filing requirements. Finally, prior orders from the Department have required a response to various issues, and those have been included in this filing. For administrative ease, a separate section has been provided to properly respond to the various requirements established by recent Department orders.

### **ORGANIZATION OF FILING**

Minnesota Power respectfully submits this report on its electric CIP achievements for 2018. This report is organized into several sections. The sections and information addressed are:

- 1) **Summary**—Introduction and Background
- 2) **CIP Tracker Account Activity Report**, including 2018 expenditures and cost recovery by month.
- 3) **Financial Incentives Report**
- 4) **2019–2020 Proposed Conservation Program Adjustment**

This is the calculation of the CPA factor for the period from July 2019 through June 2020 based on estimated expenditures, cost recovery, and financial incentive.

5) **Compliance**

This section provides information to satisfy provisions in Minn. Stat. §§ 216B.2401, 216B.241, 216B.2411, and 216C.412, including spending requirements and caps. This section also includes all other ordered compliance requirements, including those required by the November 3, 2016 Decision for the CIP Triennial Filing. Subsequent to the approval of the CIP Triennial Filing, there was one customer granted exemption status by the Deputy Commissioner effective January 1, 2017.<sup>3</sup> Minnesota Power recalculated its minimum spending requirements and energy-savings goal accordingly and reported it in its Program Modification Request submitted August 9, 2017. This was acknowledged by the Department in its November 16, 2017 Decision. These changes are reflected in this filing.

6) **2018 CIP Status Report**

This section focuses on overall CIP achievements, participation, expenditures, energy conserved and demand reduced by each segment and program. Minn. Rule 7690.0550 states that this information must be included in a utility's annual program status report.

7) **2018 Evaluation & Results**

Minn. Rule 7690.0550 also requires a utility to provide information on the cost-effectiveness of its programs, as calculated from the utility, participant, ratepayer, and societal perspectives. This section includes all cost-effectiveness analyses as well as project information sheets.

8) **Research & Development**

9) **Success Stories**

10) **Appendix**

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<sup>3</sup> Docket No. E015/CIP-16-812.

Minnesota Power submits the following information:

A. Name, Address, and Telephone Number of Utility  
(Minn. Rules 7825.3500 (A) and 7829, subp. 3 (A))

Minnesota Power  
30 West Superior Street  
Duluth, MN 55802  
(218) 722-2641

B. Name, Address, and Telephone Number of Utility Attorney  
(Minn. Rules 7825.3500 (A) & 7829, subp. 3 (B))

David R. Moeller  
Senior Attorney  
Minnesota Power  
30 West Superior Street  
Duluth, MN 55802  
(218) 723-3963  
dmoeller@allete.com

C. Date of Filing and Date Proposed Rates Take Effect

This petition is being filed on April 1, 2019. The revised CPA factor is proposed to take effect without proration on July 1, 2019. Until MPUC approval, the existing CPA factor will remain in effect.

D. Statute Controlling Schedule for Processing the Petition

This petition is made pursuant to Minn. Stat. §§ 216B.241, 216B.16, subd. 6c, 216B.2401, and 216B.2411. These statutes do not contain schedules for processing petitions. Minn. Rule 7690.0550 outlines the schedule and information to be included in a utility's annual status report. Minn. Rule 7825.3200 requires that utilities serve notice to the Commission at least 90 days prior to the proposed effective date of modified rates.

Furthermore, Minnesota Power's request for approval of conservation cost recovery, a revised CPA factor, and required reports fall within the definition of a "Miscellaneous Tariff Filing" under Minn. Rules 7829.0100, subp. 11 and 7829.1400, subp. 1 and 4 permitting comments in response to a miscellaneous filing to be filed within 30 days, and reply comments to be filed no later than 10 days thereafter.

E. Utility Employee Responsible for Filing

Leah Peterson  
Supervisor – Customer Business Analytics  
Minnesota Power  
30 West Superior Street  
Duluth, MN 55802  
(218) 355-3014  
lpeterson@mnpower.com

F. Official Service List

Pursuant to Minn. Rule 7829.0700, Minnesota Power respectfully requests the following persons to be included on the Commission’s official service list for this proceeding:

Leah Peterson  
Supervisor – Customer Business Analytics  
Minnesota Power  
30 West Superior Street  
Duluth, MN 55802  
(218) 355-3014  
lpeterson@mnpower.com

David R. Moeller  
Senior Attorney  
Minnesota Power  
30 West Superior Street  
Duluth, MN 55802  
(218) 723-3963  
dmoeller@allete.com

G. Service on Other Parties

Minnesota Power is eFiling this report and notifying all persons on Minnesota Power’s CIP Service List that this report has been filed through eDockets. A copy of the service list is included with the filing along with a certificate of service.

H. Filing Summary

As required by Minn. Rule 7829.1300, subp. 1, Minnesota Power is including a summary of this filing on a separate page.

## SUMMARY OF FILING REQUESTS

Based on information provided throughout this filing, Minnesota Power requests the following:

### **From the MPUC:**

- Approval of the 2018 CIP Tracker activity, resulting in a year-end 2018 balance of **(\$1,519,260)**.
- Approval to book CIP Financial Incentives of **\$2,780,073** as per Exhibit 2 of this filing to the CIP Tracker.
- Approval to implement Minnesota Power's proposed revised CPA factor of **(\$0.000137)/kWh** without proration for bills rendered on and after July 1, 2019.
- Approval of a variance of Minn. Rules 7820.3500 and 7825.2600 to permit Minnesota Power to continue combining the Conservation Program Adjustment with the Fuel Clause Adjustment on customer bills.
- Approval of an updated Carrying Charge rate of **0.4792%** for the CIP Tracker as per Exhibit 1 of this filing.

### **From the Department:**

- Approval of the individual 2018 CIP Project Evaluations.
- Approval of Minnesota Power's response to various Department orders as indicated in the "Compliance" section of this filing.

## PROCEDURE AND AUTHORITY

Minnesota Power is submitting this petition in accordance with Minn. Stat. § 216B.241 and in compliance with MPUC and Department rules and orders relating to annual filings associated with Minnesota Power sponsored energy conservation improvement activities, including Minn. Rule 7690.0550. The financial incentives section of this petition is submitted in accordance with Minn. Stat. § 216B.16, subd. 6c.

This petition constitutes a Miscellaneous Filing as that term is defined in Minn. Rules 7829.0100, subp. 11 and 7829.1300, which identify the time frame and procedures required to process this petition.

All correspondence with respect to this filing should be sent to:

Leah Peterson  
Supervisor – Customer Business Analytics  
Minnesota Power  
30 West Superior Street  
Duluth, MN 55802  
(218) 355-3014  
(218) 723-3931 (fax)  
lpeterson@mnpower.com

David R. Moeller  
Senior Attorney  
Minnesota Power  
30 West Superior Street  
Duluth, MN 55802  
(218) 723-3963  
(218) 723-3955 (fax)  
dmoeller@allete.com

Respectfully submitted,

A handwritten signature in black ink that reads "Leah Peterson". The signature is written in a cursive, flowing style.

Date: April 1, 2019

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Leah Peterson  
Supervisor – Customer Business Analytics  
Minnesota Power

## **SECTION 2**

### **CIP TRACKER ACCOUNT ACTIVITY REPORT**

On May 16, 1991, in Docket No. E015/M-91-90, the Commission ordered Minnesota Power to file an annual CIP Tracker Report by February 15 of each year, which would contain information as shown in Exhibit 1. The annual filing date was changed to April 30 by Commission Order dated August 4, 1993, in Docket No. E015/M-91-458, and later changed to April 1 of each year. This report is in compliance with these orders.

Page 1 of Exhibit 1 summarizes the CIP Tracker Account activity for 2017 and 2018 and presents the tracker balance month-by-month throughout each year. Tracker Account activity for 2018 includes the following:

- **\$9,031,446** of CIP Expenditures were charged to Tracker 2
- **\$4,625,957** was recovered through Base Rates
- **\$12,221,811** was recovered through the Conservation Program Adjustment (CPA) factor
- **(\$13,336)** in Carrying Charges were booked to Tracker 2
- **\$2,994,840** of Financial Incentives were booked to Tracker 2
- **(\$1,519,260)** was the resulting CIP Tracker Account balance at the end of 2018

In 1994, Minnesota Power was allowed to implement a conservation cost recovery mechanism known as the CPA. This addition to customers' bills was combined with the existing Fuel and Purchased Power Clause Adjustment and presented as a new billing line item known as the "Resource Adjustment," thereby reflecting both demand-side and supply-side costs. The original CPA factor was implemented in January 1994. Subsequent Commission action has modified the CPA factor yearly.

The following two CPA factors were in effect during this reporting period:

- **\$0.005052/kWh**, effective July 2017, as approved by the MPUC Order dated June 22, 2017, in Docket No. E015/M-17-178 and consistent with the subsequent compliance filing submitted July 30, 2017.
- **\$0.002741/kWh**, effective October 2018, as approved by the MPUC Order dated September 4, 2018, in Docket No. E015/M-18-116 and consistent with the subsequent compliance filing submitted September 14, 2018.

Minnesota Power previously utilized the weighted cost of capital for its Carrying Charge rate as approved in the March 7, 2011 Minnesota Power Retail Rate, Docket No. E015/GR-09-1151. In its Order dated September 16, 2015, in Docket No. E015/M-15-80, the Commission included an order point requiring Minnesota Power to instead calculate the carrying charge on its CIP tracker account using the rate from its multi-year credit facility, effective as of the date of the order. There were two carrying charge rates in effect during the 2018 program year. Page 3 of Exhibit 1 reflects the rate that was effective June 2017 through August 2018. Page 4 of Exhibit 1 reflects the rate that was effective beginning September 2018. As part of this filing, Minnesota Power presents an updated carrying charge rate and proposes an effective date of July 1, 2019, or upon approval by the Commission. The proposed carrying charge rate can be found on page 5 of Exhibit 1.

Since the Commission has previously approved a carrying charge mechanism on the prior month Tracker balance net of deferred tax, Minnesota Power references this adjustment procedure for informational purposes only.

### **CIP TRACKER ACCOUNT CHANGES**

During the 1999 Legislative Session, a law was enacted allowing certain large electric and gas customers to be excluded from CIP minimum spending requirements. Several of Minnesota Power's Large Power customers petitioned the Department for approval to be excluded from CIP minimum spending. Those petitions requested an effective date of January 1, 2000. As a result, Minnesota Power created a second internal CIP Tracker Account as of January 1, 2000, to segregate cost responsibility. Minnesota Power continued to recover costs from all retail customers through the first CIP Tracker Account balance with the application of CPA and Conservation Cost Recovery Charge ("CCRC") revenues until its balance was zero. While there remained a balance in the first Tracker, a carrying charge was applied. CIP expenditures during 2000 and beyond have been and will continue to be charged to the second CIP Tracker Account (Tracker 2).

Once the first CIP Tracker balance was eliminated, the customers who had successfully petitioned out of minimum spending requirements no longer had the CPA factor applied. The CCRC revenue from those customers was calculated each month and a credit was applied to their bills (CPA2) equal to the CCRC revenue. In this way, the approved exempt customers have not been charged for subsequent conservation costs resulting from Minnesota Power's ongoing CIP efforts. Further, because the credit to the bill is specific to each individual customer, no cross-subsidy or rate design issues are raised. Beginning in November 2009, and in accordance with

Minnesota Power's Retail Rate Case, Docket No. E015/GR-08-415, customers who have opted out of CIP no longer have CCRC revenue included in their base rates. As such, these customers no longer require a credit to their bills (CPA2). Customers remaining within the CIP umbrella will continue to pay for conservation through the CPA and CCRC processes without disruption. For those newly exempt customers as of January 1, 2012, under Docket No. E,G-999/CI-11-1149, a separate CIP Tracker Account was not established. According to the MPUC Order dated March 1, 2012, these newly exempt customers are not responsible for any CIP-related charges and cost recovery through both the CCRC and the CPA ceased effective January 1, 2012, with refunds issued for any amounts collected prior to the Order date.

Effective January 1, 2014, two additional exemption petitions involving three customers were approved by the Department under Docket No. E015/CIP-13-852. Minnesota Power recalculated its minimum spending requirements and energy-savings goal accordingly and reported this in a Budget Modification Request on November 26, 2014. The Department acknowledged the changes in its December 10, 2014 letter. Effective January 1, 2016, one additional exemption petition was approved by the Department under Docket No. E015/CIP-15-889. Minnesota Power recalculated its minimum spending requirements and energy-savings goal accordingly and reported it in an Informational Notice on December 20, 2016.

Effective January 1, 2017, an additional exemption was approved by the Department under Docket No. E015/CIP-16-812. Minnesota Power recalculated its minimum spending requirements and energy-savings goal accordingly and reported it in its Program Modification Request submitted August 9, 2017. This was acknowledged by the Department in its November 16, 2017 Decision. These changes are reflected in this filing.

**MINNESOTA POWER**  
**New CIP Tracker #2 Account**  
**Activity 2000 - 2018**

|                                               | JAN<br>(a)       | FEB<br>(b)       | MAR<br>(c)       | APR<br>(d)       | MAY<br>(e)       | JUN<br>(f)       | JUL<br>(g)       | AUG<br>(h)       | SEP<br>(i)       | OCT<br>(j)       | NOV<br>(k)       | DEC<br>(l)       | TOTAL<br>YEAR<br>(m) |
|-----------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------------|
| <b>2017</b>                                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                      |
| 1 BEGINNING OF PERIOD BALANCE                 | \$4,029,103.76   | \$3,169,552.10   | \$2,407,076.84   | \$2,287,268.66   | \$2,239,925.90   | \$1,973,716.45   | \$7,074,102.30   | \$6,374,322.53   | \$5,662,594.59   | \$4,737,244.76   | \$3,992,330.67   | \$3,929,972.47   | \$4,029,103.76       |
| 2 LESS: NON-DEDUCTIBLE BALANCE 3/             | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)             |
| 3 PLUS: AMORT OF NON-DEDUCT BALANCE 3/        | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00               |
| 4 NET TAX DEDUCTIBLE PERIOD BALANCE           | \$4,029,103.76   | \$3,169,552.10   | \$2,407,076.84   | \$2,287,268.66   | \$2,239,925.90   | \$1,973,716.45   | \$7,074,102.30   | \$6,374,322.53   | \$5,662,594.59   | \$4,737,244.76   | \$3,992,330.67   | \$3,929,972.47   | \$4,029,103.76       |
| 5 COMPOSITE TAX RATE                          | 41.370%          | 41.370%          | 41.370%          | 41.370%          | 41.370%          | 41.370%          | 41.370%          | 41.370%          | 41.370%          | 41.370%          | 41.370%          | 41.370%          | 41.370%              |
| 6 DEFERRED TAXES ON NET BEGIN BAL 1/          | \$1,666,840.23   | \$1,311,243.70   | \$995,807.69     | \$946,243.04     | \$926,657.34     | \$816,526.50     | \$2,926,556.12   | \$2,637,057.23   | \$2,342,615.38   | \$1,959,798.16   | \$1,651,627.20   | \$1,625,829.61   | \$1,625,829.61       |
| 7 NET INVESTMENT (L20 - L25)                  | \$2,362,263.53   | \$1,858,308.40   | \$1,411,269.15   | \$1,341,025.62   | \$1,313,268.56   | \$1,157,189.95   | \$4,147,546.18   | \$3,737,265.30   | \$3,319,979.21   | \$2,777,446.60   | \$2,340,703.47   | \$2,304,142.86   | \$2,340,142.86       |
| 8 MONTHLY CARRYING CHARGE RATE 2/             | 0.3021%          | 0.3021%          | 0.3021%          | 0.3021%          | 0.3021%          | 0.3021%          | 0.3229%          | 0.3229%          | 0.3229%          | 0.3229%          | 0.3229%          | 0.3229%          | 0.3229%              |
| 9 MONTHLY CARRYING CHARGE 0483 (L26 * L27)    | \$7,136.00       | \$5,614.00       | \$4,263.00       | \$4,051.00       | \$3,967.00       | \$3,737.00       | \$13,392.00      | \$12,068.00      | \$10,720.00      | \$8,968.00       | \$7,558.00       | \$7,440.00       | \$88,914.00          |
| 10 CIP PROGRAM CHARGES TO DEFERRED DEBIT      |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                      |
| 11 FINANCIAL INCENTIVES 4/                    | \$274,724.01     | \$306,623.57     | \$823,121.94     | \$915,539.42     | \$572,856.71     | \$432,374.38     | \$592,456.51     | \$756,908.68     | \$520,948.24     | \$610,601.28     | \$1,365,291.41   | \$957,590.81     | \$8,129,336.96       |
| 12 Adjust. - Prior Year Rounding correction   | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00               |
| 13 LESS: CIP CARRYING CHARGES RECOVERED       | (\$6,232.00)     | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00               |
| 14 Adjust -                                   | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | (\$6,232.00)         |
| 15 LESS: CIP LOST MARGINS RECOVERED           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00               |
| 16 LESS: CIP COSTS RECOVERED via CCRC 0482 5/ | (\$474,181.02)   | (\$445,006.36)   | (\$382,531.61)   | (\$410,267.61)   | (\$347,913.26)   | (\$354,023.38)   | (\$357,409.57)   | (\$386,270.86)   | (\$380,653.63)   | (\$353,607.70)   | (\$361,530.00)   | (\$388,419.79)   | (\$4,641,914.79)     |
| 17 LESS: CIP COSTS RECOVERED via CPA 0481 6/  | (\$660,998.65)   | (\$629,706.67)   | (\$564,661.51)   | (\$556,865.57)   | (\$495,119.90)   | (\$510,201.15)   | (\$948,218.71)   | (\$1,094,433.76) | (\$1,076,364.44) | (\$1,010,875.67) | (\$1,073,677.61) | (\$1,191,025.73) | (\$9,812,149.17)     |
| 18 END OF PERIOD BALANCE                      | \$3,169,552.10   | \$2,407,076.84   | \$2,287,268.66   | \$2,239,925.90   | \$1,973,716.45   | \$7,074,102.30   | \$6,374,322.53   | \$5,662,594.59   | \$4,737,244.76   | \$3,992,330.67   | \$3,929,972.47   | \$3,315,557.76   | \$3,315,557.76       |
| 19 TOTAL CPA & CCRC REVENUE                   | \$1,141,411.67   | \$1,074,712.83   | \$947,193.12     | \$967,233.18     | \$843,033.16     | \$864,224.53     | \$1,305,628.28   | \$1,480,704.62   | \$1,457,018.07   | \$1,364,483.37   | \$1,435,207.61   | \$1,579,445.52   | \$14,460,295.96      |
| <b>2018</b>                                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                      |
| 20 BEGINNING OF PERIOD BALANCE                | \$3,315,557.76   | \$2,011,709.61   | \$600,435.73     | \$238,552.68     | (\$695,271.67)   | (\$1,435,969.86) | (\$2,008,499.25) | (\$2,779,827.33) | (\$349,234.44)   | (\$1,123,999.77) | (\$1,136,220.22) | (\$1,398,507.53) | \$3,315,557.76       |
| 21 LESS: NON-DEDUCTIBLE BALANCE 3/            | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)         | (\$0.00)             |
| 22 PLUS: AMORT OF NON-DEDUCT BALANCE 3/       | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00               |
| 23 NET TAX DEDUCTIBLE PERIOD BALANCE          | \$3,315,557.76   | \$2,011,709.61   | \$600,435.73     | \$238,552.68     | (\$695,271.67)   | (\$1,435,969.86) | (\$2,008,499.25) | (\$2,779,827.33) | (\$349,234.44)   | (\$1,123,999.77) | (\$1,136,220.22) | (\$1,398,507.53) | \$3,315,557.76       |
| 24 COMPOSITE TAX RATE                         | 28.742%          | 28.742%          | 28.742%          | 28.742%          | 28.742%          | 28.742%          | 28.742%          | 28.742%          | 28.742%          | 28.742%          | 28.742%          | 28.742%          | 28.742%              |
| 25 DEFERRED TAXES ON NET BEGIN BAL 1/         | \$952,957.61     | \$578,205.58     | \$172,577.24     | \$68,564.81      | (\$199,834.98)   | (\$412,726.46)   | (\$577,282.85)   | (\$798,977.97)   | (\$100,376.96)   | (\$323,060.01)   | (\$326,572.42)   | (\$401,959.03)   | \$952,957.61         |
| 26 NET INVESTMENT (L20 - L25)                 | \$2,362,600.15   | \$1,433,504.03   | \$427,858.49     | \$169,987.87     | (\$495,436.69)   | (\$1,023,243.40) | (\$1,431,216.40) | (\$1,980,849.36) | (\$248,857.48)   | (\$800,939.76)   | (\$809,647.80)   | (\$996,548.50)   | \$2,362,600.15       |
| 27 MONTHLY CARRYING CHARGE RATE 2/            | 0.3229%          | 0.3229%          | 0.3229%          | 0.3229%          | 0.3229%          | 0.3229%          | 0.3229%          | 0.3229%          | 0.4063%          | 0.4063%          | 0.4063%          | 0.4063%          | 0.4063%              |
| 28 MONTHLY CARRYING CHARGE 0483 (L26 * L27)   | \$7,629.00       | \$4,629.00       | \$1,382.00       | \$549.00         | (\$1,600.00)     | (\$3,304.00)     | (\$4,621.00)     | (\$6,396.00)     | (\$1,011.00)     | (\$3,254.00)     | (\$3,290.00)     | (\$4,049.00)     | (\$13,336.00)        |
| 29 CIP PROGRAM CHARGES TO DEFERRED DEBIT      |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                      |
| 30 FINANCIAL INCENTIVES 4/                    | \$460,371.93     | \$366,369.25     | \$1,215,470.91   | \$584,192.39     | \$664,218.36     | \$787,741.34     | \$652,251.08     | \$971,514.88     | \$711,861.38     | \$1,008,911.49   | \$684,630.59     | \$923,912.70     | \$9,031,446.30       |
| 31 Adjust. - Prior Year Rounding correction   | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00               |
| 32 LESS: CIP CARRYING CHARGES RECOVERED       | (\$88,914.00)    | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00               |
| 33 Adjust -                                   | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | (\$88,914.00)        |
| 34 LESS: CIP LOST MARGINS RECOVERED           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00           | \$0.00               |
| 35 LESS: CIP COSTS RECOVERED via CCRC 0482 5/ | (\$351,216.47)   | (\$450,362.91)   | (\$403,213.06)   | (\$390,679.67)   | (\$365,183.12)   | (\$346,891.96)   | (\$356,551.47)   | (\$385,388.77)   | (\$388,030.08)   | (\$346,439.38)   | (\$364,571.89)   | (\$388,514.26)   | (\$4,537,043.04)     |
| 36 LESS: CIP COSTS RECOVERED via CPA 0481 6/  | (\$1,331,718.61) | (\$1,331,909.22) | (\$1,175,522.90) | (\$1,127,886.07) | (\$1,038,133.43) | (\$1,010,074.77) | (\$1,062,406.69) | (\$1,143,977.22) | (\$1,097,585.63) | (\$671,438.56)   | (\$579,056.01)   | (\$652,102.28)   | (\$12,221,811.39)    |
| 37 END OF PERIOD BALANCE                      | \$2,011,709.61   | \$600,435.73     | \$238,552.68     | (\$695,271.67)   | (\$1,435,969.86) | (\$2,008,499.25) | (\$2,779,827.33) | (\$349,234.44)   | (\$1,123,999.77) | (\$1,136,220.22) | (\$1,398,507.53) | (\$1,519,260.37) | \$2,011,709.61       |
| 38 TOTAL CPA & CCRC REVENUE                   | \$1,771,849.08   | \$1,782,272.13   | \$1,578,735.96   | \$1,518,565.74   | \$1,403,316.55   | \$1,356,966.73   | \$1,418,958.16   | \$1,529,365.99   | \$1,485,615.71   | \$1,017,877.94   | \$943,627.90     | \$1,040,616.54   | \$16,847,768.43      |

1/ Deferred taxes are determined based on the composite tax rate in effect at the time in question. The effective rate was 41.370% between 1/1/1993 and 12/31/2017. As of 1/1/2018 the effective rate is 28.742%.

2/ Monthly carrying charge rate of 1.0675% is applicable for the period 3/1/94-10/31/2009

3/ The Large Power Incentive Program is deductible for tax purposes over the life of the contract extension by IRS Ruling. Thus, no tax benefit is realized on the LPP funds except for the amortized amount.

4/ Financial Incentives approved in Docket No. E015/M-17-178 dated 6/22/17 and in Docket No. E015/M-18-116 dated 9/4/18.

5/ Rate of \$0.001209033/kWh, effective Nov 2009 through May 2011 as approved in Docket No. E-015/GR-08-415, \$0.001466772/kWh, effective June 2011 through Nov 2018 as approved in Docket No. E-015/GR-09-1151, \$0.003299105/kWh, effective Dec 2018 as approved in Docket No. E-015/GR-16-664.

6/ CPA OF 1.03% thru Jul 1996, 1.83% Aug 96, 2.75% Jul 97, 1.62% Jul 01, 1.30% Jul 02, 0.92% Jul 03, 2.02% Jul 04, 0.86% Sep 05, 1.22% Oct 09, \$0.001448/kWh Oct 10, \$0.003728/kWh Feb 12, \$0.004537/kWh Jan 13, \$0.004602/kWh Nov 13;

7/ Year-end tracker balance may be larger than anticipated during the first year or two of the transition due to the new fiscal year calculation per MPUC Order dated September 16, 2015, Docket No. E015/M-15-80.

Sources:

Hyperion &amp; CIP Tracker

| CHARGE #                                   | DESCRIPTION | TOTAL              | JAN               | FEB               | MAR               | APRIL             | MAY               | JUNE              | JULY              | AUG               | SEPT              | OCT               | NOV             | DEC               |
|--------------------------------------------|-------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------|-------------------|
| <b>Direct Impact Projects</b>              |             |                    |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                 |                   |
| CIP: ENERGY PARTNERS (Low Income)          |             | \$557,677.60       | \$ 14,424.37      | \$ 18,955.67      | \$ 23,479.33      | \$ 43,510.87      | \$ 18,294.92      | \$ 53,783.66      | \$ 85,725.12      | \$ 74,380.97      | \$ 55,423.71      | \$ 81,161.75      | \$ 51,491.73    | \$ 37,045.50      |
| CIP: ONE HOME (Residential)                |             | \$1,933,949.72     | \$ 76,381.74      | \$ 23,092.37      | \$ 434,370.98     | \$ 41,583.92      | \$ 172,132.47     | \$ 120,528.70     | \$ 53,184.55      | \$ 311,260.08     | \$ 153,962.00     | \$ 152,566.41     | \$ 163,017.48   | \$ 231,469.02     |
| CIP: ONE BUSINESS (C/Mg)                   |             | \$3,842,798.95     | \$ 179,879.39     | \$ 236,886.43     | \$ 240,582.65     | \$ 437,434.93     | \$ 245,993.70     | \$ 372,158.21     | \$ 315,491.48     | \$ 401,920.42     | \$ 385,394.66     | \$ 513,866.92     | \$ 301,330.42   | \$ 212,659.74     |
| <b>Total Direct Impact Projects</b>        |             | \$6,334,426.27     | \$270,685.50      | \$278,934.47      | \$698,432.96      | \$522,529.72      | \$438,421.09      | \$546,470.57      | \$454,401.15      | \$787,561.47      | \$594,780.37      | \$747,136.08      | \$515,839.63    | \$481,174.26      |
| <b>Indirect Impact Projects</b>            |             |                    |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                 |                   |
| CIP: CUSTOMER ENGAGEMENT                   |             | \$676,420.04       | \$ 37,557.94      | \$ 28,437.45      | \$ 239,788.57     | \$ (18,177.57)    | \$ 27,482.55      | \$ 25,800.12      | \$ 22,191.16      | \$ 37,435.90      | \$ 27,494.28      | \$ 67,447.73      | \$ 29,459.70    | \$ 151,522.21     |
| CIP: RENEWABLE ENERGY*                     |             | \$0.00             | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00          | \$0.00            |
| CIP: ENERGY ANALYSIS                       |             | \$912,558.84       | \$ 39,473.47      | \$ 3,035.30       | \$ 97,528.77      | \$ 32,046.35      | \$ 107,429.79     | \$ 99,064.27      | \$ 94,846.42      | \$ 86,607.67      | \$ 1,734.23       | \$ 143,966.87     | \$ 73,427.83    | \$ 133,367.87     |
| CIP: EVALUATION & PLANNING                 |             | \$735,067.43       | \$ 74,152.02      | \$ 54,744.60      | \$ 126,795.12     | \$ 42,408.04      | \$ 69,437.87      | \$ 69,652.69      | \$ 53,913.51      | \$ 51,433.59      | \$ 33,708.51      | \$ 46,996.98      | \$ 35,615.53    | \$ 76,708.97      |
| CIP: REGULATORY CHARGES                    |             | \$140,113.12       | \$ -              | \$ -              | \$ 38,003.91      | \$ -              | \$ -              | \$ 37,045.86      | \$ (15,150.00)    | \$ -              | \$ 39,450.47      | \$ 1,479.33       | \$ -            | \$ 39,283.55      |
| CIP: RESEARCH & DEVELOPMENT                |             | \$232,860.60       | \$ 38,503.00      | \$ 1,217.43       | \$ 14,921.58      | \$ 5,385.85       | \$ 23,467.06      | \$ 9,707.83       | \$ 42,048.84      | \$ 8,476.25       | \$ 14,693.52      | \$ 2,295.50       | \$ 30,287.90    | \$ 41,855.84      |
| <b>Total Indirect Impact Projects</b>      |             | \$2,697,020.03     | \$189,686.43      | \$87,434.78       | \$517,037.95      | \$61,662.67       | \$227,797.27      | \$241,270.77      | \$197,849.93      | \$183,953.41      | \$117,081.01      | \$261,716.41      | \$168,790.96    | \$442,738.44      |
| <b>Total Project Charges</b>               |             | \$9,031,446.30     | \$460,371.93      | \$366,369.25      | \$1,215,470.91    | \$584,192.39      | \$664,218.36      | \$787,741.34      | \$652,251.08      | \$971,514.88      | \$711,861.38      | \$1,008,911.49    | \$684,630.59    | \$923,912.70      |
| <b>Other CIP Tracker Account Charges</b>   |             |                    |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                 |                   |
| CIP: FINANCIAL INCENTIVES - TRACKER 1      |             | \$2,994,840.00     | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$2,994,840.00    | \$0.00            | \$0.00            | \$0.00          | \$0.00            |
| CIP: CARRYING CHARGE - TRACKER 2           |             | \$ (13,336.00)     | \$7,629.00        | \$4,629.00        | \$1,382.00        | \$549.00          | \$ (1,600.00)     | \$ (33,304.00)    | \$ (4,621.00)     | \$ (6,396.00)     | \$ (1,011.00)     | \$ (3,254.00)     | \$ (3,290.00)   | \$ (4,049.00)     |
| <b>Total Charges to the Deferred Debit</b> |             | \$2,981,504.00     | \$7,629.00        | \$4,629.00        | \$1,382.00        | \$549.00          | \$ (1,600.00)     | \$ (33,304.00)    | \$ (4,621.00)     | \$2,988,444.00    | \$ (1,011.00)     | \$ (3,254.00)     | \$ (3,290.00)   | \$ (4,049.00)     |
| <b>CIP Tracker Account Recovery</b>        |             |                    |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                 |                   |
| CIP: CPA RECOVERY - TRACKER 2              |             | \$ (12,221,811.39) | \$ (1,331,718.61) | \$ (1,331,909.22) | \$ (1,175,522.90) | \$ (1,127,886.07) | \$ (1,038,133.43) | \$ (1,010,074.77) | \$ (1,062,406.69) | \$ (1,143,977.22) | \$ (1,097,585.63) | \$ (671,438.56)   | \$ (579,056.01) | \$ (652,102.28)   |
| CIP: CCRC CLEARANCE - TRACKER 2            |             | \$ (4,625,957.04)  | \$ (440,130.47)   | \$ (450,362.91)   | \$ (403,213.06)   | \$ (390,679.67)   | \$ (365,183.12)   | \$ (346,891.96)   | \$ (356,551.47)   | \$ (395,388.77)   | \$ (388,030.08)   | \$ (346,439.38)   | \$ (364,571.89) | \$ (388,514.26)   |
| YEAR END CARRYING CHARGE COST RE           |             | \$89,914.00        | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00          | \$0.00            |
| CIP: CARRYING CHARGE - TRACKER 2           |             | \$ (89,914.00)     | \$ (89,914.00)    | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00          | \$0.00            |
| CLOSING                                    |             | \$ (89,914.00)     | \$ (89,914.00)    | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00            | \$0.00          | \$0.00            |
| <b>Total CIP Tracker Account Recovery</b>  |             | \$ (16,847,768.43) | \$ (1,860,763.08) | \$ (1,782,272.13) | \$ (1,578,735.96) | \$ (1,518,565.74) | \$ (1,403,316.55) | \$ (1,356,966.73) | \$ (1,418,958.16) | \$ (1,529,365.99) | \$ (1,485,615.71) | \$ (1,017,877.94) | \$ (943,627.90) | \$ (1,040,616.54) |

\*As a result of the February 10, 2017 MPU/C approval of Minnesota Power's SolarSense program (Docket No. E015/M-16-085), the Company filed a Program Modification request on August 9, 2017, to remove the Customer Renewable Energy (RE) program from the 2017-2019 CIP Triennial Plan (Docket No. E015/CIP-16-112). On November 16, 2017, the Deputy Commissioner approved Minnesota Power's petition. Further, due to the enactment of new legislation in 2017 closing the Made in Minnesota (MIM) program, the MIM assessment will remain in CIP under CIP Regulatory Charges for 2017 and then be discontinued thereafter. The Customer Renewable Energy program section has therefore been removed from—Minnesota Power's Consolidated Billing.

Minnesota Power  
CIP Tracker Account  
Carrying Charge Rate  
Effective June 2017 through August 2018\*

The MPUC's Order to require that Minnesota Power calculate the carrying charge using the rate from its multi-year credit facility—an agreement in place that serves as the Company's vehicle for short-term liquidity.

**Schedule 1 \$400 Million Credit Agreement**

| Status                          | Pricing Level I | Pricing Level II | Pricing Level III        | Pricing Level IV       | Pricing Level V        |
|---------------------------------|-----------------|------------------|--------------------------|------------------------|------------------------|
| Senior Debt Rating              | ≥ A/<br>A/ A2   | ≥ A-/<br>A-/A3   | ≥ BBB+/<br>BBB+/<br>Baa1 | ≥ BBB/<br>BBB/<br>Baa2 | < BBB/<br>BBB/<br>Baa2 |
| Applicable for facility fees    | 0.100%          | 0.125%           | 0.175%                   | 0.225%                 | 0.275%                 |
| Applicable Margin for ABR loans | 0%              | 0%               | 0.075%                   | 0.275%                 | 0.475%                 |

“Alternate Base Rate” means, for any day, a rate per annum equal to the greatest of (a) the Prime Rate in effect on such day, (b) the Federal Funds Effective Rate in effect on such day plus 1/2 of 1%, and (c) the Adjusted LIBO Rate for a one month Interest Period on such day (or if such day is not a Business Day, the immediately preceding Business Day) plus 1% per annum (provided that, for the avoidance of doubt, the Adjusted LIBO Rate for any day shall be based on the rate appearing on the Reuters Screen LIBOR01 Page 1 (or on any successor or substitute page of such service) at approximately 11:00 a.m. London time on such day). Any change in the Alternate Base Rate due to a change in the Prime Rate, the Federal Funds Effective Rate or the Adjusted LIBO Rate shall be effective from and including the effective date of such change in the Prime Rate, the Federal Funds Effective Rate or the Adjusted LIBO Rate, respectively.

\*This rate was effective for Minnesota Power from December 15, 2016 to March 15, 2017.

The monthly Carrying Charge equivalent to the alternate base rate loan and facility fees from the multi-year credit facility is **0.3229%**.

$$= (\text{Prime Rate} + \text{Facility Fees}) * (1 \text{ Month} / 12 \text{ Months})$$

$$= (3.75\% + 0.125\%) * (1/12)$$

Minnesota Power  
CIP Tracker Account  
Carrying Charge Rate  
Effective September 2018\*

The MPUC's Order to require that Minnesota Power calculate the carrying charge using the rate from its multi-year credit facility—an agreement in place that serves as the Company's vehicle for short-term liquidity.

**Schedule 1 \$400 Million Credit Agreement**

| Status                          | Pricing Level I | Pricing Level II | Pricing Level III        | Pricing Level IV       | Pricing Level V        |
|---------------------------------|-----------------|------------------|--------------------------|------------------------|------------------------|
| Senior Debt Rating              | ≥ A/<br>A/ A2   | ≥ A-/<br>A-/A3   | ≥ BBB+/<br>BBB+/<br>Baa1 | ≥ BBB/<br>BBB/<br>Baa2 | < BBB/<br>BBB/<br>Baa2 |
| Applicable for facility fees    | 0.100%          | 0.125%           | 0.175%                   | 0.225%                 | 0.275%                 |
| Applicable Margin for ABR loans | 0%              | 0%               | 0.075%                   | 0.275%                 | 0.475%                 |

“Alternate Base Rate” means, for any day, a rate per annum equal to the greatest of (a) the Prime Rate in effect on such day, (b) the Federal Funds Effective Rate in effect on such day plus 1/2 of 1%, and (c) the Adjusted LIBO Rate for a one month Interest Period on such day (or if such day is not a Business Day, the immediately preceding Business Day) plus 1% per annum (provided that, for the avoidance of doubt, the Adjusted LIBO Rate for any day shall be based on the rate appearing on the Reuters Screen LIBOR01 Page 1 (or on any successor or substitute page of such service) at approximately 11:00 a.m. London time on such day). Any change in the Alternate Base Rate due to a change in the Prime Rate, the Federal Funds Effective Rate or the Adjusted LIBO Rate shall be effective from and including the effective date of such change in the Prime Rate, the Federal Funds Effective Rate or the Adjusted LIBO Rate, respectively.

\*This rate was effective for Minnesota Power from March 22, 2018 to June 13, 2018.

The monthly Carrying Charge equivalent to the alternate base rate loan and facility fees from the multi-year credit facility is **0.4063%**.

$$\begin{aligned}
 &= (\text{Prime Rate} + \text{Facility Fees}) * (1 \text{ Month}/12 \text{ Months}) \\
 &= (4.75\% + 0.125\%) * (1/12)
 \end{aligned}$$

Minnesota Power  
CIP Tracker Account  
Carrying Charge Rate  
Proposed to be effective July 1, 2019\*

The MPUC's Order to require that Minnesota Power calculate the carrying charge using the rate from its multi-year credit facility—an agreement in place that serves as the Company's vehicle for short-term liquidity.

**Schedule 1 \$400 Million Credit Agreement**

| Status                                                                              | Pricing Level I  | Pricing Level II | Pricing Level III | Pricing Level IV          | Pricing Level V           |
|-------------------------------------------------------------------------------------|------------------|------------------|-------------------|---------------------------|---------------------------|
| Senior Debt Rating                                                                  | ≥ A+/<br>A+ / A1 | ≥ A/<br>A / A2   | ≥ A-/<br>A- / A3  | ≥ BBB+/<br>BBB+ /<br>Baa1 | < BBB+/<br>BBB+ /<br>Baa1 |
| Applicable Margin for Eurodollar Rate loans and Letter of Credit participation fees | 0.800%           | 0.900%           | 1.00%             | 1.075%                    | 1.275%                    |
| Applicable for facility fees                                                        | 0.075%           | 0.100%           | 0.125%            | 0.175%                    | 0.225%                    |
| Applicable Margin for ABR loans                                                     | 0%               | 0%               | 0%                | 0.075%                    | 0.275%                    |

“Alternate Base Rate” means, for any day, a rate per annum equal to the greatest of (a) the Prime Rate in effect on such day, (b) the NYFRB Rate in effect on such day plus ½ of 1% and (c) the Adjusted LIBO Rate for a one month Interest Period on such day (or if such day is not a Business Day, the immediately preceding Business Day) plus 1%; provided that for the purpose of this definition, the Adjusted LIBO Rate for any day shall be based on the LIBO Screen Rate (or if the LIBO Screen Rate is not available for such one month Interest Period, the Interpolated Rate) at approximately 11:00 a.m. London time on such day. Any change in the Alternate Base Rate due to a change in the Prime Rate, the NYFRB Rate or the Adjusted LIBO Rate shall be effective from and including the effective date of such change in the Prime Rate, the NYFRB Rate or the Adjusted LIBO Rate, respectively. If the Alternate Base Rate is being used as an alternate rate of interest pursuant to Section 3.4, then the Alternate Base Rate shall be the greater of clauses (a) and (b) above and shall be determined without reference to clause (c) above. For the avoidance of doubt, if the Alternate Base Rate as determined pursuant to the foregoing would be less than 1.00%, such rate shall be deemed to be 1.00% for purposes of this Agreement.

\*This rate was effective for Minnesota Power since March 26, 2019.

The monthly Carrying Charge equivalent to the alternate base rate loan and facility fees from the multi-year credit facility is **0.4792%**.

$$= (\text{Prime Rate} + \text{Prime Rate Margin} + \text{Facility Fees}) * (1 \text{ Month} / 12 \text{ Months})$$

$$= (5.50\% + 0.075 + 0.175\%) * (1/12)$$

## **SECTION 3**

### **FINANCIAL INCENTIVES REPORT**

As part of the Commission Orders dated August 21, 1992, and August 4, 1993, in Docket No. E015/M-91-458, Minnesota Power was required to file, on or before April 30 of each year, the Financial Incentives Report. In compliance with Docket No. E015/M-95-898, Minnesota Power is now required to file all CIP-related reports/requests in one submittal by April 1 of each year.

In this filing and as shown in Exhibit 2, Minnesota Power has calculated its financial incentives for 2018 performance consistent with the outcome of the procedures as set forth in Docket No. E,G-999/CI-08-133. For 2018, Minnesota Power adjusted its average sales to reflect the removal of one newly exempt customer in 2017.<sup>4</sup> The adjustments to the average retail energy sales are also reflected in its 2018 financial incentive calculation.

### **BACKGROUND**

In 1989, the Commission initiated an investigation into methods of encouraging utilities to conduct additional and more effective conservation programs. On February 28, 1991, in Docket No. E999/CI-89-212, the Commission ordered all Minnesota electric utilities to file financial incentive proposals by the end of 1991. Minnesota Power filed its proposal on September 30, 1991, in Docket No. E015/M-91-458, requesting the inclusion of a Double Shared Savings Incentive for large conservation projects, the removal of the lost margin disincentive, and the establishment of rates for determining lost margin revenues. The MPUC approved Minnesota Power's proposal, with modifications, on March 12, 1992, and ordered an additional filing to detail Minnesota Power's plan for measuring lost margins and a plan for evaluating the financial incentive. On April 27, 1992, Minnesota Power filed the required plans with the MPUC. An Order approving the Minnesota Power submission, with modifications, was issued on August 21, 1992. The MPUC approved continuation of Minnesota Power's Financial Incentive Pilot Project, minus the Double Shared Savings Incentive, through calendar year 1994 in Docket E015/M-93-1051, and extended its application through 1995 in Docket No. E015/M-94-1165. Finally, the MPUC, after its own review of financial incentives in Minnesota, approved new financial incentives for the electric

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<sup>4</sup> Minnesota Power's 2017-2019 CIP Triennial Filing, Docket No. E015/CIP-16-117, Program Modification Request submitted August 9, 2017, and approved by the Deputy Commissioner on November 16, 2017.

utilities in the state. Minnesota Power received approval for lost margin recovery in Docket No. E015/M-95-898, dated October 26, 1995.

In 1994, Minnesota Power participated in a statewide workgroup effort to develop recommendations as to what the future of financial incentives in Minnesota should be. Again, during late 1998 and all of 1999, the Commission reviewed the need for financial incentives and the incentive structure. As a result, financial incentives for conservation efforts were significantly modified by Commission action on January 27, 2000, in Docket No. E015/M-99-538 and E,G-999/CI-98-1759.

On April 7, 2000, in Docket No. E015/M-99-538, the MPUC issued an Order approving a new Shared Savings financial incentive mechanism. The effective date for the new incentive was January 1, 1999. Features of the new incentive included an increasing incentive award when conservation efforts resulted in increasing energy savings. There was a cap on the incentive so as not to become so large as to dwarf the conservation spending. Before any incentive was awarded, however, the utility must have achieved at least 90% of its approved energy-savings goal.

#### **FINANCIAL INCENTIVES—2010 AND BEYOND**

2007 Minnesota Laws Chapter 136, Article 2, (also known as the Next Generation Energy Act) enacted changes to state energy conservation goals and programs, including establishing an annual energy-savings goal for each utility of 1.5% of annual retail energy sales. This law included the following addition to Minn. Stat. § 216B.241:

Subd. 2c. Performance incentives. By December 31, 2008, the Commission shall review an incentive plan for energy conservation improvement it has approved under section 216B.16, subdivision 6c, and adjust the utility performance incentives to recognize making progress toward and meeting the energy-savings goals established in subdivision 1c.

On October 14, 2008, in Docket No. E,G-999/CI-08-133, the Commission issued a Notice of Comment period soliciting comments on: (1) whether adjustments are needed to existing conservation incentive plans; and (2) if so, what procedures the Commission should use to determine what specific adjustments are needed, including procedures for considering the nature, scope, and timing for implementation of those adjustments.

The commenting parties recommended that the Commission: (1) adopt a procedural calendar allowing time for the parties to confer and agree on recommended revisions to the incentive formula; (2) establish stakeholder workgroups to evaluate the current incentives and

recommend adjustments; and (3) establish procedural guidelines for the discussion and evaluation of possible revisions in 2009, with implementation of any changes to occur in 2010.

On December 29, 2008, the Commission issued an Order Establishing Procedural Framework for Consideration of Utility Performance Incentives for Energy Conservation. The Commission required utilities to provide further information on how the current incentive model and any other proposed mechanisms would function under the new savings goal. Pursuant to the Commission's Order, a stakeholder workgroup was established to evaluate the current incentives and recommend adjustments. Members of the workgroup included: the Center for Energy and the Environment; CenterPoint Energy; Greater Minnesota Gas; Great Plains Natural Gas; Interstate Power and Light; Izaak Walton League of America; Minnesota Energy Resource Corporation (PNG and NMU); Minnesota Power; the Department; Otter Tail Power Company; and Xcel Energy. The workgroup participants jointly requested Commission approval of a new Shared Savings DSM financial incentive to be applied voluntarily to all gas and electric utilities that participate in the CIP. The new program was intended to replace the current incentive plans and apply to CIP activities beginning with the 2010 project year. The proposal was the product of a series of workgroup meetings initiated and facilitated by the Department. Based on its review and analysis of the workgroup recommendations and the parties' comments, the Commission concluded in its January 27, 2010 Order in Docket No. E,G-999/CI-08-133 that the proposed New Shared Savings Model, as detailed by the Department and the workgroup, is a reasonable approach to achieve the requirements and purposes of the Next Generation Energy Act (Minn. Stat. § 216B.241), taking into consideration the factors listed in Minn. Stat. § 216B.16, subd. 6c and the Commission's duty under Minn. Stat. § 216B.03 to ensure just and reasonable rates. Also in its January 27, 2010 Order,<sup>5</sup> the Commission required electric and gas utilities to submit yearly incentive proposals on or before February 1 of each year integrating the Commission's decision regarding utility performance incentives for energy conservation. Consistent with the Commission's Order, this new shared savings performance incentive shall be in operation for the length of each utility's current triennial CIP. For Minnesota Power, the approved mechanism applied to 2011–2013 program years.

On December 20, 2012, the Commission approved modifications to the incentive mechanism based on the Department's July 9, 2012 Report on the Impacts of the 2011 New Shared

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<sup>5</sup> In the Matter of Commission Review of Utility Performance Incentives for Energy Conservation Pursuant to Minn. Stat. § 216B.241, Subd. 2C, Docket No. E,G-999/CI-08-133, January 27, 2010.

Savings DSM Financial Incentive on Investor-Owned Utility Conservation Achievements and Customer Costs.<sup>6</sup> Modifications included establishment of two caps on the incentive mechanism, one as a percent of net benefits and the other as a continuation of the existing cap of 125 percent of a utility's 1.5 percent calibration level.<sup>7</sup> According to the December 20, 2012 Order, the Commission required all utilities except Otter Tail Power and Minnesota Power to make a compliance filing on or before February 1, 2013, integrating the Commission's decision into their individual incentive proposals. The Commission required Otter Tail Power and Minnesota Power to make their compliance filings on or before February 1, 2014, under the modified incentive mechanism. The modifications applied to the 2014–2016 program years.

On August 5, 2016, the Commission approved modifications based on the Department's January 19 and February 19, 2016 proposal to modify the Shared Savings DSM Financial Incentive mechanism. The approved modifications include the following:

For electric utilities: 1) Authorize financial incentives for a utility that achieves energy savings of at least 1.0 percent of the utility's retail sales; 2) For a utility that achieves energy savings equal to 1.0 percent of retail sales, award the utility a share of the net benefits as set forth in Attachment A (of the Commission's Order). 3) For each additional 0.1 percent of energy savings the utility achieves, increase the net benefits awarded to the utility by an additional 0.75 percent until the utility achieves savings of 1.7 percent of retail sales. 4) For savings levels of 1.7 percent and higher, award the utility a share of the net benefits equal to the Net Benefits Cap.

In addition, for all utilities, set the following Net Benefits Caps: 1) 13.5 percent in 2017, 2) 12.0 percent in 2018, and 3) 10.0 percent in 2019. For all utilities, set the following Conservation Improvement Plan (CIP) Expenditure Caps: 1) 40 percent in 2017, 2) 35 percent in 2018, and 3) 30 percent in 2019.

In regard to the February 1 compliance filing, the Commission's decision included direction that "utilities may discontinue the annual February 1 compliance filing because a scale of net benefits will no longer be required since the Department's proposal sets percentages at certain savings thresholds and calibrates the mechanism to dollars per unit of energy."

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<sup>6</sup> Id., December 20, 2012.

<sup>7</sup> Per a Commission Order on November 19, 2013, in Docket No. E,G-999/CI-08-133, the incentive cap shall be at 30 percent of net benefits for Minnesota Power.

2018

UTILITY

EXHIBIT 2

**Minnesota Power - 2018 Program Performance**

| Inputs                                                                  |               | Location:                                                          |
|-------------------------------------------------------------------------|---------------|--------------------------------------------------------------------|
| 2013 Weather-Normalized Sales (kWh)                                     | 2,753,584,344 |                                                                    |
| 2014 Weather-Normalized Sales (kWh)                                     | 2,793,956,879 |                                                                    |
| 2015 Weather-Normalized Sales (kWh)                                     | 2,701,717,658 |                                                                    |
| 3-year Weather-Normalized Sales Average (kWh)                           | 2,749,752,960 |                                                                    |
| 1.0% Energy Savings                                                     | 27,497,530    |                                                                    |
| Increase Energy Savings per 0.1% Increase in Achievement Level          | 2,749,753     |                                                                    |
| Approved CIP Budget                                                     | \$10,127,880  | From Commissioner's Order approving 2017-2019 Triennial CIP Filing |
| Approved CIP Energy Savings Goal (kWh)                                  | 57,390,222    |                                                                    |
| Estimated Net Benefits at Energy Savings Goal                           | \$16,218,110  | From Utility 2017-2019 Triennial CIP Filing.                       |
| Energy savings at 1.5% (kWh)                                            | 41,246,294    |                                                                    |
| Incentive Calibration                                                   |               |                                                                    |
| Max Percent of Net Benefits Awarded                                     | 12.0%         | maximum net benefits awarded                                       |
| Max Percent Expenditures Awarded                                        | 35.0%         |                                                                    |
| Earning Threshold                                                       | 1.0%          |                                                                    |
| Achievement Level Where Net Benefits Cap Begins                         | 1.7%          |                                                                    |
| Increase in Net Benefits Awarded Per 0.1% Increase in Achievement Level | 7.5%          | % Points                                                           |

**Actual 2018 Achievements**

|                                     |              |
|-------------------------------------|--------------|
| Expenditures                        | \$8,891,333  |
| Energy Saved (first year kWh saved) | 72,479,534   |
| Net Benefits Achieved               | \$23,167,277 |

**Shared Savings Incentive Results**

|                                   |             |
|-----------------------------------|-------------|
| Achievement Level                 | 2.64%       |
| Percent of Net Benefits Awarded   | 12.00%      |
| Financial Incentive Award         | \$2,780,073 |
| Incentive/First Year kWh Saved \$ | \$0.0384    |
| Incentive/Net Benefits            | 12.00%      |
| Incentive/CIP Expenditures        | 31.27%      |

**Estimated Incentive Levels by Achievement Level**

| Achievement Level (% of sales) | Energy Saved | Percent of Net Benefits Awarded | Estimated Net Benefits Achieved | Incentive Award | Average Incentive per unit Saved | Incremental Incentive Units Saved |
|--------------------------------|--------------|---------------------------------|---------------------------------|-----------------|----------------------------------|-----------------------------------|
| 0.0%                           | 0            | 0.00%                           | \$0                             | \$0             | \$0.000                          | -                                 |
| 0.1%                           | 2,749,753    | 0.00%                           | \$777,063                       | \$0             | \$0.000                          | \$0.000                           |
| 0.2%                           | 5,499,506    | 0.00%                           | \$1,554,125                     | \$0             | \$0.000                          | \$0.000                           |
| 0.3%                           | 8,249,259    | 0.00%                           | \$2,331,188                     | \$0             | \$0.000                          | \$0.000                           |
| 0.4%                           | 10,999,012   | 0.00%                           | \$3,108,250                     | \$0             | \$0.000                          | \$0.000                           |
| 0.5%                           | 13,748,765   | 0.00%                           | \$3,885,313                     | \$0             | \$0.000                          | \$0.000                           |
| 0.6%                           | 16,498,518   | 0.00%                           | \$4,662,376                     | \$0             | \$0.000                          | \$0.000                           |
| 0.7%                           | 19,248,271   | 0.00%                           | \$5,439,438                     | \$0             | \$0.000                          | \$0.000                           |
| 0.8%                           | 21,998,024   | 0.00%                           | \$6,216,501                     | \$0             | \$0.000                          | \$0.000                           |
| 0.9%                           | 24,747,777   | 0.00%                           | \$6,993,564                     | \$0             | \$0.000                          | \$0.000                           |
| 1.0%                           | 27,497,530   | 6.75%                           | \$7,770,626                     | \$524,517       | \$0.019                          | \$0.191                           |
| 1.1%                           | 30,247,283   | 7.50%                           | \$8,547,689                     | \$641,077       | \$0.021                          | \$0.042                           |
| 1.2%                           | 32,997,036   | 8.25%                           | \$9,324,751                     | \$769,292       | \$0.023                          | \$0.047                           |
| 1.3%                           | 35,746,788   | 9.00%                           | \$10,101,814                    | \$909,163       | \$0.025                          | \$0.051                           |
| 1.4%                           | 38,496,541   | 9.75%                           | \$10,878,877                    | \$1,060,690     | \$0.028                          | \$0.055                           |
| 1.5%                           | 41,246,294   | 10.50%                          | \$11,655,939                    | \$1,223,874     | \$0.030                          | \$0.059                           |
| 1.6%                           | 43,996,047   | 11.25%                          | \$12,433,002                    | \$1,398,713     | \$0.032                          | \$0.064                           |
| 1.7%                           | 46,745,800   | 12.00%                          | \$13,210,064                    | \$1,585,208     | \$0.034                          | \$0.068                           |
| 1.8%                           | 49,495,553   | 12.00%                          | \$13,987,127                    | \$1,678,455     | \$0.034                          | \$0.034                           |
| 1.9%                           | 52,245,306   | 12.00%                          | \$14,764,190                    | \$1,771,703     | \$0.034                          | \$0.034                           |
| 2.0%                           | 54,995,059   | 12.00%                          | \$15,541,252                    | \$1,864,950     | \$0.034                          | \$0.034                           |
| 2.1%                           | 57,744,812   | 12.00%                          | \$16,318,315                    | \$1,958,198     | \$0.034                          | \$0.034                           |
| 2.2%                           | 60,494,565   | 12.00%                          | \$17,095,378                    | \$2,051,445     | \$0.034                          | \$0.034                           |
| 2.3%                           | 63,244,318   | 12.00%                          | \$17,872,440                    | \$2,144,693     | \$0.034                          | \$0.034                           |
| 2.4%                           | 65,994,071   | 12.00%                          | \$18,649,503                    | \$2,237,940     | \$0.034                          | \$0.034                           |
| 2.5%                           | 68,743,824   | 12.00%                          | \$19,426,565                    | \$2,331,188     | \$0.034                          | \$0.034                           |
| 2.6%                           | 71,493,577   | 12.00%                          | \$20,203,628                    | \$2,424,435     | \$0.034                          | \$0.034                           |
| 2.7%                           | 74,243,330   | 12.00%                          | \$20,980,691                    | \$2,517,683     | \$0.034                          | \$0.034                           |
| 2.8%                           | 76,993,083   | 12.00%                          | \$21,757,753                    | \$2,610,930     | \$0.034                          | \$0.034                           |
| 2.9%                           | 79,742,836   | 12.00%                          | \$22,534,816                    | \$2,704,178     | \$0.034                          | \$0.034                           |
| 3.0%                           | 82,492,589   | 12.00%                          | \$23,311,878                    | \$2,797,425     | \$0.034                          | \$0.034                           |

## **SECTION 4**

### **2019–2020 PROPOSED CONSERVATION PROGRAM ADJUSTMENT**

CIP costs are recovered by utilities through base rates via the Conservation Cost Recovery Charge and through an annual CIP adjustment factor called the Conservation Program Adjustment.<sup>8</sup> Minnesota Power files a recalculation of its CPA each April as part of its CIP Consolidated Filing. Minnesota Power’s CPA has previously been calculated by dividing the year-end CIP tracker balance of the previous year by the forecasted sales (kWh) subject to CIP for the current year. In accordance with the Commission Order dated September 16, 2015, Docket No. E015/M-15-80, Minnesota Power adjusted its CPA calculation to use a fiscal year approach<sup>9</sup> and provided calculation of a new CPA in its September 25, 2015, compliance filing.<sup>10</sup> The proposed CPA for the 2019–2020 period follows the new fiscal year approach which is described further in the background section below.

### **BACKGROUND**

On October 6, 1993, Minnesota Power filed with the Commission its request for a CPA. In its Order in Docket No. E015/M-93-996, the Commission approved Minnesota Power’s proposed CIP adjustment. In addition, the Commission ordered Minnesota Power to address the issues surrounding the appropriate basis for calculating conservation costs in its next rate filing. The Company did so in Docket No. E015/GR-94-001. A significant portion of conservation costs are recovered from base rates. However, past expenditures, financial incentives, carrying charges, and current expenditures not recovered through base rates remain to be recovered and credit balances remain to be returned to customers through the CPA mechanism. A format for determining a CPA factor was presented in Minnesota Power’s October 6, 1993, filing. That general format has been utilized herein.

In response to 1993 changes in Minnesota Statutes, the MPUC initiated a CIP Adjustment Implementation Study Group. That group prepared and filed with the MPUC, on November 8, 1993, its “Report of the CIP Adjustment Implementation Study Group.” Among other things, the

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<sup>8</sup> Also referred to as CCRA in other utility filings.

<sup>9</sup> Non-calendar year of July 1–June 30.

<sup>10</sup> Compliance Filing, Order Approving Tracker Account and Financial Incentive, Setting Rider Adjustment and Reducing Carrying Charges for Minnesota Power’s 2014 Consolidated Filing, September 25, 2015, Docket No. E015/M-15-80.

group agreed that electric utilities with CPA factors would file annually on April 1 for modification of their CPA factors. This section of the filing is in compliance with that agreement.

In its July 30, 2009, Comments regarding Minnesota Power's 2008 Conservation Improvement Program Consolidated Filing, the Department requested that Minnesota Power's allocation method for the CPA mechanism be changed from a percentage of revenue to a per-kWh basis, Docket No. E015/M-09-299 and E015/M-09-300. At the urging of the Department, Minnesota Power included a request to change from a percentage of revenue methodology to a per-kWh basis in the context of its general rate case filing, Docket No. E015/GR-09-1151. Subsequently, in Minnesota Power's 2009 Conservation Improvement Program Consolidated Filing, the Department again recommended that Minnesota Power's allocation method for the CPA mechanism be changed from a percentage of revenue to a per-kWh basis, Docket No. E015/M-10-266. In its September 22, 2010 Order, the MPUC approved a change in CPA allocation method to a per-kWh basis. This method has been in effect since October 1, 2010, and Minnesota Power has calculated the CPA mechanism using the per-kWh method in this filing.

On February 22, 2011, the Department requested a comparative analysis of four methods for allocation of conservation costs to customer classes, using 2008, 2009, and 2010 reference years. These methods were described in the context of Otter Tail Power's Annual CIP Adjustment Factor Filing, Docket No. E017/M-10-220, and the Commission ordered the following:

Required OTP in its next filing to provide a comparative analysis of the four methods for allocating conservation costs to customer classes as discussed in the record of this case, including: (1) the per-kWh energy-only method; (2) the percent-of-bill method, (3) the 50/50-split method, and (4) the percent-of-net benefits method. Required OTP to show the percent-of-net-benefits method based on a weighted average of the actual benefits achieved in OTP's 2007, 2008, and 2010 CIP. Required OTP, as part of its comparative analysis, to present a large General Service (LGS) rate design (intra-class allocation) that is consistent with each of the preceding methods.

The MPUC carefully considered the methods, recommendations, and arguments pertaining to CIP cost allocation options and, in its January 12, 2012 Order, made the decision not to change Minnesota Power's current method of CIP cost allocation, thereby maintaining the per-kWh method.<sup>11</sup>

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<sup>11</sup> In its Order, the MPUC noted that it "has moved toward uniformity in its selection of the per-kWh allocation method for electric utilities. It did so for sound reasons, which remain valid. Of all the methods under consideration, the per-kWh method is the most straightforward, the easiest for customers to understand, and the most consistent with the

On September 16, 2015, in relation to Minnesota Power's CPA calculation, the MPUC ordered the following:

Within 10 days of the date of this Order, Minnesota Power shall calculate and file in a compliance filing a CPA rate that uses a fiscal year approach, and recognizes that it has been generating revenue since July 1, 2015, at the higher rate of \$0.003425.

On September 25, 2015, Minnesota Power submitted its compliance filing providing the calculation of a new CPA rate using a fiscal year approach, and recognizing that Minnesota Power had been generating revenue since July 1, 2015, at the higher rate.

### **2019–2020 CPA DEVELOPMENT**

The CIP Tracker Account balance at year-end 2018 reflects the result of prior activity in Tracker 2, as indicated on page 1 of Exhibit 1. However, for CPA purposes, the 2018 year-end balance requires adjustments to properly calculate the proposed CPA factor. Using the new fiscal year approach, these factors have been expanded to include actual and anticipated expenditures and cost recovery through base rates (CCRC) and the current CPA rate for the remainder of the current CPA period (January 2019–June 2019) as well as anticipated financial incentives, anticipated CIP expenditures, and anticipated cost recovery through base rates for the new CPA period (July 2019–June 2020). The new approach is designed to achieve a zero Tracker balance at the end of the CPA period (fiscal year) rather than at the end of the calendar year. Higher (calendar) year-end Tracker balances should therefore be anticipated going forward which is a deviation from Minnesota Power's recent history of low year-end Tracker balances. Minnesota Power notes that actual program performance, expenditures and sales will lead to tracker balance fluctuation.

In accordance with the Commission Order dated September 16, 2015, Docket No. E015/M-15-80, Minnesota Power adjusted its CPA calculation to use a fiscal year approach.<sup>12</sup> Minnesota Power has calculated the CPA factor using a per-kWh methodology, as recommended by the Department and approved by the MPUC in its September 22, 2010, Order, Docket No. E015/M-10-266 and as reaffirmed in its January 12, 2012 Order, Docket No. E015/M-11-241.

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statutory goal of reducing individual utilities' overall energy usage by a set percentage—normally 1.5%—on an annual basis. It appears to hold the greatest potential for reducing overall energy usage by sending the clearest price signal. This simplicity was and is its greatest strength." See Docket Nos. E001/M-11-244; E015/M-11-241; and E017/M-11-185.

<sup>12</sup> Minnesota Power's 2014 Consolidated Filing, Order Approving Tracker Account and Financial Incentive, Setting Rider Adjustment and Reducing Carrying Charges, September 16, 2015, Docket No. E015/M-15-80.

Minnesota Power requests Commission approval of a proposed CPA factor of (\$0.000137) per kWh to be effective without proration with bills rendered on or after July 1, 2019. Minnesota Power is filing for CPA modification on April 1, 2019, making the anticipated effective period for this request July 1, 2019 through June 30, 2020. Until subsequent MPUC approval, the existing CPA factor will remain in effect. In December 2018 Minnesota Power implemented an updated CCRC when final rates were implemented as part of the rate case.<sup>13</sup> As that was not in effect at the time of the 2017 CIP Consolidated filing, Minnesota Power calculated the CPA factor proposed and approved in the 2017 filing using the CCRC in effect at that time. The CPA proposed for approval for July 2019 through June 2020 was calculated using the updated CCRC that is currently in effect.

Minnesota Power requests a variance to Minn. Rules 7820.3500 and 7825.2600, which require that the Fuel and Purchased Energy Adjustment (“FPE”) be stated as a separate line item on customers’ bills. The requested variance would allow Minnesota Power to continue combining the CPA and FPE on one line in customer bills, known as the Resource Adjustment.<sup>14</sup> The Commission has approved this variance several times in the past, most recently in Docket No. E015/M-18-116.

Minnesota Power will include a message referencing the change in the CPA in customers’ bills in the month in which the new factor goes into effect. Minnesota Power proposes the following message:

*Effective <DATE>, the Resource Adjustment line item on your bill has <increased/decreased> due to a change in the Conservation Improvement Program (CIP) billing factor. The CIP portion of the Resource Adjustment is <CPA Factor> per kilowatt-hour (kWh).*

Minnesota Power will work with the Commission’s Consumer Affairs Office in advance of implementing this proposed customer message.

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<sup>13</sup> In the Matter of the Application of Minnesota Power for Authority to Increase Rates for Electric Service in Minnesota, Docket No. E015/GR-16-664.

<sup>14</sup> <https://www.mnpower.com/Content/Documents/CustomerService/resource-adjustment.pdf>

**MINNESOTA POWER**  
**Conservation Program Adjustment**  
**Proposed for July 2019 - June 2020**

**Conservation Program Adjustment:**

|   |                                                   | <b>Jan 2019 - Jun 2019</b>          | <b>Jul 2019 - Jun 2020</b> |
|---|---------------------------------------------------|-------------------------------------|----------------------------|
| 1 | CIP Tracker 2 Account Balance at the end of 2018  | <sup>1/</sup> \$ (1,519,260)        | \$ (4,647,549)             |
| 2 | Financial Incentives claimed per Exhibit 2        | <sup>2/</sup> N/A                   | 2,780,073                  |
| 3 | CIP current year expenditures (actuals)           | <sup>3/</sup> \$ 780,540            | N/A                        |
|   | CIP expenditures approved or budgeted             | \$ 3,506,257                        | \$ 10,518,770              |
| 4 | CIP Cost Recovered through Base Rates (actuals)   | <sup>4/</sup> \$ (870,195)          | N/A                        |
|   | CIP Cost Recovered through Base Rates (estimated) | \$ (2,806,169)                      | \$ (9,026,008)             |
| 5 | CIP Cost Recovery through current CPA (actuals)   | <sup>5/</sup> \$ (1,396,121)        | N/A                        |
|   | CIP Cost Recovery through current CPA (estimated) | \$ (2,331,453)                      | N/A                        |
| 6 | Carrying Charges                                  | <sup>6/</sup> \$ (11,147)           | N/A                        |
| 7 | <b>Recoverable Tracker Balance</b>                | <sup>7/</sup> \$ <b>(4,647,549)</b> | \$ <b>(374,714)</b>        |

|   |                                  |                                                   |
|---|----------------------------------|---------------------------------------------------|
| 8 | kWh sales subject to CIP monthly | <sup>8/</sup> <b>2,735,896,000</b><br>227,991,333 |
|---|----------------------------------|---------------------------------------------------|

|             |                              |
|-------------|------------------------------|
| CCRC        | <sup>9/</sup> \$ 0.003299105 |
| Current CPA | \$ 0.002741                  |

|                                                                            |                      |
|----------------------------------------------------------------------------|----------------------|
| <b>Conservation Program Adjustment (per kWh methodology) Line 7/Line 8</b> | <b>\$ (0.000137)</b> |
|----------------------------------------------------------------------------|----------------------|

<sup>1/</sup> The prior year-end CIP Tracker Account Balance is per Exhibit 1, Page 1, line 37.

<sup>2/</sup> Financial Incentives per Exhibit 2 reflecting the originally approved CIP projects.

<sup>3/</sup> Actual CIP expenditures included for Jan-Feb 2019; Estimated expenditures for Mar-Jun 2019 and Jul 2019-Jun 2020 based on the 2019 modified budget as approved by the Deputy Commissioner on November 16, 2017, in the Company's 2017-2019 Triennial CIP Filing Program Modification Request in Docket No. E015/CIP-16-117.

<sup>4/</sup> Actual CIP Cost Recovery through Base Rates included for Jan-Feb 2019; Estimates for Mar-Jun 2019 based on the Company's approved conservation cost recovery charge (CCRC) [rate] applied to budgeted Mar-Jun 2019 sales subject to CIP\*; Estimates for Jul 2019- Jun 2020 based on approved CCRC applied to 2019 budgeted sales subject to CIP\*.

<sup>5/</sup> Actual CIP Cost Recovery through current CPA included for Jan-Feb 2019; Estimates for Mar-Jun 2019 based on the current CPA applied to 2019 budgeted sales subject to CIP\*.

<sup>6/</sup> Actual Carrying Charges included for Jan-Feb 2019

<sup>8/</sup> \*Total budget sales less competitive rate, economy, opt-out & unbilled sales.

<sup>9/</sup> New CCRC rate effective December 2018 as approved in Docket No. E015/GR-16-664.



## COMPLIANCE REPORTING

Minnesota Rules 7690 contains the requirements and procedures for CIP filings. Minn. Stat. §§ 216B.2401, 216B.241, and 216B.2411 contain provisions the Company must meet in its CIP. Compliance points are addressed in this section.

## STATUTORY REQUIREMENTS

### ***2018 Minimum Spending Requirement***

Minn. Stat. § 216B.241 requires that 1.5% of Minnesota Power's Retail Revenues (net of exempt customers) be spent on CIP. The following table shows 2018 spending in relation to the approved minimum spending requirement.<sup>15</sup>

| <b><i>Minimum Spending Requirement</i></b> | <b><i>Approved Spending</i></b> | <b><i>Actual Spending</i></b> | <b><i>Variance of Actual to Minimum Spending</i></b> |
|--------------------------------------------|---------------------------------|-------------------------------|------------------------------------------------------|
| \$2,438,354                                | \$10,327,880<br>(as modified)   | \$9,031,446                   | \$6,593,092                                          |

### ***2018 Achievements as a Percentage of Sales***

The Next Generation Energy Act of 2007 established an energy-savings goal of 1.5% of Gross Annual Retail Energy Sales (net of exempt customers). The table below shows Minnesota Power's achievements as a percent of 2013–2015 weather-normalized retail sales.

| <b><i>Year</i></b> | <b><i>Energy Savings Achieved (kWh)</i></b> | <b><i>Total Adjusted Sales (kWh)</i></b> | <b><i>Savings as % of Retail Sales</i></b> |
|--------------------|---------------------------------------------|------------------------------------------|--------------------------------------------|
| 2018               | 72,479,534                                  | 2,749,752,960                            | 2.64%                                      |

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<sup>15</sup> Effective January 1, 2017, one CIP exemption was approved by the Department under Docket No. E015/CIP-16-812. Minnesota Power recalculated its minimum spending requirements and energy-saving goal accordingly and reported it in its Program Modification Request submitted August 9, 2017, and approved by the Deputy Commissioner on November 16, 2017.

### **2018 Low Income Spending Requirement**

Minn. Stat. § 216B.241, subd. 7, requires utilities to spend 0.2% of residential electric Gross Operating Revenue (“GOR”) on low income electric programs, unless otherwise approved by the Commissioner. In its 2013 Decision,<sup>16</sup> the Department of Commerce approved Staff’s proposal to use a three-year average for electric revenues under the low income requirement on a prospective basis, beginning in 2015 for investor-owned utilities.

| <b><i>Minimum Spending Requirement using Three-year Average</i></b> | <b><i>Approved Spending</i></b> | <b><i>Actual Spending</i></b> | <b><i>Variance of Actual to Minimum Spending Requirement using Three-year Average</i></b> |
|---------------------------------------------------------------------|---------------------------------|-------------------------------|-------------------------------------------------------------------------------------------|
| \$195,929                                                           | \$395,150                       | \$557,678 <sup>(1)</sup>      | \$361,749                                                                                 |

(1) On November 21, 2018 Minnesota Power submitted a courtesy notification that the Company expected to exceed the Energy Partners Low Income budget by more than 25% anticipating Energy Partners spending for the program year to reach up to \$565,000 (or 143% of filed budget).

### **2018 Research & Development 10% Maximum Spending**

Minnesota Power complied with Minn. Stat. § 216B.241, subd. 2(c), which limits spending for Research & Development to 10% of the minimum spending requirement.<sup>17</sup>

| <b><i>Annual Spending Cap</i></b> | <b><i>Approved Spending</i></b>   | <b><i>Actual Spending</i></b> | <b><i>Variance of Actual to Cap</i></b> |
|-----------------------------------|-----------------------------------|-------------------------------|-----------------------------------------|
| \$243,800                         | \$243,800<br><i>(as modified)</i> | \$232,861                     | (\$10,939)                              |

### **Lighting Use and Recycling Programs**

Minn. Stat. § 216B.241 requires utilities to invest in projects that encourage the use of energy-efficient lighting and reclamation or recycling of spent fluorescent and high intensity discharge lamps. Public utilities with 200,000 or fewer customers may establish a collection system as part of conservation improvement activities. Minnesota Power promotes energy-efficient lighting measures to all customer classes. The Company also facilitates proper management of spent lamps by partnering with hardware stores in its service area to provide free CFL (compact fluorescent light) recycling and discounted fluorescent tube and lamp recycling.

<sup>16</sup> In the Matter of Minnesota Power’s 2013 Conservation Improvement Program Status Report, Docket No. E015/CIP-10-526.03, January 9, 2015.

<sup>17</sup> Effective January 1, 2017, one CIP exemption was approved by the Department under Docket No. E015/CIP-16-812. Minnesota Power recalculated its minimum spending requirements and energy-saving goal accordingly and reported it in its Program Modification Request submitted August 9, 2017, and approved by the Deputy Commissioner on November 16, 2017.

## TRIENNIAL DECISION REQUIREMENTS

Minnesota Power has complied with the 2017–2019 Triennial Decision requirements as summarized below.

### ***Budget Flexibility***

Previously, utilities were required to file a letter with the Department requesting authorization to exceed approved segment budgets by 25% or more. New in 2017, Minnesota Power is required to notify the Department via a courtesy notification of circumstances where the Company expects to exceed a program's approved budget by more than 25% at the segment level. The table below shows the approved budgets for 2018, actual spending, and the percentage of approved budgets, as modified where applicable.

| <b><i>Program</i></b>                        | <b><i>Approved Budget</i></b> | <b><i>Actual Spending</i></b> | <b><i>Percentage of<br/>Approved Budget</i></b> |
|----------------------------------------------|-------------------------------|-------------------------------|-------------------------------------------------|
| <b><i>Segment: Low Income</i></b>            |                               |                               |                                                 |
| Energy Partners Low Income (1)               | \$395,150                     | \$557,678                     | 141%                                            |
| <b><i>Segment: Residential</i></b>           |                               |                               |                                                 |
| Power of One® Home                           | \$2,367,437                   | \$1,933,950                   | 82%                                             |
| <b><i>Segment: Commercial/Industrial</i></b> |                               |                               |                                                 |
| Power of One® Business                       | \$4,419,433                   | \$3,842,799                   | 87%                                             |
| <b><i>Segment: General Indirect</i></b>      |                               |                               |                                                 |
| Customer Engagement                          | \$1,007,255                   | \$676,420                     | 67%                                             |
| Energy Analysis                              | \$962,125                     | \$912,559                     | 95%                                             |
| Research & Development (2)                   | \$243,800                     | \$232,861                     | 96%                                             |
| Evaluation & Planning                        | \$732,680                     | \$735,067                     | 100%                                            |
| <b>Segment TOTAL:</b>                        | <b>\$2,945,860</b>            | <b>\$2,556,907</b>            | <b>87%</b>                                      |
| <b><i>Segment: Regulatory Charges</i></b>    |                               |                               |                                                 |
| Regulatory Charges                           | \$200,000                     | \$140,113                     | 70%                                             |

(1) On November 21, 2018 Minnesota Power submitted a courtesy notification that the Company expected to exceed the Energy Partners Low Income budget by more than 25% anticipating Energy Partners spending for the program year to reach up to \$565,000 (or 143% of filed budget).

(2) Research and Development budget reduced due to newly approved CIP exemption in 2017, Docket No. E015/CIP-16-812.

### **2017–2019 CIP Triennial Approval Provisions**

The Deputy Commissioner approved Minnesota Power’s 2017–2019 Triennial CIP<sup>18</sup> with the following specific determinations:

1. The Deputy Commissioner finds that MP’s proposed 2017-2019 Plan is in compliance with the following statutory requirements:
  - a. Minimum 1.5 percent savings goal requirement (§216B.241, subd. 1c).
  - b. Minimum spending levels (§216B.241, subd. 1a).
  - c. Minimum low-income spending levels (§216B.241, subd. 7).
  - d. Cap on research and development spending equal to ten percent of MP’s minimum spending requirement (§216B.241, subd. 2(c)).
    - i. The Deputy Commissioner directs MP to include a narrative summary of its R&D activities, and the corresponding dollar amounts for each R&D activity, as part of the Company’s annual Status Reports. The Deputy Commissioner directs Staff to evaluate reported R&D spending from MP’s Analysis, Evaluation, and Project Development program to determine compliance with the CIP R&D spending cap.
  - e. Cap on distributed and renewable generation spending equal to five percent of MP’s minimum spending requirement (§216B.2411, subd. 1), or ten percent with the Deputy Commissioner’s permission for qualifying solar energy projects.<sup>19</sup>
  - f. Provision requiring programs to promote the use of efficient lighting and support the collection of spent lamps. (§216B.241, subd. 5, §216B.241, subd. 5(b) and (c)).
  - g. Provision requiring inclusion of programs that facilitate ENERGY STAR® labeling, LEED certification, or Green Globes certification of commercial buildings (§216B.241, subd. 1f (c)).
  - h. Provision requiring utilities to develop CIP projects to support attainment of SB 2030 standards (§216B.241, subd. 9(e)).
2. The Deputy Commissioner approves MP’s budgets and goals at the segment-level (*i.e.*, Residential, Low-Income, Commercial/Industrial, and Other Projects), requiring MP to be accountable for achieving segment-level goals. The Company must also report energy savings, spending, participation, and cost-effectiveness results at the program, segment, and portfolio-level in their annual status reports so that overall CIP program performance can be monitored.
3. The Deputy Commissioner approves MP’s technical assumptions.

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<sup>18</sup> Docket No. E015/CIP-16-117.

<sup>19</sup>As a result of the February 10, 2017, MPUC approval of Minnesota Power’s SolarSense program (Docket No. E015/M-16-485), the Company filed a Program Modification request on August 9, 2017, to remove the Customer Renewable Energy (RE) program from the 2017–2019 CIP Triennial Plan (Docket No. E015/CIP-16-117). On November 16, 2017, the Deputy Commissioner approved Minnesota Power’s petition. Further, due to the enactment of new legislation in 2017 closing the Made in Minnesota (MIM) program, the MIM assessment will remain in CIP under CIP Regulatory Charges for 2017 and then be discontinued thereafter. The Customer Renewable Energy program section has therefore been removed from Minnesota Power’s Consolidated filing.

4. Within 60 days, MP must file an approved version of its Plan that incorporates all changes and corrects all known errors that have been discovered during the regulatory review proceeding.
5. The Deputy Commissioner finds MP's proposed program designs to be generally reasonable, with the following specific exception:
  - a. The ChargeUp™ Pilot is not approved for inclusion in the Company's portfolio. The updated approved spending is included in Table 15.

**Response:**

In response to the Deputy Commissioner's Decision, Minnesota Power removed \$125,000 from its Customer Engagement program budgeted for the proposed ChargeUp™ Pilot in Minnesota Power's 2017–2019 Triennial plan. The Company filed the updated approved spending in its 2017–2019 Triennial Conservation Improvement Program (CIP) Compliance Filing on January 3, 2017.

6. Budget Flexibility and Plan Modifications
  - a. The Deputy Commissioner will allow utilities to exceed annual budget goals for all direct impact segments so long as the additional spending does not result in the segment becoming non-cost effective from the societal perspective. Utilities are required to notify the Department via a courtesy notification of circumstances where the utility expects to exceed any segment budget goals by 25 percent. This budget flexibility provision shall not apply to Alternative CIP Programs.
  - b. The Deputy Commissioner approves the discontinuation of the Informal Modification procedure for CIP plan modifications and directs utilities to follow the instructions in Minnesota Rules part 7690.1400 and 7690.1430, as outlined in the CIP Budget Flexibility and Plan Modification Section of this Decision.
  - c. The Deputy Commissioner requires utilities to email CIP Staff a Courtesy Notification summarizing any program changes that do not fall under the parameters of the formal plan modification process outlined in Minnesota Rules, and then work with Staff to determine whether it merits a formal modification.
  - d. The Deputy Commissioner requires that utilities include in their annual status report a description of all program modifications and changes not requiring Deputy Commissioner approval in order to keep the Department and other interested parties informed of their activities.

**Response:**

As a result of the February 10, 2017, MPUC approval of Minnesota Power's SolarSense program (Docket No. E015/M-16-485), the Company filed a Program Modification request on August 9, 2017, to remove the Customer Renewable Energy (RE) program from the 2017–2019 CIP Triennial Plan (Docket No. E015/CIP-16-117). On November 16, 2017, the Deputy Commissioner approved Minnesota Power's petition. Further, due to the enactment of new legislation in 2017 closing the Made in Minnesota (MIM) program, the MIM assessment was to remain in CIP under CIP Regulatory Charges for 2017 and is thereafter discontinued. The Customer Renewable Energy program section has therefore been removed from Minnesota Power's 2018 Consolidated filing.

The following guidance on requests related to Minnesota Power’s 2017-2019 Triennial Plan was issued by the Department in response to courtesy notifications submitted by Minnesota Power:

- i. Starting in 2017, Minnesota Power is no longer required to use IGSHPA contractors for GSHP installations or a preapplication process, due to the use of the TRM measure.
  - ii. For projects that were started in 2016 (prior triennial), but not completed until 2017, it is acceptable and appropriate to use the TRM 1.1 instead of TRM 2.0 (current triennial).
  - iii. Regarding multifamily programs, Minnesota Power explored and evaluated various delivery strategies in an effort to move towards a dedicated multifamily offering. A more in-depth description of these efforts can be found in the Energy Analysis section of this filing.
  - iv. On December 7, 2017, Minnesota Power submitted through email a courtesy notification providing notice that the Company planned to offer increased rebates in its One Home program for refrigerators, freezers and smart thermostats. The Department acknowledged and accepted this request on January 12, 2018.
  - v. On December 7, 2017, Minnesota Power submitted through email a courtesy notification of a proposed “Fluorescent Troffer to LED” Smart Measure. The Department acknowledged and accepted this request on March 29, 2018.
  - vi. On November 21, 2018, Minnesota Power submitted through email a courtesy notification that the Company expected to exceed the Energy Partners Low Income program budget by more than 25% for the 2018 program year. On December 4, 2018, the Department acknowledged and accepted Minnesota Power’s Energy Partners Low Income budget modification request.
7. The Deputy Commissioner approves the 2017–2019 budgets, energy savings, and participation goals. *(Approved budget listed at the beginning of this section in table format.)*

## **OTHER REGULATORY REQUIREMENTS**

### ***2017–2019 Appendix A. Complete List of TRM Deviations and Staff Recommendations***

Staff approved all variations of Power of One<sup>®</sup> Home measures and Power of One<sup>®</sup> Business measures.

### ***Measurement and Verification Processes***

In 2018, Minnesota Power had one large customer project which involved the Measurement and Verification (“M&V”) process. The project was completed, filed and approved in 2018. It is important to note that for 2018 a significant portion of the savings were not from the new construction of industrial operations, which historically have accounted for a large portion of the total claimed savings under Power of One<sup>®</sup> Business. Minnesota Power expects that attaining

savings without the large projects will be the typical model of the One Business program in the future.

### ***Electric Utility Infrastructure Projects and Utility Owned Building Improvements***

In 2010, the Department sponsored and participated in the Minnesota Environmental Initiative's 1.5% Energy Efficiency Solutions Project. The workgroup for this project was charged with identifying barriers to achieving the 1.5% statewide energy-efficiency goal, and to identify areas where consensus or majority recommendations could be developed. During the project workgroup sessions, questions were raised regarding whether utilities could only invest in energy efficiency through the Electric Utility Infrastructure Cost ("EUIC") provision or if utilities could also participate in CIP through the programs they offered to customers (i.e., participate in their own program offerings). In keeping with that goal, the Department created an addendum that provided an explanation of their viewpoint on the electric utility infrastructure ("EUI") definition, attribution and to address statutory questions that arose during the course of the project. This addendum is included in the Final Report which was issued in March of 2011.

The Final Report specifically states that:

"... relying instead on the fact that these projects would meet the definition of an energy conservation improvement because they increase energy efficiency and are not a EUI project that has been approved by the Commission. The OES would consider these projects as counting towards the 1% bucket, eligible for both cost recovery and a financial incentive. This is based both on historical practices, and the fact that utilities can participate in their own customer offerings. However, a utility would not be able to seek cost recovery under both the EUI Cost Recovery Rider and under the utility's conservation improvement program." And that "energy efficiency improvements to a utility's buildings count as part of the utility's regular CIP and count toward the first 1% portion of the energy-savings goal."

In Xcel Energy's Natural Gas CIP Docket,<sup>20</sup> a conflicting position was expressed by the Department regarding the inclusion of these projects within CIP, leaving uncertainty about how utilities should proceed with CIP planning and investment pertaining to their own facilities. On January 4, 2013, the Department filed comments recommending that the Commission adopt ratemaking standards for recovering the costs of energy-efficiency improvements to utility facilities. On July 16, 2013, the Commission issued an Order finding that utilities may participate in CIP projects at the own facilities.<sup>21</sup> Further details regarding Minnesota Power's compliance with this Order can be found in the section titled "2015 Compliance with Department and MPUC Decisions and Orders," which is immediately following this section. Under Minn. Stat. § 216B.1636 there is a EUIC provision with a separate filing process.

In 2016, Minnesota Power's CIP delivery team participated in the Department's Technical Resource Manual ("TRM") measure work focusing on Electric Utility Infrastructure projects. Minnesota Power did not submit any EUI projects in 2016 due to questions related to quantification and qualification of projects but anticipated reviewing ways the EUI TRM might assist in 2017.

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<sup>20</sup> Docket No. G002/M-11-279.

<sup>21</sup> In the Matter of the Minnesota Department of Commerce's Request that the Commission Adopt Ratemaking Standards for Utility-Owned CIP Projects. Docket No. E,G-999/DI-12-1342, July 16, 2013.

On December 11, 2017, the Department filed a Proposal Filing (Proposal) in order to provide utilities with more formal guidance regarding how EUI provisions can be utilized so that there is consistency and clarity regarding their application in helping utilities continue to meet their energy-savings goals. The Proposal contains the Department's recommended guidance concerning the utility requirements of Minnesota Statutes section 216B.241 subdivision 1c(d) pertaining to the claiming of energy savings for EUI projects. The Proposal also outlines the Department's recommended use and parameters of the carry forward provision contained in Minnesota Statutes section 216B.241 subdivision 1c(b).

The Department's new proposed guidance is based on a plain reading of section 216B.241 subdivision 1c(d) which suggests that the requirements concerning EUI project savings being counted toward energy-savings goals are based on their inclusion in the utility's CIP *plans*, not the actual *results* of those plans. Based on this interpretation, if a utility submits a CIP plan to the Department that is subsequently approved, and the plan includes at least 1% DSM savings with the remainder of a utilities' goal to be met through EUI projects, the actual resulting savings from those EUI projects could then later be counted toward the utility's energy savings results for that particular program year regardless of whether the 1% threshold is actually achieved as part of its CIP results. The Deputy Commissioner approved the new guidance to take effect on February 20, 2018, allowing utilities to apply the new guidance to their 2017 results.

Furthermore, the Deputy Commissioner issued guidance on October 22, 2018 for determining "normal maintenance" activities and the CIP review and approval process for EUI projects.<sup>22</sup>

At this time, Minnesota Power has not requested approval of any EUI projects.

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<sup>22</sup> In the Matter of Determining Normal Maintenance Activities and CIP Review Process for Electric Utility Infrastructure Projects. Docket No. E999/CIP-18-543, October 22, 2018

## 2018 COMPLIANCE WITH DEPARTMENT AND MPUC DECISIONS AND ORDERS

**A. In its September 16, 2015, ORDER Approving Tracker Account and Financial Incentive, Setting Rider Adjustment, and Reducing Carrying Charges for Minnesota Power's 2014 Consolidated Filing, Docket No. E015/M-15-80, the MPUC issued the following Order points:**

4. Minnesota Power shall calculate the carrying charge on its CIP tracker account using the rate from its multi-year credit facility. The modification shall be effective as of the date of this order.
5. Within 10 days of the date of this Order, Minnesota Power shall calculate and file in a compliance filing a CPA rate that uses a fiscal year approach, and recognizes that it has been generating revenue since July 1, 2015, at the higher rate of \$0.003425.
6. This order shall become effective immediately.

**Response:**

4. Effective as of the date of this Order, Minnesota Power modified the CIP tracker account to calculate the carrying charge using the rate from its multi-year credit facility.
5. On September 25, 2015, Minnesota Power submitted a compliance filing in this matter, providing calculation of a new CPA rate of \$0.000442, using a fiscal year approach and recognizing that it has been generating revenue since July 1, 2015, at a higher rate of \$0.003425.<sup>23</sup>

Minnesota Power continues to use the rate from its multi-year credit facility.

**B. In its July 16, 2013, ORDER in the Matter of the Minnesota Department of Commerce's Request that the Commission Adopt Ratemaking Standards for Utility-Owned CIP Projects, Docket No. E, G-999/DI-12-1342, the MPUC issued the following Order points:**

1. The Commission hereby finds that utilities may participate in CIP projects at their own facilities and that the associated customer and/or vendor incentives, program delivery, evaluation, marketing, and administrative costs may be recovered through the CIP ratemaking process if the costs are approved by the Department as part of CIP and provided a utility demonstrates that its participation in CIP does not result in double recovery of ratepayer funds. This finding does not extend to electric utility infrastructure projects governed by Minnesota Statutes section 216B.1636.
2. The Commission further finds that energy savings and net benefits resulting from utility participation in CIP projects at their own facilities shall not count toward the determination of the utility's DSM financial incentive.
3. The Commission requests that the Department work with the utilities to address issues raised by its recommissioning-study proposal, such as
  - a. what type of analysis (e.g., recommissioning, energy audits) should be used for different types of energy facilities;
  - b. under what conditions a utility will be required to contract with a third-party energy auditor or recommissioning firm to perform the recommissioning studies and audits;

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<sup>23</sup> Compliance Filing, Minnesota Power's 2014 Consolidated Filing, Order Approving Tracker Account and Financial Incentive, Setting Rider Adjustment and Reducing Carrying Charges, September 25, 2015, Docket No. E015/M-15-80.

- c. the definition of a “facility” and other terms that need clarification;
- d. how a utility will demonstrate that it has already gone through a systemic process to identify energy efficiency improvements at its facilities; and
- e. the benchmarking analysis that the utility must provide.

The Department shall file a compliance report in this docket by April 15, 2014.

- 4. By June 15, 2014, each electric and natural gas investor-owned utility subject to CIP shall submit to the Department for its review and analysis a scoping plan for recommissioning studies or audits that may be appropriate. The scoping plan must include at least the following:
  - a. a list of the facilities to be studied in Minnesota;
  - b. the proposed type of analysis for each facility (e.g., an energy audit or recommissioning study);
  - c. the proposed party to conduct the analysis (i.e., utility staff or third party);
  - d. for the studies or audits that would be appropriate, a proposed schedule for completing the studies and audits, taking into account the identification of a utility’s least efficient facilities, and the time and cost of the studies and audits.
- 5. This Order shall become effective immediately.

**Response:**

The Department conducted a meeting and a conference call with the impacted utilities to discuss issues that were raised in the Commission’s Order. Minnesota Power participated in this process. On April 15, 2014, the Department filed a compliance report through eDockets and amended that report on April 23, 2014. Minnesota Power worked with the Department on the above-referenced process and submitted a scoping plan for its facilities in June 2014. On August 5, 2014, the Department issued a letter indicating it had received scoping plans and determined that they met all requirements outlined in its compliance report. In this letter, the Department approved the scoping plans and indicated intent to work with utilities and interested parties on additional processes. In accordance with Order Points 1 and 2 of the Commission’s Order, Minnesota Power did have two projects at its facilities in 2014. These projects were separately tracked. The energy savings and net benefits resulting from participation in CIP projects at Minnesota Power’s own facilities have not been counted toward the determination of the DSM financial incentive. This is noted accordingly in calculations and benefit/cost analysis.

**B. In its January 12, 2012, ORDER in the Matter of a Request by Minnesota Power for Approval of its 2010 CIP Tracker Account, DSM Financial Incentive, and CIP Adjustment, Docket No. E-015/M-11-241 the MPUC issued the following Order point regarding behavioral savings:**

- 4. Minnesota Power shall work with the Department to implement a new method for counting the energy savings from behavioral programs that reflects the concerns raised by the Department in this docket. These changes should be applied to the calculation of the Company’s 2012 DSM financial incentive. The Commission asks the Department to report back to the Commission on the approach to be taken in the determination of Minnesota Power’s 2012 DSM financial incentive.

**Response:**

Minnesota Power actively participated in this dialogue through eDockets via Docket Nos. E,G999/CI-08-133 and E015/CIP-10-526. The Department issued a Proposed Decision on February 1, 2012, followed by Supplemental Comments on February 27, 2012, and an Errata to Supplemental Comments on March 8, 2012. On October 17, 2012, the MPUC issued an Order stating that “beginning with the 2013 incentive, all utilities with approved DSM financial incentives shall use the Average Savings Method (ASM) for measuring energy savings from CIP behavioral programs in the calculation of their DSM financial incentive.” On January 30, 2015, the Department issued a letter proposing to solicit proposals regarding the ASM beginning June 1, 2015 and to defer any changes to the ASM for investor-owned utilities to no sooner than 2017. The Department also cited research that is under way with an independent consultant regarding a behavioral programs study and workshop series with plans for stakeholder forums. Minnesota Power does not currently offer any behavioral savings programs but has participated in Department workshops regarding this topic.

- C. In its August 13, 2010, Comments in the Matter of Minnesota Power’s 2009 CIP Consolidated Filing (Docket No. E015/M-10-266), the Department provided guidelines regarding employee expenses in the categories of travel, meals, entertainment, and employee awards. Minnesota Power provides the following summary in response to those guidelines.**

**Response:**

Minnesota Power summarizes the 2018 expenses that fall within the categories outlined by the Department as follows:

| <i>Category</i> | <i>2018 Amount</i> | <i>Description</i>                                                                                                                                                                                                                                                                         |
|-----------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Meals           | \$15,672           | This includes meals for refreshments at CIP-related meetings, working lunches and dinners, and meals while traveling for training, conferences, offsite meetings with regulators and/or workgroups, and customer site visits. These are an essential part of promoting and delivering CIP. |
| Travel          | \$43,246           | This includes travel expenses such as mileage, rental vehicles, taxi services, and air travel for offsite meetings, customer site visits, and travel to training/conferences. These are directly related to CIP program design and delivery.                                               |
| Employee Awards | \$14,364           | This includes awards tied to the successful delivery of conservation program energy-savings goals and outreach objectives.                                                                                                                                                                 |
| TOTAL           | \$73,282           | This represents 0.8% of the total annual CIP expenditures, with 80% of employees expenses related to meals and travel as part of promoting and delivering CIP.                                                                                                                             |

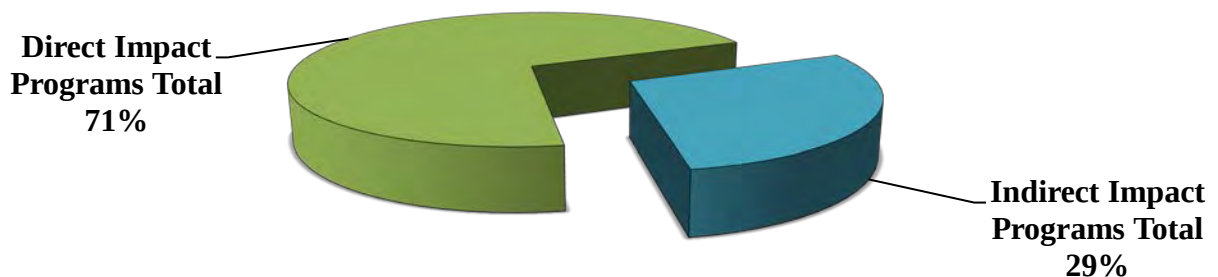
Minnesota Power's total employee expenses exceeded the Department's recommended guideline of 0.5% of total CIP expenditures. Minnesota Power believes its CIP expenses are still within reason and represent a small proportionate share of overall spending. In addition to an expansive service territory of 26,000 square miles in northeastern Minnesota, other factors affecting the expenses include frequent travel to stakeholder meetings, Commission hearings, and regulatory consultation, all of which typically occur in the Minneapolis/St. Paul area. In addition, Minnesota Power employees routinely travel to customer sites and as part of the development and promotion of CIP. Minnesota Power respectfully requests that the Department continue to consider these circumstances when reviewing its employee expenses. All CIP-related activities have designated accounts to ensure that these charges are distinct and appropriately included within the CIP tracker. The Company is currently recovering CIP expenditures through a combination of base rates and the CPA. The Commission approved a deferred debit accounting mechanism and established a Conservation Cost Tracker Account (Tracker Account) in the Company's 1987 general rate case (Docket No. E-015/GR-87-223). Conservation expenditures and costs recovered through rates are entered into the Tracker Account. The Company plans to continue utilizing the CIP Tracker Account and CPA mechanism to correct for over- and under-collections on an ongoing basis. Pursuant to the Commission's decision in Docket E-015/GR-94-001, no prior tracker balances are included in the test year for recovery in base rates.



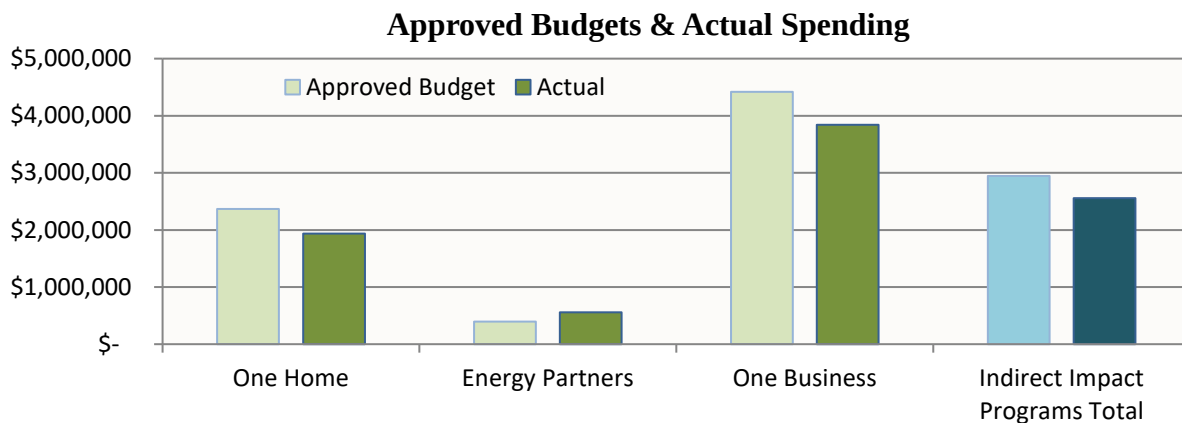
## POWER OF ONE® CONSERVATION PROGRAM

Minnesota Power’s purpose-based Power of One® strategy offers a wide variety of program offerings to best serve its diverse customer mix, while continuing to focus on targeted program objectives—quality installations, informed decisions, conservation first and safety. The Company exercises a mindful, balanced approach in terms of traditional program design versus less established, emerging opportunities, using a combination of “direct savings” and “indirect savings” programs that complement each other and provide for a comprehensive customer experience. Refer to Figures 1 and 2 for a breakdown of spending by direct savings and indirect savings programs.

**Figure 1: 2018 Program Spending By Direct and Indirect Savings Programs**

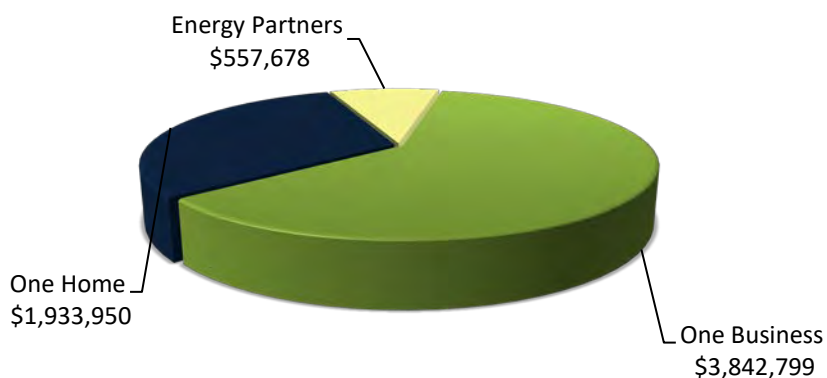


**Figure 2: 2018 Approved Budgets & Actual Spending**

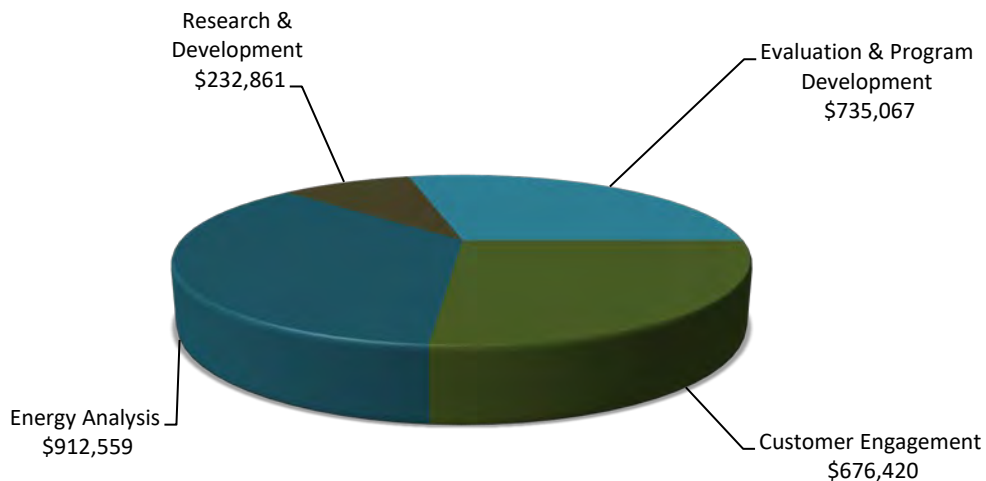


Investing in a range of programs is essential to keep Minnesota Power's program portfolio strong well into the future. See Figures 3 and 4 for a breakdown of spending by program.

**Figure 3: 2018 Direct Savings Program Spending Breakdown**

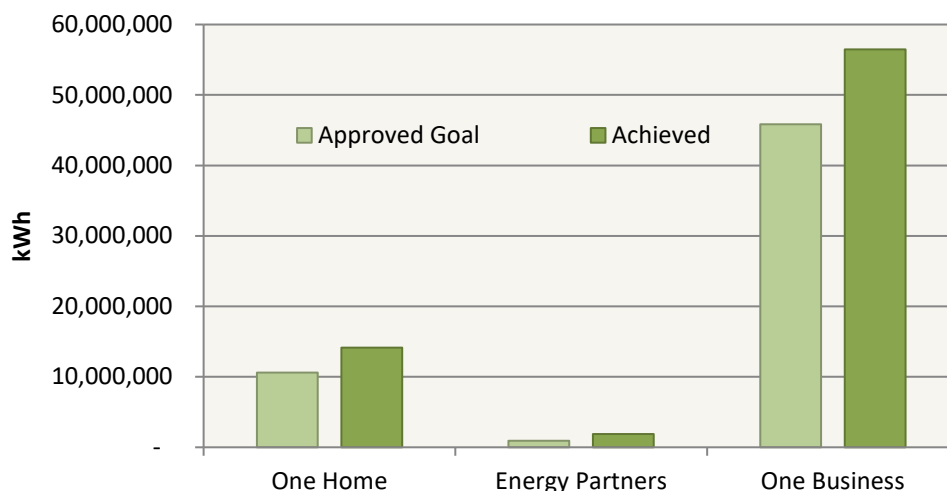


**Figure 4: 2018 Indirect Savings Program Spending Breakdown**



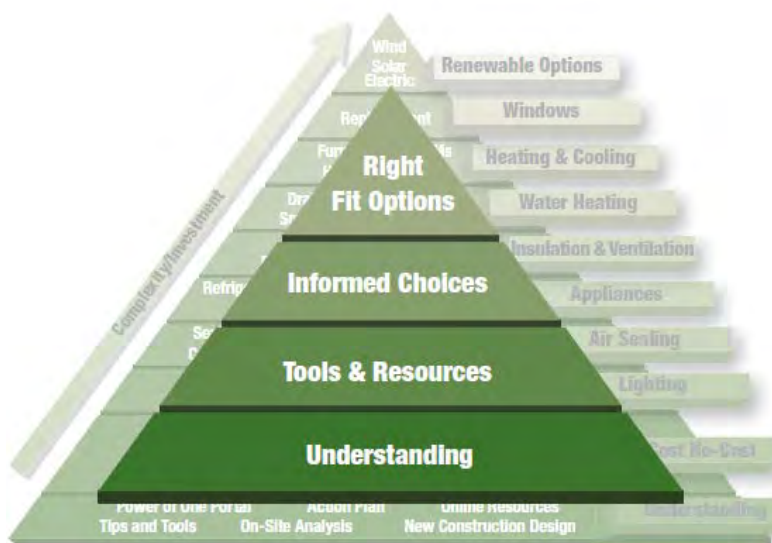
Power of One<sup>®</sup> Home, Power of One<sup>®</sup> Business, and Energy Partners remain the foundational programs that consistently deliver energy savings within the Power of One<sup>®</sup> portfolio—typically through more established methods like rebates, incentives, and/or direct installations. See Figure 5 for a breakdown of approved savings goals vs. achievements by program.

**Figure 5: 2018 Approved Savings Goals & Achievements**



The Power of One<sup>®</sup> program guiding framework includes meaningful engagement through **Understanding**, **Tools & Resources**, **Informed Choices**, and ultimately **Right Fit Options**. To help customers save energy, they must first have a better **Understanding** about how they use energy. Minnesota Power provides a variety of **Tools & Resources** to further customer understanding, help them familiarize themselves with energy-efficient options, and encourage them to develop a plan for saving energy. This leads to **Informed Choices**. Customers can leverage program resources to learn more about the technologies, processes, investments, and implementation alternatives that are consistent with their objectives. This ultimately helps customers identify **Right Fit Options** that are in alignment with their expectations, preferences, operational needs and decision-making processes. The Power of One<sup>®</sup> program is flexible and reflective of the reality that a “one size fits all” approach is not the best approach to help customers succeed or for delivering on energy-savings objectives. Figure 6 represents the guiding framework for program design and delivery.

**Figure 6: Minnesota Power’s Conceptual Pyramid**



While rebates remain part of the equation for success in influencing customer choices, the value of Power of One<sup>®</sup> program offerings and resources also comes from including a range of services such as education, training, research, performance studies, energy analysis and overall energy awareness. Minnesota Power provides customers with tools and resources they need to make informed choices, delivered through Minnesota Power's cross-market programs—Customer Engagement, Energy Analysis, Research & Development, and Evaluation & Planning. These programs support direct savings programs and serve as a pipeline for projects that ultimately deliver on program objectives.

For further context regarding the Power of One<sup>®</sup> programs, refer to the Successes section of this filing. The success stories highlight people, businesses and communities taking ownership of their energy usage and how Minnesota Power has been connecting with customers through conservation.

### ***Looking Forward***

While Minnesota Power continues its proven track record of successful program performance at or above 1.5% since 2010, the Company acknowledges that the current energy-efficiency environment is rapidly evolving in ways that will present new challenges and opportunities. Minnesota Power has historically achieved a significant portion of savings from large-scale projects. Projects of this magnitude have become less available, as indicated by the lack of large scale projects completed in 2017 and 2018. Additionally, cost-effective savings opportunities continue to decline due to market saturation and changing baselines. For example, anticipated lighting standards will introduce a significant gap in Minnesota Power's traditional CIP portfolio. Minnesota Power has already taken steps to address changing conditions by introducing more flexibility into its CIP programs, and exploring new opportunities with customers and partners. Insights regarding customer preferences and energy consumption choices will continue to be an integral part of future program design and delivery.

Codes and standards as well as regulatory uncertainty and alignment of policy objectives with performance-based incentives are important components that will influence the ongoing success and commitment to conservation. As utilities begin to navigate the changing conservation landscape, adaptive strategies will need to be deployed, and regulatory flexibility may be necessary to continue advancing Minnesota's economic and environmental goals. Minnesota Power will continue to monitor legislative changes, and engage in working groups as discussions around beneficial electrification, changes to the scope of CIP, and changes to evaluation and performance metrics, among other things, unfold. Minnesota Power remains committed to providing sustainable energy-efficiency programs, with ongoing program development and increased efforts to raise program awareness and participation.

|  | 2018                             | Expenditures  |                      |              |                     |             |               | Energy Savings (kWh @ Busbar) |                 |             |               | Demand Savings (kW @ Busbar) |                 |             |               | Participation |                 |  |  |
|--|----------------------------------|---------------|----------------------|--------------|---------------------|-------------|---------------|-------------------------------|-----------------|-------------|---------------|------------------------------|-----------------|-------------|---------------|---------------|-----------------|--|--|
|  | Direct Impact Programs           | Filled Budget | Approved Budget (\$) | Actual       | Percent of Approved | Filled Goal | Approved Goal | Achieved                      | Percent to Goal | Filled Goal | Approved Goal | Achieved                     | Percent to Goal | Filled Goal | Approved Goal | Achieved      | Percent to Goal |  |  |
|  | One Home                         | \$ 2,367,437  | \$ 2,367,437         | \$ 1,933,950 | 82%                 | 10,590,448  | 10,590,448    | 14,133,230                    | 133%            | 1,126       | 1,126         | 1,815                        | 161%            | 151,053     | 122,841       | 271,137       | 221%            |  |  |
|  | Energy Partners (2)              | \$ 395,150    | \$ 395,150           | \$ 557,678   | 141%                | 936,080     | 936,080       | 1,863,183                     | 199%            | 105         | 105           | 203                          | 193%            | 7,229       | 7,229         | 22,765        | 315%            |  |  |
|  | One Business                     | \$ 4,419,433  | \$ 4,419,433         | \$ 3,842,799 | 87%                 | 45,863,694  | 45,863,694    | 56,483,120                    | 123%            | 7,881       | 7,881         | 6,079                        | 77%             | 3,366       | 3,366         | 940           | 28%             |  |  |
|  | Direct Impact Programs Total     | \$ 7,182,020  | \$ 7,182,020         | \$ 6,334,426 | 88%                 | 57,390,222  | 57,390,222    | 72,479,534                    | 126%            | 9,112       | 9,112         | 8,096                        | 89%             | 161,648     | 133,436       | 294,842       | 221%            |  |  |
|  | Indirect Impact Programs         |               |                      |              |                     |             |               |                               |                 |             |               |                              |                 |             |               |               |                 |  |  |
|  | Customer Engagement              | \$ 1,132,255  | \$ 1,007,255         | \$ 676,420   | 67%                 |             |               |                               |                 |             |               |                              |                 |             |               |               |                 |  |  |
|  | Energy Analysis                  | \$ 962,125    | \$ 962,125           | \$ 912,559   | 95%                 |             |               |                               |                 |             |               |                              |                 |             |               |               |                 |  |  |
|  | Renewable Energy (3)             | \$ 274,100    | \$ -                 | \$ -         | -                   |             |               | -                             |                 |             |               |                              |                 |             |               |               |                 |  |  |
|  | Research & Development           | \$ 274,100    | \$ 243,800           | \$ 232,861   | 96%                 |             |               |                               |                 |             |               |                              |                 |             |               |               |                 |  |  |
|  | Evaluation & Program Development | \$ 732,680    | \$ 732,680           | \$ 735,067   | 100%                |             |               |                               |                 |             |               |                              |                 |             |               |               |                 |  |  |
|  | Indirect Impact Programs Total   | \$ 3,375,260  | \$ 2,945,860         | \$ 2,556,907 | 87%                 | -           | -             | -                             |                 |             |               |                              |                 | 113,392     | 113,392       | 107,989       | 95%             |  |  |
|  | Regulatory Charges               | \$ 200,000    | \$ 200,000           | \$ 140,113   | 70%                 |             |               |                               |                 |             |               |                              |                 |             |               |               |                 |  |  |
|  | Total                            | \$ 10,757,280 | \$ 10,327,880        | \$ 9,031,446 | 87%                 | 57,390,222  | 57,390,222    | 72,479,534                    | 126%            | 9,111.7     | 9,111.7       | 8,095.9                      | 89%             | 275,040     | 246,828       | 402,831       | 163%            |  |  |

(2) On November 21, 2018 Mimesota Power submitted a courtesy notification that the Company expected to exceed the Energy Partners Low Income budget by more than 25% anticipating Energy Partners spending for the program year to reach up to \$565,000 (or 143% of filed budget).

**EXHIBIT 4**



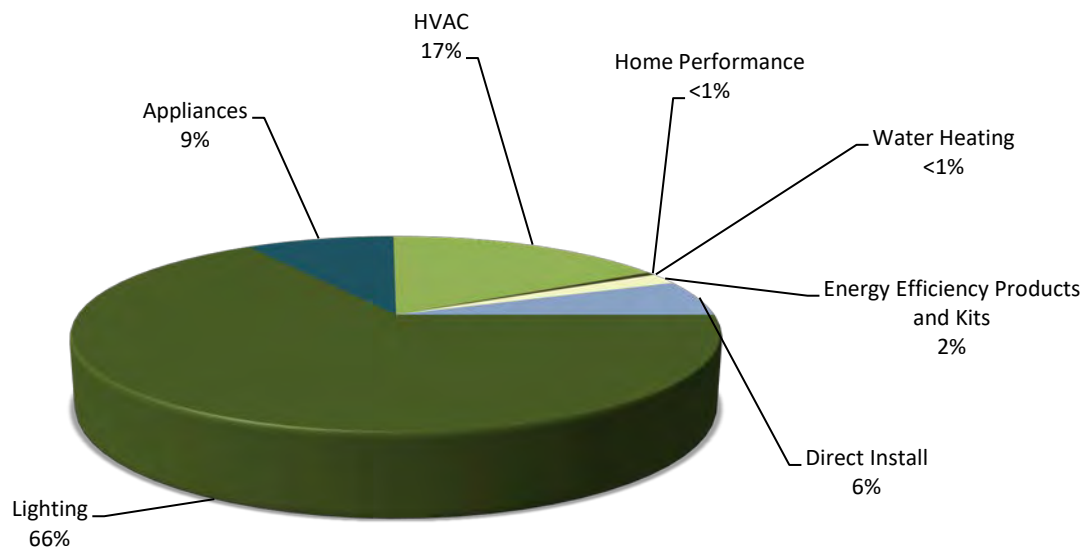
## PROGRAM TITLE: POWER OF ONE® HOME

### PROGRAM DESCRIPTION

Power of One® Home is Minnesota Power's portfolio-based residential program designed to help customers make informed decisions about how to save energy in their homes. The program includes rebates on energy-efficient lighting, appliances, heating and cooling, water heating, and energy-efficient new construction.

While a variety of technologies are offered through Power of One® Home, lighting is a primary driver, accounting for over half of reported savings. Heating and cooling measures represent 17% of the savings while appliances represent 9% of savings. Direct installations, home performance and energy-efficient kits represent 9% of reported savings.

**Figure 7: Power of One® Home Program – 2018 Savings by Technology (kWh)**



### RESULTS

The table below details the Power of One® Home 2018 approved goals versus actual results.

|                                          | Approved Goals |     | Actual Results |     | % of Approved Goal |
|------------------------------------------|----------------|-----|----------------|-----|--------------------|
| Total Project Expenditures               | \$2,367,437    |     | \$1,933,950    |     | 82%                |
| Total Project Energy Savings (at busbar) | 10,590,448     | kWh | 14,133,230     | kWh | 133%               |
| Total Project Demand Savings (at busbar) | 1,125.5        | kW  | 1,814.6        | kW  | 161%               |
| Participation (measures)                 | 122,841        |     | 271,137        |     | 221%               |

## EVALUATION METHODOLOGY

This program was evaluated based on the following items:

- Participation levels (number of measures implemented)
- Energy savings (kWh)
- Demand savings (kW)
- Savings by measure
- Net benefit/cost results (see the benefit/cost summary in the Evaluation section)

Minnesota Power strives to influence residential customers to choose energy efficiency, whether through single end-use technologies or bundling a variety of services and technologies together to optimize further energy savings within their home. Helping customers understand how a house functions and uses energy is a critical step in gaining energy savings. The Pyramid of Conservation and other interactive tools such as MyAccount (an online energy tracking and account management tool) offered by Minnesota Power help accomplish this step. These tools are coupled with a strong retailer and heating, ventilation, and air conditioning (“HVAC”) contractor network that provides resources for customers to attain energy-efficient products and services.

In 2018, Minnesota Power continued its successful Power of One® Home program, which relies predominantly on a prescriptive strategy. This strategy makes it easy for customers to participate in the program and streamlines the rebate process. The Company offers a more custom approach when projects require more in-depth analysis into the savings garnered from multiple energy-efficient measures bundled together. This happens, for example, when a customer participates in the Triple E New Construction program. Minnesota Power recognizes that each customer’s situation may be unique and knows the importance of offering a variety of paths for them to achieve their goals in energy efficiency.

Many individual components make up the full portfolio known as the Power of One® Home program. The following provides more information about specific aspects of this program for 2018.

**ENERGY STAR® Lighting and Appliances**—2018 was a very successful year for the ENERGY STAR® lighting portion of this program. Compact fluorescent lighting (“CFL”) has fully seen the impact of ENERGY STAR® 2.0 requirements at this point, but light emitting diodes (“LED”) have more than replaced the previous CFL savings. Minnesota Power incentives, coupled with intelligently placed products and clear marketing in stores, significantly impacted the large number of LED sales seen in the lighting program in 2018. The demand for LEDs comes from consumers realizing the benefits of this long-lasting, energy-efficient technology, with a large part of that messaging coming from Minnesota Power’s efforts in social media, online advertising, bill inserts, and the Company’s own website devoted to energy efficiency ([www.mnpower.com/energyconservation](http://www.mnpower.com/energyconservation)). With the increasing demand for LEDs, and as product lines expand, so does the need for a strong retailer network. Minnesota Power continues to leverage relationships that include a broad retailer mix of mass merchants, home improvement, warehouse club, independent hardware, drug and specialty stores throughout the service territory to ensure that Minnesota Power customers have access to a variety of LED technology. The Company anticipates that the growing number of LED products will continue to lead the program for the near future.

In 2018, Minnesota Power offered rebates on ENERGY STAR® refrigerators, freezers, and dehumidifiers. Dehumidifier program participation has again come in higher than the goal, in large

part due to the placement of on-package rebate stickers as well as a strategically planned promotion during the spring when dehumidifiers are in highest demand. The Refrigerator and Freezer Recycling program had another successful year, taking 913 inefficient refrigerators and 209 freezers off the secondary market. Continued appliance recycling success may be attributed to efforts made in 2018 such as enhancing the online request process to make it easier for customers to take part in the program, as well as creating cross-promotional advertising—reminding customers to take advantage of the recycling program when offering customers energy-efficient products in other areas of the Power of One<sup>®</sup> program. In an effort to boost retailer participation in promoting ENERGY STAR<sup>®</sup> refrigerators and freezers in their stores, Minnesota Power removed a historical requirement that retailers must participate in the appliance recycling program in order to participate in the appliance rebate program. This was a barrier for some stores, and removing the requirement allows all locations the ability to promote these rebates and provides customers more flexibility in where they can shop. Freezer rebate numbers have increased over the last year with the help of seasonal marketing of rebates as well as the inclusion of an in-store demonstration at one of the largest big box stores in Minnesota Power's service territory.

The success of a lighting and appliance field representative in 2017 prompted the Company to continue this service in 2018. Field representatives conducted 1,119 store visits to 173 participating stores in 2018. These visits are important to the ENERGY STAR<sup>®</sup> Lighting and Appliance aspect of program because they allow continual development of the relationship that Minnesota Power has with lighting and appliance retailers, whether small, family-owned hardware stores or global, big-box chains. During these visits, field representatives are ensuring associates are educated on the program, point-of-purchase materials are present on shelves, and the store has rebate forms to distribute to customers. Additionally, Minnesota Power in partnership with a big box store in the Duluth area, held an in-store appliance demonstration where Minnesota Power representatives were available to answer questions and share information on current rebates and the advantages of choosing ENERGY STAR<sup>®</sup> when purchasing new appliances. More of this type of outreach will be pursued in 2019, as it allows Minnesota Power to personally connect with customers in its service territory as well as strengthens the utility/retailer relationship. During 2018, Minnesota Power made strides to further its efforts in making rebate applications easier for customers to submit. Starting in 2019, Minnesota Power's customers will be able to submit their rebate applications online as well as via mail or email, representing a convenient option to participate in the program.

**Water Heating**—Water heating makes up a significant portion of residential energy use. As such, Minnesota Power offers the following energy-efficient products to help customers reduce electric water heating costs: a water- and energy-saving SmartPak kit, Drain Water Heat Recovery (“DWHR”) rebates, and Heat Pump Water Heater rebates. For 2018, Minnesota Power marketed the SmartPak kits more aggressively with its retailer network and through direct mailers to help increase participation. DWHR continues to be a part of the overall portfolio but Triple E New Construction presents the best opportunity for this technology as it allows easy access for installation. Although there was no participation in 2018, DWHR will continue to be a promoted technology to customers. Minnesota Power rebated two heat pump water heaters in 2018, and the Company will look for additional methods to promote this technology in 2019. As requirements of the water heater rebate are that a customer must be replacing an existing electric water heater or installing in new construction, opportunities are somewhat limited for this measure.

**Triple E New Construction**—Triple E New Construction is Minnesota Power's systematic approach to energy-efficient housing. Triple E stands for Energy Efficiency, Education and Evaluation and consists of a plan review followed by three on-site visits. The plan review ensures

that prescriptive insulation values are being met and that energy-efficient lighting and appliances are considered. This is followed by a framing visit, which is an opportunity to help the builder identify problem areas for air sealing such as can lights, cantilevers and bonus rooms. The second visit is the pre-sheetrock evaluation. This provides an opportunity to confirm that the insulation values are correct, identify any further air sealing opportunities and check the specifications on the mechanicals. Lastly, the final visit to the home consists of a blower door test, appliance check and light count to determine the home's performance level and eligible rebate amounts. Minnesota Power continues to report average actual savings from Triple E new homes based on modeling of appropriate standard conventional new homes.<sup>24</sup> In 2018, the program experienced similar participation to that of 2017, most likely a result of continued low prices of natural gas and delivered fuels such as propane. Regardless, this is one of the best opportunities to educate consumers on energy efficiency as Triple E New Construction addresses everything from lighting and appliances to HVAC and thermal integrity.

Minnesota Power continues to offer plan reviews for all homes being built in its service territory. The intent of this effort is to reach more customers with the Triple E message of building with safe, durable and efficient construction methods in mind. Doing so ensures a higher level of quality services to all home builders, regardless of heating type, and has the added benefit of extending the efficiency message by staying in front of the customer to ensure other residential measures such as energy-efficient appliances, lighting, and HVAC systems are not forgotten. This effort also provides an avenue for educating customers on utility rebates, further ensuring customers are provided the incentive to consider additional options that will encourage a complete efficient home construction experience.

**Builders**—The Company works with area builders on both a one-on-one basis and through educational outreach such as the annual Energy Design Conference & Expo. This gives Minnesota Power an opportunity to update builders on the Triple E New Construction program standards and encourage them to meet Triple E standards for new homes they build, in addition to providing a vehicle for achieving continuing education requirements.

**Direct Installations and Targeted Kit Offers**—Direct installation of energy-efficient products during a Home Energy Analysis results in meaningful energy savings along with positive customer satisfaction during the time of installation. Minnesota Power recognized the need to offer more options to customers during these analyses, so in 2018 lighting options were expanded to include LED globes, 3-way LED bulbs, and an 11W LED option to join the standard 9W LED that has been a foundation of this program for years. The Company will continue to evaluate this offering and work to ensure available products are meeting customer needs into the future. The SmartPak Kit (which includes an energy-saving showerhead, faucet aerators, shower timer, and water temperature card) and the Starter Kit (including three LEDs, refrigerator thermometer, shower timer and plug load information) were provided to customers upon request or by participation in various promotions and offers. Savings per kit were discounted by 50% based on installation levels.<sup>25</sup> Energy-efficient kits are a good way to promote first steps in energy conservation and help generate interest in other program offerings. Minnesota Power promoted SmartPaks and Starter Kits through various methods such as its website, bill inserts and social media. In 2018, the Company created a targeted mailing to all-electric customers to promote the SmartPak Kit and all its benefits. Postcards were sent to over 5,000 mailing addresses. The

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<sup>24</sup> Minnesota Power's 2011-2013 Triennial CIP, Docket No. E015/CIP-10-526.

<sup>25</sup> Minnesota Power's 2011-2013 Triennial CIP, Docket No. E015/CIP-10-526.

response rate was approximately 3.9%, with over 200 SmartPak Kits going to homes with electric water heaters after customers learned about this offer.

**Heating, Cooling and Air Conditioning**—The HVAC component of the Power of One® Home program is an integral part of the overall portfolio. In 2018 the program achieved an increase in participation in HVAC measures including Air Source Heat Pumps, Ground Source Heat Pumps, Electronically Commutated Motors (“ECM”) and circulators. Contributing to this success is an increased effort to engage more consistently with all our participating contractors on a regular basis throughout the program year. In 2018 Minnesota Power visited all participating contractors in person to educate on program changes, provide rebate forms, educate on cooperative advertising opportunities and to gain feedback on the program. In addition, the Company held two air source heat pump (“ASHP”) trainings during the year that focused on the advancements of this technology and its capabilities. This also provided the opportunity to bring many of our contractors together during the year and engage in meaningful conversations about HVAC programs.

**Joint ECM Furnace/Boiler Program with the City of Duluth/ComfortSystems**—Minnesota Power and ComfortSystems (the City of Duluth natural gas utility) joined forces again in 2018 to offer a joint rebate program on high efficiency furnaces and boilers with ECMs to Duluth residents. This is the third year of this partnership meant to serve shared customers with natural gas and electric incentives with one joint application and rebate check. With over 350 projects coming through this program in 2018, this has been a successful partnership and both customers and contractors appreciate the streamlined process. This partnership will be continued into the future, as part of efforts to continually look for ways to enhance the experience for shared customers in the City of Duluth.

**Contractor Network**—Minnesota Power’s contractor network grew by 25% in 2018 as a result of targeted efforts to recruit new contractors. Minnesota Power conducts a survey of customers who participate in the HVAC program to better understand the customer experience. Gathering feedback on the equipment selection, installation process, equipment performance and overall satisfaction with contractor experience in terms of expertise and quality of service provides valuable insight to Minnesota Power’s program offerings. In 2018, Minnesota Power held its mandatory HVAC training for participating contractors at the 28<sup>th</sup> annual Energy Design Conference. The Energy Design Conference included sessions that focused on Updates on Minnesota Codes, Smart Thermostats, ECM, ECM Replacements, ASHP and the Cold Climate Option. The classes were well attended and were also recorded for those who could not attend in person.

**Retailer Engagement Network**—Minnesota Power strives to keep retailers engaged in lighting and appliance promotions through personal store visits, direct mailings, featured stories in newsletters and on its website. Minnesota Power encourages retailers to promote energy-efficient products to customers and provides point-of-purchase and informational materials to use for promotional purposes. The Company has participated in specific event and in-store promotions with key retailers in strategic situations. For example, the Company is a long-time exhibitor featured at the Arrowhead Home and Builders Show in Duluth, and has implemented a special offer for customers, in partnership with a local lighting retailer who is featured at the home show as well, as a way to get customers to visit both booths. Partnerships like this enhance utility/retailer relationships and are ways to continue to strengthen the retailer engagement network. Also, the continuation of a lighting and appliance field representative to visit participating stores will build relationships with the stores and help increase participation.

**Third-Party Implementation Contractors**—Minnesota Power works with several third-party implementation contractors as a fundamental part of its programs. Through these services, Minnesota Power helps customers understand energy efficiency and delivers savings. By tracking customer participation across these programs, Minnesota Power is able to help customers and the utility reap the program benefits, including cumulative impact, while leveraging economies of scale these contractors can offer.

## **SUMMARY**

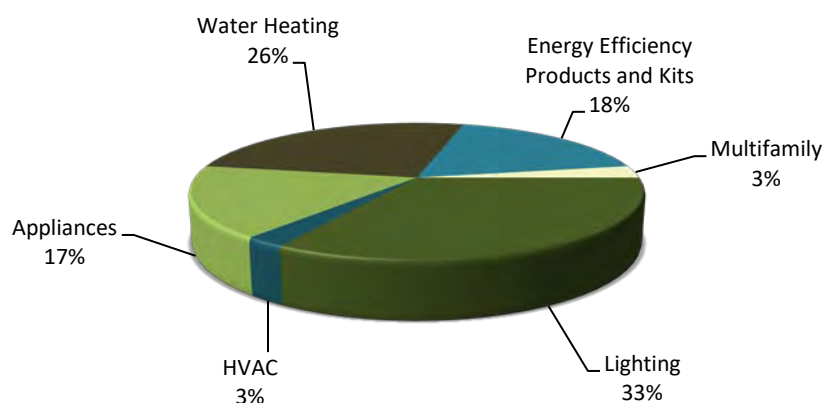
The Power of One® Home program had a strong performance in 2018. The bulk of energy savings was achieved again this year by a tremendously successful lighting program. This, combined with a balanced portfolio of energy-efficient products and services tailored to customers' specific needs, resulted in a successful program that offers options for customers in different phases of their energy conservation journey. Minnesota Power believes that this portfolio of products and services will continue to be successful for the Power of One® Home program in 2019, especially with the continuation of field representatives working with trade allies in the field to further promote conservation programs to customers.

## PROGRAM TITLE: ENERGY PARTNERS LOW INCOME

### PROGRAM DESCRIPTION

The Energy Partners Low Income program is designed to provide income-eligible customers educational resources, Home Energy Analysis (“HEA”), and direct installation of energy-efficient products and appliances to help them use energy more effectively for the long term. Measures within this program primarily focus on lighting, refrigeration, and water heating; products within these categories are provided free of charge to customers that qualify. Program delivery of HEA is accomplished mainly through local community agencies throughout Minnesota Power’s service territory in conjunction with weatherization services. This concerted effort is intentional as it helps to provide the customer with a seamless experience that leverages various program offerings that one program alone could not provide. Through single family and multifamily HEA, installed measures, energy-efficient upgrades, and community events, Minnesota Power is engaging, empowering, and educating customers with the Energy Partners program.

**Figure 9: Energy Partners Programs – 2018 Savings by Technology (kWh)**



### RESULTS

The following chart summarizes and compares the results of the Energy Partners program with goals established at the time of program approval.

|                                           | <i>Approved Goals</i> | <i>Actual Results</i> | <i>% of Approved Goal</i> |
|-------------------------------------------|-----------------------|-----------------------|---------------------------|
| Total Project Expenditures (1)            | \$395,150             | \$557,678             | 141%                      |
| Total Project Energy Savings (at busbar)  | 936,080 kWh           | 1,863,183 kWh         | 199%                      |
| Total Project Demand Savings (at busbar)  | 105.2 kW              | 202.5 kW              | 193%                      |
| Participants (measures)                   | 7,229                 | 22,765                | 315%                      |
| Energy Analysis - Multifamily Units (2)   | 185                   | 138                   | 75%                       |
| Energy Analysis - Single Family Homes (2) | 350                   | 1,265                 | 361%                      |

(1) On November 21, 2018 Minnesota Power submitted a courtesy notification that the Company expected to exceed the Energy Partners Low Income budget by more than 25% anticipating Energy Partners spending for the program year to reach up to \$565,000 (or 143% of filed budget).

(2) The Energy Analysis figures reflected here are also included in the Energy Analysis section but are included here to indicate the number of individual households that participated in the Energy Partners program.

## EVALUATION METHODOLOGY

This program was evaluated based on the following items:

- Participation levels (number of measures implemented)
- Energy savings (kWh)
- Demand savings (kW)
- Net benefit/cost results (see the benefit/cost summary in the Evaluation section)

The Energy Partners program far surpassed original energy savings, participation, and spending goals laid out for 2018. Following the guidance provided in the November 3, 2016 Decision on Minnesota Power's 2017-2019 filing<sup>26</sup>, the Company sent a courtesy notification to the Department indicating that the Energy Partners program was performing far better than anticipated, resulting in a need to exceed 125% of budget. This was largely due to the available staffing from Low-Income Assistance agencies to deliver single family home energy analyses, increased communication and activity of agencies in the outer regions of the Company's service territory, and stronger marketing of the HEA offering to customers across the board. Agency staffing is always a large indicator of the number of customers that can be serviced through the Energy Partners program. Bill inserts, online ads, and various other promotional activities helped promote HEAs to all Minnesota Power customers throughout 2018, targeting times in the fall and winter when customers tend to see higher usage on their bills. Targeted HEA efforts in International Falls, Walker, and Silver Bay correlate to a higher number of rural customers signing up for these services, giving more activity to the agencies in those areas that deliver Minnesota Power's low income audits. Efforts to ensure these agencies were engaged in the program were successful, increasing the number of active agencies from three in 2017 to five in 2018. Minnesota Power distributed postcards in 2018 in an effort to reach historically low income, high electric users with information about the Energy Partners free home energy analysis as well as information about other services that they may benefit from such as the Customer Affordability of Residential Electricity (CARE) discount rate. Postcard distribution will continue in 2019 in phases by area with cooperation of the low income agencies to ensure they are staffed properly to accommodate the increased interest.

The product mix for the Energy Partners program is unique in that the measures are based on customer need and are provided free of charge for qualified customers. Energy Partners savings are achieved through replacement of inefficient refrigerators and freezers and through direct installation of energy-efficient lighting products, along with other energy-efficient products such as dehumidifiers, programmable thermostats, microwaves, refrigerator thermometers and plug load kits. Lighting savings continues to be driven by LED technology, with multiple options available for installation based on unique customer needs. Appliance replacements were up in 2018, from 2017, due in part to the increased activity of the agencies in the outer regions of Minnesota Power's service territory. More customers were identified with greater needs for energy efficiency measures that provide higher savings values— many customers were identified with old appliances in the outer regions of the service territory. For example, overall refrigerator replacements increased about 70% from 2017 to 2018; moreover, the number of non-local deliveries in that total was more than double that of 2017. There were also significant increases in the number of microwaves and dehumidifiers in 2018. Efforts were made in 2018 to be more active with electrically-heated homes in need of shell upgrades. Minnesota Power was able to assist an

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<sup>26</sup> Decision In the Matter of Minnesota Power's 2017-2019 Electric Conservation Improvement Program Plan. Docket No. E015/CIP-16-117, November 3, 2016.

electrically-heated duplex with insulation and air-sealing measures, and the Company plans to use this project as a template for pursuing these types of savings opportunities in 2019.

Minnesota Power's Low Income Customer Task Force, established in 2017, continued its efforts in 2018 to improve services to assist low income customers with cross-functional efforts in mind—conservation program offerings, affordability programs, budget billing, etc. Distribution of postcards, monthly bill inserts, magazine ads and a news release were a few of the strategies used to share information about programs and services available to low income customers in the Company's service territory. Representatives from Minnesota Power attended, for the second year in a row, the annual National Energy and Utility Affordability Coalition ("NEUAC") conference, which had sessions focused around areas such as Energy Assistance and Education, Energy Efficiency and Renewables, and Energy Policy and Advocacy.

The 15th annual Energy Awareness Expo was held in October 2018 at the Duluth Salvation Army. Minnesota Power collaborated with the City of Duluth, ComfortSystems, Arrowhead Economic Opportunity Agency ("AEOA"), Churches United in Ministry ("CHUM"), Housing and Redevelopment Authority ("HRA") and other fuel suppliers to plan and implement the event. Community-based agencies provided low income customers with energy education and information about available assistance, including fuel assistance. Energy Assistance applications were collected at the event. In addition, Minnesota Power staff was on hand to answer questions about Minnesota Power's CARE discount rate program, as well as sign people up for the rate on-site. The CIP team also had a table with the "Wheel of Energy Savings," where attendees answered questions about saving energy to win prizes. The event was well attended, with over 600 people walking through the Expo and over 400 energy-saving kits distributed to low income homes. This event continues to reach a wide variety of customers with energy information while creating a sense of community through collaboration.

General community involvement and outreach has been a particular focus for Minnesota Power in recent years. Efforts have been taken to increase customer outreach in outer, more rural areas of the service territory. A successful partnership with Ruby's Pantry in 2017 led Minnesota Power to pursue this avenue again in 2018, this time with an event in Cloquet, Minn., in September. Ruby's Pantry is an organization that provides generous food shares to people for a small fee. Minnesota Power's CIP team and affordability representatives, along with workers from Fond du Lac Energy Assistance and Lakes and Pines Community Action Council, attended the event to share information about the Energy Partners Low Income program, the CARE discount program, Cold Weather Rule, weatherization opportunities, and how to apply for energy assistance. Over 150 people attended this event. Also in 2018, Minnesota Power representatives presented to Fond du Lac's Elderly Concerns Group on conservation techniques and shared information about the CARE program. A lot of positive feedback and interest resulted from this visit, making collaborations with this organization a probability in the future.

Minnesota Power continued to explore ways to serve the low income multifamily sector in 2018. Five low income multifamily projects were completed in 2018 which included an in-unit walk-through analysis and installation of energy-saving measures. Minnesota Power partnered with Minnesota Energy Resources on these projects with the intention of making the experience for the customer as easy as possible, providing them an all-inclusive look at the energy being used in their facility (natural gas and electric) with one joint analysis instead of different visits by the different fuel providers. Common area analysis was completed, and recommendations were made to the properties as to next steps to make systems upgrades or to save energy in general. Direct installation of energy efficient measures in tenant units was determined on a case-by-case basis

and decided by need of individual units. Minnesota Power is evaluating the results of these projects to help guide program development for the low income multifamily sector.

Minnesota Power recognizes the importance of agency relationships within the Energy Partners program. Not only does this program host a “Listening Session” every year for all of its low income providers to gather feedback and give program updates on the Energy Partners program, but quarterly agency calls occur as well to pace with the agencies and share company-wide updates that would be helpful to the group. It is with these recurring meetings, along with joint community outreach efforts like the ones mentioned above, that Minnesota Power can continue to strengthen these relationships that effectuate meaningful, customer-driven work to best serve this sector of customers.

## **SUMMARY**

Energy Partners continues to be an important part of Minnesota Power’s overall conservation program and is beneficial to the community at large. Through this program, customers are provided with valuable tools and resources to help them take ownership of their energy usage and get the most for their energy dollars. By working and collaborating with provider networks and communities, Minnesota Power has delivered an impactful program while connecting people with essential services and resources.

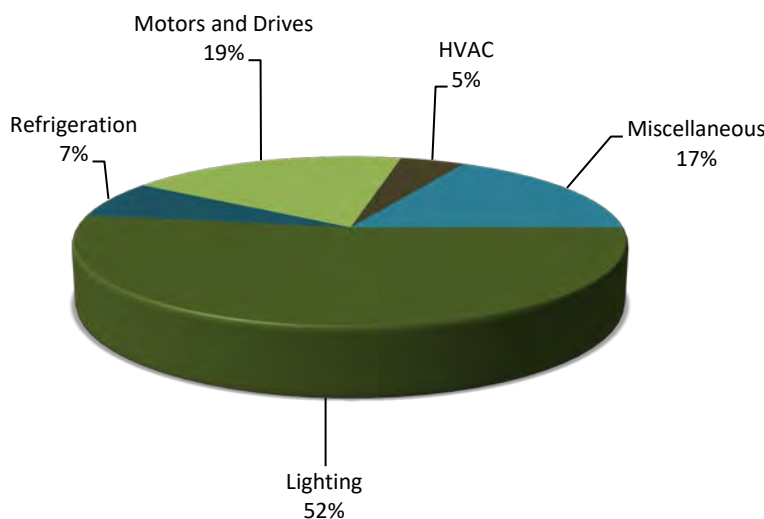


## PROGRAM TITLE: POWER OF ONE® BUSINESS

### PROGRAM DESCRIPTION

The Power of One® Business program serves as the primary forum for reaching and serving business, industrial, agricultural and public sector customers. Minnesota Power recognizes that customers have different priorities and objectives when it comes to investment decisions and this program provides the flexibility required to serve the unique circumstances of various business types. By utilizing program rebates, incentives, tools, expertise and resources, Minnesota Power is able to respond to a dynamic mix of priorities, technical opportunities and specific economic factors.

**Figure 10: Power of One® Business Program—2018 Savings by Technology (kWh)**



### RESULTS

The table below details Power of One® Business 2018 goal accomplishments.

|                                          | <i>Approved Goals</i> | <i>Actual Results</i> | <i>% of Approved Goal</i> |
|------------------------------------------|-----------------------|-----------------------|---------------------------|
| Total Project Expenditures               | \$4,419,433           | \$3,842,799           | 87%                       |
| Total Project Energy Savings (at busbar) | 45,863,694 kWh        | 56,483,120 kWh        | 123%                      |
| Total Project Demand Savings (at busbar) | 7,881.0 kW            | 6,078.8 kW            | 77%                       |
| Participation (measures)                 | 3,366                 | 940                   | 28%                       |

#### *2018 Power of One® Business Projects Overview by Customer Class*

|              | <i>Total \$ Rebated</i> | <i>Number of Measures</i> | <i>Total Estimated kWh Saved (meter)</i> |
|--------------|-------------------------|---------------------------|------------------------------------------|
| Agricultural | \$49,002                | 27                        | 1,846,288                                |
| Commercial   | \$1,556,073             | 776                       | 29,137,991                               |
| Industrial   | \$847,924               | 137                       | 20,134,304                               |

## EVALUATION METHODOLOGY

Minnesota Power evaluated energy and demand savings based on manufacturer end-use data, proven engineering methods, the Minnesota Technical Resource Manual and/or site-specific engineering studies. A component of all project savings and demand reduction estimates involves end-use calculations. In 2018, Minnesota Power continued its expanded emphasis on pre- and post-project analysis. This also includes Measurement and Verification (“M&V”) efforts which are discussed in the Compliance section of this filing. Minnesota Power had one large M&V project in 2018.

When considering energy-savings opportunities, Minnesota Power reviews projects with consideration toward not only energy savings, but also operating costs, effective design and technology utilization, unit output and overall productivity. By following a well-grounded model, energy conservation can become an integral part of sound investment decisions, supporting the customer’s overall asset planning and informed resource considerations, and garnering buy-in from operations personnel. This model leads to identification of effective short-term projects while also providing a path toward long-term effective use of energy resources by capturing the growing number of customers that have projects spanning across multiple years as opposed to a “one-and-done” approach. Awareness of how systems work together is critical and attention to “systems thinking” with regard to processes pertaining to energy usage is important in providing solutions to customer’s energy challenges.

Through this program, both new and established technologies and process improvements are promoted and delivered. Other tools may include cost sharing for design assistance on a proposed new building, a compressed air study at an existing manufacturing facility, and/or monitoring facilities to identify “hot spots” to pinpoint the greatest opportunities for improvement. Power of One® Business also reinforces the importance of the commissioning process when projects are implemented, both during initial start-up and during periodic tune-up periods. The Power of One® Business delivery strategy is to influence customer choices through relationships and ongoing interactions. Minnesota Power also works with manufacturers, distributors and contractors to assist in the delivery of conservation technologies. The program offers a wide range of services including education, training, research, performance studies, energy analysis and overall energy awareness, providing customers with tools and resources they need to make informed choices.

Minnesota Power maintains a continuous commitment to refining strategies to reach customers with meaningful programs that address their expectations, preferences, operational needs and decision-making processes. Minnesota Power anticipates a growing portion of its Power of One® Business goal to come from what is generally considered hard-to-reach sectors—small to mid-sized businesses. This will necessitate options that streamline the participation process so customers from this sector, who likely have fewer resources and staff to focus on efficiency opportunities, can realize the many benefits of energy efficiency as cost effectively as possible.

The Company’s customer-driven marketing strategy ensures that customers’ operational needs are addressed while retaining flexibility in program delivery. Customers with less complex projects are better suited to use prescriptive type rebates and delivery methods, while customers with larger or more complex processes are encouraged to potentially reach a greater level of energy savings through in-depth analysis of their facilities. In any case, customers are provided a simple pre-application to get the process started. They are assigned a field representative who can help them tap into the Power of One® Business program and identify delivery methods at the appropriate level to fulfill their needs.

## END-USE CATEGORIES

**Lighting & Controls**—Lighting continues to be one of the main contributors to the Power of One<sup>®</sup> Business program. Minnesota Power offered custom incentives for new and retrofit lighting projects with LED being by far the technology of choice. With LED technology, controls are also becoming a much more popular and cost-effective way to implement lighting savings. Although controls represent a smaller portion of the overall CIP savings, they are still an important part of the One Business program results.

**Refrigeration**—Minnesota Power offered incentives for new and retrofit refrigeration projects, which include refrigeration equipment, controls, appliances and evaporative fan motor retrofits.

**Motors/Pumps**—Minnesota Power offered incentives for new or replacement equipment such as premium efficient motors, Variable Frequency Drives (VFD) and Electronically Commutated Motors (ECM).

**Heating, Ventilation, and Air Conditioning (HVAC) & Controls**—Minnesota Power offered incentives for new or replacement commercial and industrial heating, ventilation and cooling equipment including roof top units, chillers, heat pumps and controls.

**Miscellaneous**—Minnesota Power offered incentives for new or retrofit projects with technologies such as compressed air upgrades, commissioning, appliances, IT equipment or process improvements.

## ELECTRIC UTILITY INFRASTRUCTURE PROJECTS

In 2018, Minnesota Power did not claim any EUI projects. However, CIP professionals worked closely with Minnesota Power's facility managers to identify energy-savings opportunities within its facilities and will continue to do so to identify new opportunities in 2019.

## SUMMARY

In 2018, Minnesota Power implemented the following less conventional strategies as part of the One Business program.

**Community Business Blitz**—In 2018, Minnesota Power representatives visited three communities (Hinckley, Little Falls, and Silver Bay) and provided on-site analyses at local businesses with the direct installation of energy-saving products. By providing these measures, customers gained an increased awareness of products available and the process started conversations regarding future projects. While visiting these businesses, Minnesota Power also gained valuable information about technologies used and identified further potential energy-savings opportunities.

**High Bay Lighting Program**—In 2018, Minnesota Power enhanced its lighting program to provide an extra incentive for high bay lighting fixtures. This promotion allowed commercial and industrial customers with large indoor space and high ceilings to enter the LED market at a much lower cost. Emphasis was focused on energy savings, quality of light, safety for workers and the public, as well as lower maintenance costs. Personal contacts with all businesses were made to

assist these customers with understanding of the incentives and help in working through the projects.

**Benchmarking**—Minnesota Power uses benchmarking with facilities to help identify energy-savings opportunities when making facility upgrades and to identify maintenance improvements. In addition, Minnesota Power continues to share information with those responsible for facility management and serve as a resource for information on new technologies and application techniques.

**Bonus Incentives**—To further enhance participation in the Power of One<sup>®</sup> Business program and make energy-saving resources a priority in business planning, Minnesota Power offers a bonus incentive to customers that agree to place the incentives they receive in a revolving account. Customers that agree to the terms of this program receive a 10% premium on top of their standard rebate as a reward to establish and maintain an account designated exclusively toward future energy-savings activities. These accounts have proven useful in funding smaller day-to-day projects as well as providing seed money for taking the next step towards even greater efficiencies.

In 2018, Minnesota Power far exceeded its energy-savings goal for the Power of One<sup>®</sup> Business program, achieving 123%. Though the actual participation numbers (listed as measures) are lower than the approved goals, this is more indicative of the types of projects than it is of actual participation.

The Power of One<sup>®</sup> Business program is designed to empower customers to make informed and effective energy choices by asking the right questions early in projects and reinforcing that energy efficiency is a multi-step process that begins with design and goes well beyond any single isolated project. Through program tools and resources, customers can develop an energy management plan that will add value to their businesses for the long term. The detailed success stories in this document provide further context about how customers, in collaboration with Minnesota Power, succeeded in achieving the Power of One<sup>®</sup> in 2018.



## PROGRAM TITLE: CUSTOMER ENGAGEMENT

### PROGRAM DESCRIPTION

The Customer Engagement program is an integral part of raising awareness about Minnesota Power's residential, commercial, and community-based energy conservation programs to a wide variety of customers. Through this program, Minnesota Power connects with customers on multiple levels, creating relationships and engaging customers through events, training, and education. Educational outreach and collaboration with local energy-conscious organizations continues to be the foundation for delivering Customer Engagement programs. Connecting with these civic organizations, businesses, schools, churches and a variety of community agencies increases awareness about programs and creates a more energy-conscious community. Educational outreach via an interactive website, specialized trainings, advertising, literature, and participation in community events gives customers a trusted ongoing resource for their questions and a sounding board for their ideas. Minnesota Power believes the connections developed through customer engagement contribute to both the scope and design of Minnesota Power programs, ensuring that the programs offered are meaningful, useful, and relevant to evolving customer needs and an evolving energy landscape.

### RESULTS

The following chart summarizes and compares the results of the 2018 Customer Engagement program with goals established in the Triennial Filing.

|                                                                 | <i>Approved<br/>Goals</i> | <i>Actual<br/>Results</i> | <i>% of<br/>Approved<br/>Goal</i> |
|-----------------------------------------------------------------|---------------------------|---------------------------|-----------------------------------|
| Total Project Expenditures                                      | \$1,007,255               | \$676,420                 | 67%                               |
| Utilization of the online energy tools and materials (visitors) | 100,000                   | 92,861                    | 93%                               |
| Participation in community energy events                        | 8,000                     | 7,395                     | 92%                               |
| Number of seminars, demonstrations, and conferences             | 35                        | 33                        | 94%                               |
| Customer profiles or newsletters completed                      | 15                        | 16                        | 107%                              |

### EVALUATION METHODOLOGY

Minnesota Power tracked the number of visitors (hits) who used online energy tools and program information via the Minnesota Power (Power of One<sup>®</sup>) website, the number of participants at community events, the number of seminars and demonstrations presented or co-sponsored, and the number of customer profiles or newsletters published.

## UNDERSTANDING

### ***Collaboration***

Collaboration is a key component in delivering meaningful programs to a wide variety of customers. Minnesota Power collaborates with HVAC contractors, business owners, area utilities, community agencies, and energy-conscious organizations to expand outreach and availability of program involvement.

**HVAC Contractor Engagement**—Minnesota Power continued to build on its existing relationships with participating HVAC contractors in 2018, while also encouraging new HVAC contractors to join the program. In addition to regular communications via email blasts distributed to participating contractors, information was provided on program offerings, rebate submittal requirements, special promotions and educational elements. Email blasts were also sent to HVAC contractors in the service territory who were not currently participating in programs to inform them of the benefits to both them and their customers. A collateral piece focused on recruiting new contractors to join the network was also created to help expand the participating contractor list. The brochure includes a summary of available rebates as well as benefits of participating in the program. Minnesota Power's participating contractor list grew by 25 percent in 2018.

Minnesota Power held a mandatory HVAC training for participating contractors during the Energy Design Conference and Expo. The full-day training session focused on Cold Climate ASHPs, ECMs, GSHPs and Smart Thermostats. The Company also conducted heat pump training sessions in Duluth and Nisswa in September 2018. Both trainings were well attended and provided product details, calculated savings insights and other related information. There were 44 contractors in attendance at the Duluth training session and 29 at the Nisswa session.

In 2018, Minnesota Power's dedicated HVAC field representative conducted 368 site visits over the year. All participating contractors were visited at least twice, and the top performing contractors were visited at least three times during the program year. Visits included, but were not limited to, ensuring contractors were up-to-date on program changes, special rebates, and promotions while also providing rebate applications and marketing collateral. These visits also gave the field representative the opportunity to gather feedback from the HVAC contractor network.

**Lighting and Appliance Retailers**—Minnesota Power works closely with lighting and appliance retailers. In 2018, the Company continued with a lighting and appliance field representative to increase outreach to retailers. The representative completed over 1,100 visits to over 170 different ENERGY STAR<sup>®</sup> retailers. During the visits, the representative ensured that retailers had proper point-of-purchase materials, educated staff on the benefits of ENERGY STAR<sup>®</sup> products, and checked on availability and quantity of rebate forms for customers.

**Community Agencies**—Minnesota Power collaborates with community agencies to deliver the Energy Partners low income program through Home Energy Analysis, the direct installation of energy-saving measures, and the replacement of inefficient appliances. In an effort to keep the communication lines open with agencies, quarterly calls were held to give program updates and collaborate on ways to best reach customers. In 2018, Minnesota Power held the annual Listening Session with agencies to provide program updates and gather insights for continuing the success of this program.

**Veteran Outreach**—Minnesota Power continues to build upon its Yellow Ribbon Company certification, which recognizes employers that support military-connected individuals within the company and the community. In 2018, Minnesota Power reached out to veterans by collaborating with Habitat for Humanity on the building of a house in 2019. The home will be built to Minnesota Power’s Triple E Program standards to make the home as efficient as possible and lower utility costs for its owner.

**Commercial Energy Teams**—Minnesota Power continued to develop and expand its Energy Team strategy in 2018 by assisting both large and small business customers to develop on-site teams. These teams meet regularly to discuss energy-efficiency improvements, how to achieve results, and how to keep energy at the forefront of facility decisions. The benefits of these on-site meetings extend far beyond energy savings by providing a platform for broader facility operations and management considerations.

**Building Operator Certification Training**—In 2018, Minnesota Power continued to sponsor and promote Building Operator Certification training. This nationally recognized certification program provides education focused on building systems and energy efficiency in facilities. It also presents an opportunity to tie course learning directly to realize energy savings by providing tuition reimbursement to attendees for completing the course and identifying a CIP-eligible project.

**Utility Partnerships**—Minnesota Power finds it important to build relationships with neighboring utilities in an effort to provide the most comprehensive energy conservation services possible to shared customers. A longstanding relationship with Duluth’s gas utility, ComfortSystems, has resulted in years of collaboration on several different programs. Home energy analysis performed in the City of Duluth is a comprehensive energy audit for the customer, including both natural gas and electric measures and recommendations. Benchmarking of commercial customers in the Duluth area is a team effort that includes gathering electric and gas information from each utility. The joint rebate program with Minnesota Power and ComfortSystems for new furnaces and boilers continued in 2018, furthering the partnership. Minnesota Power also partnered with ComfortSystems and Ecolibrium3 to deliver the Rental Energy Upgrade Pilot in the Lincoln Park area of Duluth. This program offered energy analysis and grant money from the City for envelope improvements and energy-efficient equipment upgrades. Minnesota Power partnered with CenterPoint Energy and Minnesota Energy Resources in 2018 as part of multifamily projects, and will continue to look for ways to collaborate with other utilities who share the same customer base to streamline the customer experience.

**Community Business Blitz**—Minnesota Power expanded its small business “blitz” initiatives in 2018. This delivery strategy for reaching businesses in rural communities shows promising results for both energy education awareness and energy savings. In 2018, Minnesota Power representatives visited communities including Hinckley, Little Falls, and Silver Bay. The representatives provided an on-site analysis at local businesses with the direct installation of energy-saving products. Minnesota Power partnered with Minnesota Energy Resources for the Silver Bay business blitz. Both commercial and residential customers were visited during this blitz with both electric and gas measures being installed. By providing these products, customers gained an increased awareness of products available and conversations were spurred regarding future projects. While visiting these businesses, Minnesota Power also gained valuable information about technologies used and identified further potential energy-savings opportunities unique to these areas.

### ***Educational Outreach Events***

Through educational outreach events, Minnesota Power is able to expand on its information sharing, raise awareness about program offers, build relationships and seek valuable input from customers, trade allies and community members.

**Lake Superior Harvest Festival**—Minnesota Power staffed a booth at the Lake Superior Harvest Festival in Duluth, Minn. Festival-goers were able to visit educational tables and learn about energy conservation and solar programs.

**University of Minnesota Duluth (UMD)**—Minnesota Power continues to share a partnership with UMD students, faculty, and the facilities directors. In 2018, conservation team members staffed an energy conservation booth at the spring sustainability fair. The students were engaged and shared ideas, feedback, and interest in Minnesota Power’s energy conservation and renewable programs.

**Iron Range Earth Fest**—Minnesota Power sponsored and staffed a conservation-themed booth at this sustainability and environmentally focused festival. This event offers a unique opportunity to interact with customers from a wide variety of areas on the Iron Range. Minnesota Power representatives were on hand to answer questions, gather feedback, and share resources with customers about energy conservation, energy efficiency, and CIP resources.

**Energy Design Conference**—Minnesota Power hosted the 28th annual Energy Design Conference & Expo in February in Duluth, Minn. This three-day conference focuses on energy-efficient building and sustainable design. With over 40 educational sessions, an exhibit hall filled with the best in the building business, and an abundance of networking activities, this event is a staple in northern Minnesota for those interested in energy efficiency, high performance homes and responsible building choices. This year the conference added new elements including an opening plenary speaker, business tours, and free mini-sessions for homeowners.

**15th Annual Energy Awareness Expo**—The annual Energy Awareness Expo continues to be a worthwhile and meaningful educational outreach event designed to engage and empower low income customers. The event brings together a variety of community outreach organizations, area agencies and energy providers. Attendees had the opportunity to share ideas, learn ways to get the most for their energy dollars and receive energy-saving products. Minnesota Power representatives were on hand to answer questions about energy conservation, budget billing, and Cold Weather Rule, and to help eligible customers sign up for the Customer Affordability of Residential Electricity (CARE) discount rate. Attendees could also participate in an energy conservation contest where they spun the “Wheel of Energy Savings” and answered energy conservation questions to win prizes.

**Home Show**—Minnesota Power hosted an energy conservation booth at the 2018 Arrowhead Home and Builders Show. The booth display featured the Pyramid of Conservation, residential and commercial energy conservation programs, an interactive website station, information about cold climate air source heat pumps, and the opportunity to win an energy-saving kit. Key features of this year’s booth included an LED light bar with examples of different types of bulbs and right fit applications, an air source heat pump display and a solar panel. In addition, Minnesota Power partnered with Batteries Plus Bulbs to offer a “buy two, get one free” coupon for LED bulbs. Representatives from Minnesota Power staffed the booth and were available to

answer energy conservation questions and assist customers in navigating the website to use online tools and energy calculators and to find energy information.

**Community-Sponsored Events**—In addition to Minnesota Power-sponsored events, conservation team members staffed booths at a variety of community-based events. These events offer an opportunity to engage with customers, provide conservation education and receive valuable feedback to strengthen community outreach programs.

## TOOLS AND RESOURCES

**One Business Profiles**—One Business profiles (one-page handouts) feature area businesses that have implemented new technologies or made facility improvements through the Power of One<sup>®</sup> Business program. By featuring a wide variety of businesses ranging from Goodwill Industries to Kolar Toyota, customers are exposed to the wide scope of business conservation opportunities. Profiles are distributed at community events, promoted on social media and posted on the Power of One<sup>®</sup> section of Minnesota Power's website. These profiles prove to be an effective educational and marketing tool in reaching a diverse range of commercial customers. Some of these profiles are featured in the Successes section of this filing and can be accessed online at [www.mnpower.com/profiles](http://www.mnpower.com/profiles).

**Power of One<sup>®</sup> Internal Communications**—In an ongoing effort to increase internal understanding and awareness of Power of One<sup>®</sup> programs, Minnesota Power employed the following efforts directed toward employees.

- The conservation team promotes CIP to employees with *Conservation Counts*, a monthly newsletter highlighting current promotions, customer profiles, community events, team members, regulatory updates and customer testimonials. The newsletter is distributed via email to Minnesota Power employees on an opt-in basis. *Conservation Counts* gains further visibility through a posting on the company intranet home page.
- Digital posters featuring current promotions and campaigns are integrated into a loop of company updates on screens throughout Minnesota Power's corporate office building and are also available on the intranet home page. These efforts spurred additional interest and inquiries about Minnesota Power's Power of One<sup>®</sup> conservation programs.

**Energy-Efficient Kits**—The SmartPak Kit (which includes an energy-saving showerhead, faucet aerators, shower timer, and water temperature card) and the Starter Kit (includes three LEDs, refrigerator thermometer, shower timer and plug load information) were provided to customers upon request or by participation in various promotions and offers. The kits are great opportunities to cross-market other programs.

**Power of One<sup>®</sup> Education-Based Literature**—In an ongoing effort to provide up-to-date and relevant information to customers, Minnesota Power developed a variety of literature, brochures and fact sheets focused on energy-efficient technologies and conservation programs. These items were distributed through direct mail, bill inserts and community events. A selection of literature was also provided online for downloading or mail distribution via an online order form.

**The Duluthian**—In an effort to raise awareness about the Power of One<sup>®</sup> Business program, particularly for small- to mid-sized businesses, commercial-oriented ads were placed in the bi-monthly Duluth Chamber of Commerce publication, the *Duluthian*. Minnesota Power promoted the Power of One<sup>®</sup> Business pre-application (available online) and area businesses who have

participated in the Power of One<sup>®</sup> Business program and made energy-efficient changes within their businesses and facilities.

**Power of One<sup>®</sup> Section of Minnesota Power's Website**—The Power of One<sup>®</sup> is prominently featured on Minnesota Power's website and is a widely-used destination for energy education and information. Through interactive tools, energy and appliance calculators, rebate and incentive information, the Pyramid of Conservation, and up-to-date program information, customers are able to learn how they use energy and develop an action plan based on this knowledge. The website also serves as a valuable resource for Minnesota Power Call Center Representatives and front line employees when answering customer questions about energy conservation programs. Power of One<sup>®</sup> programs are posted online to visually and narratively present stories of a wide range of businesses and their experiences, giving practical context to program offerings. MyAccount continues to be a valuable tool in helping customers understand how they use energy and learn ways to take charge of energy costs. This secure online portal shows current and historical energy usage and offers energy markers to track energy-saving purchases, online bill payments, access to bill history, and actions that may affect customer usage.

**Promotion**—A multi-faceted approach was taken to promote Minnesota Power's energy conservation programs for residential customers, commercial customers and the community at large. Ads were placed in newspapers, magazines, and online, promoting energy conservation, the Power of One<sup>®</sup> Home program, community expos and events, and the Power of One<sup>®</sup> Business program. Programs were also promoted via social media and through email blasts to opt-in members of the Power of One<sup>®</sup> energy team. Facebook posts prove to be an effective method of communicating with customers, with a large amount of interaction through Likes, Shares and Comments. Twitter and Instagram were also utilized in 2018 as a way of increasing program awareness.

## DELIVERY STRATEGIES

A critical component of delivering programs to customers is the flexibility built into the customer incentive structure. One of the initiatives Minnesota Power utilizes to create flexibility is to offer multiple levels of delivery options.

- **Marketing Strategy A** utilizes a prescriptive-based incentive approach to ensure the continued use of energy-saving technologies. This method targets proven technologies that need less analysis but still require incentives to encourage market acceptance.

Incentives are paid out at fixed rebate levels for limited terms. This strategy assists in the marketing of underutilized technologies while preventing the creation of artificial markets for nonviable products.

Manufacturers and suppliers are given the opportunity to work hand in hand with Minnesota Power to provide a quick and effective incentive process. As the dynamics of the market change, adjustments can easily be made with the ultimate objective of market transformation toward efficient and effective technologies in the agricultural, commercial and industrial markets.

- **Marketing Strategy B** is a more customized approach that encourages customers to seek assistance in evaluating newer and underutilized technologies that best fit their needs. By introducing customers to lesser-known technologies often not considered, a broader range of effective implementations will occur.

This marketing strategy is a performance-based approach that has targeted the core of Minnesota Power's customer segments.

- **Marketing Strategy C**, generally applicable to One Business, provides a grant for instances where the complexity of the technology or the dynamics of the project require considerations outside common parameters. Minnesota Power has worked with each customer to develop an incentive to encourage implementation. Project boundaries have been established using historical Power of One<sup>®</sup> Business experiences and through appropriate screening processes.

**Cross Promotion**—Minnesota Power utilized its relationships with both residential and business customers by cross promoting programs to multiple sectors. Minnesota Power's ECM program, lighting, and HVAC programs were promoted to residential and commercial customers via educational materials and through communications via in-person visits. In addition, both business and residential educational materials were included in energy-saving kits and in "Welcome Wagon" materials given to new customers. In 2018, Minnesota Power also collaborated with ComfortSystems to cross promote its ECM program to both residential and small commercial customers. In 2018, Minnesota Power expanded this outreach by promoting residential programs to business owners that participated in the energy analysis program included with the "Business Blitz" initiative.

**Midstream Strategy**—Minnesota Power continues to evaluate the use of midstream strategies to determine how best to use this approach moving forward, as it helps strengthen the relationships between Minnesota Power and its trade ally networks. Minnesota Power continues to have strong relationships with big-box stores through its residential lighting markdown program. In addition, the One Business program utilizes midstream strategies such as buy-downs on LED troffers and strips. Having strong relationships with major distributors and contractors within Minnesota Power's territory creates new opportunities in working together on energy-efficient projects going forward.

## SUMMARY

The Customer Engagement program focuses on key drivers to empower customers to make effective energy choices. All outreach efforts begin with meaningful engagement achieved by reaching out to customers via multiple modes and touch points of communication. Marketing and educational materials, along with customer interactions at community events, help customers begin **Understanding** how they use energy. **Tools and Resources** further this understanding which leads to **Informed Choices** and ultimately results in finding **Right Fit Options** for customers. Through active participation within the community, an interactive website, internal and external promotions and specialized trainings, the Customer Engagement program serves as the communications vehicle for all of Minnesota Power's Power of One<sup>®</sup> programs. This continual and open communication with customers strengthens Minnesota Power programs and serves as a foundation for an energy-conscious community.

## **PROGRAM TITLE: ENERGY ANALYSIS**

### **PROGRAM DESCRIPTION**

Energy Analysis is a cross-market program that provides a pipeline for energy-efficiency projects through direct-savings programs—Power of One<sup>®</sup> Home, Power of One<sup>®</sup> Business and Energy Partners Low Income. The goal of the Energy Analysis program is to help residential, small-to-large commercial/industrial, and agricultural customers develop a core understanding of how they use energy. With this knowledge, customers are able to make informed choices about their investment in energy-saving products and services. Energy Analysis focuses on working with customers to develop an action plan that translates recommendations into measurable, achievable steps. Participants are connected with a multitude of program resources such as online calculators, baseline energy consumption data, incentives, product training, technology specifications and online information. Also, where applicable, direct installation of products may be included.

Energy Analysis consists of three major categories: informational analysis (Level I), end-use analysis (Level II), and facility analysis (Level III). In addition, Minnesota Power offers design assistance. The focus of Energy Analysis is on identifying, evaluating and delivering the benefits of total energy savings, which includes reduced operating and maintenance costs, increased productivity and comfort, and greater control over energy usage. Energy Analysis considers the unique needs of each customer and facility. Ultimately, the customer decides what their energy-savings objectives are and Minnesota Power helps them identify options and products and services to meet those requirements.

Energy auditors and selected program third-party contractors are an integral part of Minnesota Power's Energy Analysis delivery network. Auditors and/or energy analysts are uniquely qualified and have the proper tools and training to better connect their services with conservation program opportunities and incentives.

### **EVALUATION METHODOLOGY**

Minnesota Power documents the number and type of energy analysis activities delivered.

## RESULTS

The following chart summarizes and compares the results of the Energy Analysis program with goals established at the time of program approval.

|                                                    | <i>Approved<br/>Goals</i> | <i>Actual<br/>Results</i> | <i>% of<br/>Approved Goal</i> |
|----------------------------------------------------|---------------------------|---------------------------|-------------------------------|
| Total Project Expenditures                         | \$962,125                 | \$912,559                 | 95%                           |
| Home Energy Analysis                               | 565                       | 1005                      | 178%                          |
| Home Performance (1)                               | 616                       | 322                       | 52%                           |
| Energy Analysis – Low Income Multifamily (renters) | 185                       | 138                       | 75%                           |
| Energy Analysis – Low Income Single Family Homes   | 350                       | 1,265                     | 361%                          |
| Business Energy Analysis (2)                       | 3,211                     | 4,518                     | 141%                          |
| Business Facility Performance (3)                  | 465                       | 485                       | 104%                          |
| Total Participants                                 | 5,392                     | 7,733                     | 143%                          |

(1) This includes proper installation of CAC/ASHP and end-use analyses on ground source heat pumps, Triple E plan reviews and HEA with Building Diagnostics.

(2) The analysis categories include: Level I; Level II; Level III; agricultural assistance; and multifamily analysis.

(3) This includes engineering/design assistance (including plan reviews and lighting design) and benchmarking.

### ***Home Energy Analysis***

Energy Analysis for the residential sector includes Home Energy Analysis (“HEA”), excluding low income (as determined by LIHEAP qualification). An HEA can help the customer determine how much energy is being used and what can be done to get the most for their energy dollars. Professional auditors help identify ways to save energy in homes and provide energy-saving electrical products.

In 2018, the HEA goal was surpassed by more than 400 analyses. This is due in part to more interest from all customers, especially those in outer regions of Minnesota Power’s territory. Bill inserts, social media, and online ads all were used as marketing techniques in 2018 to promote this offering. Minnesota Power and ComfortSystems, the City of Duluth gas utility, each promote this offering to customers in the Duluth area, as both utilities work together with the auditors to provide customers in Duluth electric and gas audits jointly.

An experimental effort was also utilized in 2018 to target specific cities in Minnesota Power’s service territory with this offering. Focused efforts were directed towards the cities of International Falls, Walker, and Silver Bay throughout the year for spans of two to three months each. Postcards were sent to residential customers, door hangers were left at homes, and phone calls were made to residents in each of these three locations to promote the Home Energy Analysis program and to encourage interested customers to sign up. Other promotional efforts such as yard signs, referral drawings, and newspaper articles and ads were utilized throughout the year at different locations to determine how effective each was in getting the word out. A partnership with Minnesota Energy Resources was formed within this effort to give the customer a comprehensive look at their energy usage including both electric and gas. Additionally, Clean Energy Resource Teams (CERTs) assisted in promotional efforts for the City of Silver Bay where CERTs was already working with North Shore Area Partners on a project promoting efficiency with senior citizens. By joining efforts, CERTs was able to share information with customers on both projects, guiding them to the solution that would be

the best fit for them. These targeted efforts in cities to promote the Home Energy Analysis program increased awareness of the program while also boosting participation in this program.

### ***Home Performance***

This category includes those services which take into account system performance along with building science best practices. It includes offerings such as Home Energy Analysis with Building Diagnostics (“HEA w/BD”), Triple E New Construction, and Central Air Conditioner (“CAC”) and Air Source Heat Pump (“ASHP”) Design Assistance.

An HEA w/BD takes a traditional HEA to the next level and includes blower door testing and infrared thermal scanning. This is beneficial for homes that experience cold drafts or sweaty windows in winter, uneven temperatures between rooms, heating or cooling systems that do not keep the home comfortable, or ice dams. New this year was a joint effort with ComfortSystems on a small-scale Rental Energy Upgrade Pilot which targeted landlords of duplexes, triplexes, and quadplexes that would benefit from building shell improvements. An HEA w/BD was performed, and based on income eligibility, additional services, offerings, or grants were awarded to upgrade the property based on needs that were found during the analysis. The supplemental offerings included appliance replacements, free minimal weatherization work, and grants on both insulation and new high efficiency furnaces. An evaluation of this pilot will be done in early 2019 to determine the best steps for moving forward with this offering. Even with this pilot effort, participation in HEA w/BD was similar to last year. With such high numbers in the HEA program, it is likely customers chose the standard HEA over HEA w/BD when deciding which offering was right for their situation.

The Triple E program maintained the higher standards from 2012, which included increased values for both prescriptive (i.e., thermal efficiency, moisture control, air quality, heating and domestic hot water) and performance (i.e., heating and air tightness) measures.

CAC and ASHP Design Assistance is a service provided to customers through participating trained HVAC contractors. The contractor focuses on ensuring proper sizing, air flow, and refrigerant charge of installed cooling equipment. Minnesota Power will continue to promote the importance of these services to its customers in 2019.

### ***Low Income Energy Analysis***

The Low Income Energy Analysis program consists of Single Family and Multifamily (renters) Home Energy Analysis. This program is delivered through partnerships with local community agencies. Active agencies in 2018 included the Arrowhead Economic Opportunity Agency (“AEOA”), Bi-County Community Action Partnership (“BI-CAP”), Lakes and Pines Community Action Council, KOOTASCA Community Action, and Tri-County Community Action Partnership. In 2018, Single Family Energy Analysis again saw an increase from the previous year. This increase may be due to increased staffing at the agencies who deliver the audits, increased communication with the agencies and this sector of customers at large, and more activity from agencies that have participated less in the past. Minnesota Power joined efforts with Minnesota Energy Resources in 2018 to reach many multifamily renters. Through this collaboration, along with other efforts, six low income multifamily properties were analyzed and over 130 tenants were impacted through either direct installation of energy efficiency products in their apartments or with education at tenant educational events that were conducted to share conservation tips and tools to customers who would benefit from it the most. Minnesota Power was able to reach hundreds of

customers in 2018 by providing energy analysis, education, and energy-saving measures, and customers in general seemed to have an increased interest in HEAs and energy conservation.

### ***Business Energy Analysis***

The Business Energy Analysis program continues to utilize analysis as a tool for educating and encouraging customers to make informed energy decisions. Business Energy Analysis involves preliminary energy use analysis and benchmarking. It includes a high-level business and facility interview, billing analysis, ENERGY STAR® Portfolio Manager analysis, and/or an Energy Use Index (EUI). The levels used are Level I (high-level site visit and walk-through analysis); Level II (energy survey and engineering analysis plus end-use analysis); and Level III (detailed analysis of capital-intensive modifications).

In 2018, Minnesota Power continued to research and implement tools with the intention of improving recording methods and information management, exploring potential cost-saving procedures, and providing on-site information capabilities to increase engagement and increase the likelihood of a customer taking action toward project implementation. Minnesota Power collaborated with the local gas utility where shared program delivery resulted in implementing energy conservation into a successful project design. Since a majority of energy savings in new construction commissioning/recommissioning are thermal, this joint cooperation with the natural gas utility fosters a more uniform approach to delivering energy-saving measures in collaboration.

Minnesota Power visited over 50 multifamily buildings throughout the year, completing multiple projects successfully by using a variety of different energy analysis tools and practices. Minnesota Power also collaborated with local gas utilities to deliver the best energy-saving outcomes for the customer. Multifamily analysis and delivery strategy will continue to be a focus in 2019.

## ***Business Facility Performance***

### ***Design Assistance***

Minnesota Power provides customers the tools needed to evaluate their facilities in order to make informed choices with their energy-savings options. By providing plan reviews for remodel or new construction projects, or a lighting design study when moving to new LED technology, Minnesota Power is able to provide the resources needed for customers to make informed choices. In 2018, Minnesota Power performed over 330 design assistance projects.

### ***Certification Evaluations***

In 2018, Minnesota Power was involved with over 150 benchmarking efforts, providing customers with assistance in developing B3, ENERGY STAR® and EUI scores. Through the use of benchmarking scores, customers with multiple facilities are able to target candidates to best utilize limited energy funding in order to make the greatest impact.

### ***Joint Initiative—Multifamily***

In 2018, Minnesota Power focused on creating a program that would provide an all-encompassing residential/commercial hybrid approach to multifamily buildings. Evaluation of previous efforts and strategies was conducted in an effort to determine the best approach for customers and to better define the work currently being done with this sector.

Minnesota Power developed Multifamily Program Requirements to pilot with multifamily customers. In creating these requirements, Minnesota Power strives to have a turn-key solution for a multifamily program that any implementation contractor can perform on behalf of Minnesota Power. The requirements were piloted in late 2018 and will continue throughout 2019. These efforts are in preparation for including a solid multifamily program.

### ***Working Together with Minnesota Energy Resources***

Minnesota Power collaborated with Minnesota Energy Resources and used a joint implementation contractor to provide full on-site inspections, install energy conservation measures in units, provide educational events for tenants, and deliver comprehensive reports including recommendations for both electric and gas measures to building owners. This gave customers an all-inclusive overview of their building's energy use. Using this joint partnership strategy, Minnesota Power and Minnesota Energy Resources visited twelve multifamily customers throughout shared service territories, including income qualified multifamily buildings. Over 300 apartment units benefited from direct installation of over 2,500 energy conservation measures. Utility collaboration will continue into 2019 and beyond to provide more all-inclusive multifamily energy audits.

### *Developing Relationships*

Minnesota Power has established an ongoing relationship with the Duluth Housing and Redevelopment Authority. Throughout 2018, a list of current and future energy-efficient projects have been identified and completed. Minnesota Power will continue to work with the Duluth Housing Authority as well as other multifamily establishments to identify future energy-efficient projects.

As an additional step towards exploring options in the multifamily sector, Minnesota Power continues to work with Minnesota Multifamily Affordable Housing Energy Network (MMAHEN) to partner with organizations whose goal is to increase energy efficiency and conservation in multifamily buildings. Minnesota Power has attended in-person meetings and conference calls with like-minded organizations through this network, resulting in creative collaboration opportunities and gaining a wealth of resources for further exploration into this sector.

### *New Construction and Complete Remodels*

Minnesota Power encouraged property owners and managers who were building new multifamily facilities or performing complete remodels in 2018 to make energy-efficient choices in their lighting, HVAC systems and appliances. These projects were followed throughout the planning and designing phase, and were processed through Minnesota Power's One Business energy conservation program.

## **SUMMARY**

Energy Analysis is often the first step in connecting with a customer. Through this program, Minnesota Power focuses on helping customers understand how they use energy and equipping them with the tools to save energy their way through right fit options. The wide range of Energy Analysis activities enables Minnesota Power and its third-party contractors to deliver accurate and timely information for the customer's decision-making process, from awareness to interest and from action to follow-up. It helps Minnesota Power introduce new technologies, increase the saturation of existing energy-efficient products, and build relationships that enhance ongoing dialogue with customers and their provider networks. Energy Analysis is one of the most direct ways to encourage customers to take the next step toward energy efficiency, empowering them to make effective energy choices.



## PROGRAM TITLE: CIP EVALUATION AND PLANNING

### PROGRAM DESCRIPTION

The Evaluation and Planning program provides the resources for Minnesota Power to plan and evaluate the Triennial Conservation Improvement Program (CIP) filing, complete the evaluation of current conservation programs, prepare the annual Consolidated Filing including the CIP Tracker and Shared Savings incentive reports, respond to data requests from the Department of Commerce, third-parties, and alternative providers, and evaluate the benefit/cost ratio of proposed modifications to existing programs or for the development of new programs. The Evaluation and Planning program is essential to addressing regulatory matters associated with CIP. These can include the following:

- Planning the strategic direction for Minnesota Power's overall Conservation Improvement Program initiative
- Ensuring CIP-related regulatory compliance
- Providing benefit/cost analysis for current and future conservation programs and measures

The focus of this program is on managing all CIP regulatory filings, directing benefit/cost analysis, tracking energy conservation improvements, and analyzing and preparing cost recovery reports. This program is used to determine the effectiveness of conservation programs and to provide information on how to continuously improve those programs. This program also includes Minnesota Power's participation in various stakeholder groups as well as development of Integrated Resource Plan scenarios and analysis.

Regulatory requirements mandate the evaluation of all direct-impact projects after the end of each year. The cost of this activity is also captured in this program.

### EVALUATION METHODOLOGY

Because this program involved the evaluation of other projects, no formal evaluation plan was proposed for this project.

#### RESULTS

|                            | <i>Approved<br/>Goals</i> | <i>Actual<br/>Results</i> | <i>% of<br/>Approved<br/>Goal</i> |
|----------------------------|---------------------------|---------------------------|-----------------------------------|
| Total Project Expenditures | \$732,680                 | \$735,067                 | 100%                              |

#### SUMMARY

Minnesota Power included in its 2017–2019 triennial plan an increased Evaluation and Planning program budget, and in 2018 the Company realized similar increased levels of actual expenditures on evaluation and planning activities. In recent years, Minnesota Power has experienced higher levels of required engagement in regulatory activities including various stakeholder working groups and an increasing number of information requests related to the Company's CIP programs. Additionally, as the industry continues to mature and evolve, better and more detailed evaluation and analytics are becoming critical to designing effective conservation programs that will allow for continued success of the CIP portfolio well into the future.

Program spending activities in 2018 entailed reporting results, program development, measuring and evaluating the effectiveness of direct-impact conservation projects, conservation program strategy, technical assumption documentation, participation in various stakeholder groups and a multitude of collaborative efforts. The Company also views the 2017–2019 triennial years as a period of transition and focused effort in 2018 on planning and development activities to better position its own CIP programs for future success. These efforts included development of more comprehensive program tracking solutions that will allow for increased insights into customer preferences, program participation trends, effective program strategies, etc., which has been a critical part of triennial planning and continuing to meet customer needs and energy efficiency goals.

Given the importance of evaluation and program design, Minnesota Power believes this program continues to serve a significant role in the ongoing success of its Power of One<sup>®</sup> programs.

## **BENEFIT/COST EVALUATIONS**

### **METHODOLOGY**

The 2018 project benefit/cost evaluations were performed using Integral Analytics DSMore 2016. This same software was used to evaluate CIP projects in the 2017–2019 CIP Triennial. The following projects were evaluated:

- Power of One<sup>®</sup> Home
- Energy Partners–Low Income
- Power of One<sup>®</sup> Business

The purpose of these evaluations is to determine the cost-effectiveness of the measures actually installed through CIP under the original assumptions. Thus the starting point is the evaluation performed for the 2017–2019 CIP Triennial, filed in June 2016. Actual rebate and administrative cost data are used in the present evaluations. In addition, data representative of the actual measures implemented are also used, where available. Such information includes kWh and kW saved, incremental measure cost and measure life. The projects are evaluated over the life of each major end-use group and aggregated into the primary projects listed above. The evaluations are discounted to 2018, the year of plan implementation.

Evaluations of indirect impact project costs are only required for the Utility Test for use in the Shared Savings DSM Financial Incentive calculation. However, the costs associated with indirect impact projects were added to evaluations of the entire plan for the other tests to illustrate the small impact that these costs would have on overall cost-effectiveness. The Regulatory Charges were not included in the indirect impact project costs, as those costs were not under the direct control of Minnesota Power.

### **RESULTS**

The net benefit and benefit/cost ratios are listed below for the following tests:

- Utility Test
- Societal Test
- Participant Test
- Ratepayer Impact Measure Test (RIM)

### Results of Project Benefit/Cost Evaluations

| Project                                    | Utility Test |           | Societal Test |           | Participant Test |           | RIM Test       |           |
|--------------------------------------------|--------------|-----------|---------------|-----------|------------------|-----------|----------------|-----------|
|                                            | Net Benefits | B/C Ratio | Net Benefits  | B/C Ratio | Net Benefits     | B/C Ratio | Net Benefits   | B/C Ratio |
| Power of One® Home                         | \$5,958,147  | 4.08      | \$7,899,225   | 2.91      | \$24,895,322     | 8.45      | (\$11,311,475) | 0.40      |
| Energy Partners                            | \$211,259    | 1.38      | \$542,085     | 2.01      | \$2,556,170      | 7.22      | (\$1,521,899)  | 0.32      |
| Power of One® Business                     | \$19,554,779 | 6.09      | \$14,251,660  | 1.81      | \$35,209,139     | 3.18      | (\$27,798,063) | 0.44      |
| Total Plan (w/o indirect impact projects)  | \$25,724,184 | 5.06      | \$22,692,970  | 2.02      | \$62,660,631     | 4.15      | (\$40,631,436) | 0.43      |
| Total Plan (with indirect impact projects) | \$23,167,277 | 3.61      | \$20,136,063  | 1.81      | \$62,660,631     | 4.15      | (\$43,055,274) | 0.41      |

*\* In compliance with Order Points 1 & 2 from the July 16, 2013 Order Determining Ratemaking Treatment of Utility CIP Project Costs (Docket No. E,G-999/DI-12-1342), net benefits and energy savings resulting from MP facilities projects are excluded for the purpose of the financial incentive calculation. There were no MP facilities projects in 2018 so no adjustments were needed.*

*\*\* Credited kWh energy savings for Made in Minnesota payments as provided for under Minn. Stat. § 216C.412, subd. 2 and calculated by the Department of Commerce are not included in Benefit/Cost Evaluations.*

For the following four benefit cost tests, a project is considered to be cost-effective if the net benefits are positive and the benefit/cost ratio is greater than 1.0.

The Utility Test, or the Revenue Requirements Test, as it is also called, measures the change in the direct costs of the utility. Utility Test net benefits are used in the Shared Savings DSM Financial Incentive calculation. A project with positive net benefits or a benefit/cost ratio greater than 1.0 will tend to lower utility costs over the long term.

The Societal Test is the benchmark for determining project cost effectiveness in Minnesota. This test reflects the cost effectiveness of a project from the viewpoint of society as a whole. For each of the Direct Impact programs, reduced energy usage (energy savings) is the primary contributor to societal benefits. The major cost component in the societal test is the incremental cost of the efficient measures.

The Participant Test is important because typically a project must be cost-effective under this test if a customer is expected to implement it. If the customer does not view the project as cost-effective, the customer is not likely to implement it.

The Ratepayer Impact Measure Test (RIM) indicates the effect on long-term system rates. A project with negative net benefits or a benefit/cost ratio less than 1.0 will tend to raise long-term rates. A project with positive net benefits or a benefit/cost ratio greater than 1.0 will tend to lower long-term rates. Typically projects are not cost-effective from the ratepayer perspective and these test results should be carefully monitored as the electric marketplace continues to become more competitive.

All three Direct Impact programs (One Home, Energy Partners, and One Business) are cost-effective from all perspectives except the ratepayer perspective.

## 2018 Annual Energy Savings Summary

*All values are discounted to 2018*

|                                     | kWh - Meter       | kW - Meter     | kWh - Generator   | kW - Generator |
|-------------------------------------|-------------------|----------------|-------------------|----------------|
| <b>Total Direct Impact Programs</b> | <b>65,595,722</b> | <b>7,327.0</b> | <b>72,479,534</b> | <b>8,095.9</b> |
| Total Power of One Home             | 12,790,913        | 1,642.2        | 14,133,230        | 1,814.6        |
| Total Energy Partners               | 1,686,226         | 183.3          | 1,863,183         | 202.5          |
| Total Power of One Business         | 51,118,583        | 5,501.4        | 56,483,120        | 6,078.8        |
| <b>Grand Total</b>                  | <b>65,595,722</b> | <b>7,327.0</b> | <b>72,479,534</b> | <b>8,095.9</b> |

## 2018 Utility Test Summary

*All values are discounted to 2018*

|                                     | Utility Benefits    | Utility Costs      | Utility Net Benefits | Utility B/C Ratio |
|-------------------------------------|---------------------|--------------------|----------------------|-------------------|
| <b>Total Direct Impact Programs</b> | <b>\$32,058,610</b> | <b>\$6,334,426</b> | <b>\$25,724,184</b>  | <b>5.06</b>       |
| Total Power of One Home             | \$7,892,097         | \$1,933,950        | \$5,958,147          | 4.08              |
| Total Energy Partners               | \$768,936           | \$557,678          | \$211,259            | 1.38              |
| Total Power of One Business         | \$23,397,578        | \$3,842,799        | \$19,554,779         | 6.09              |
| <b>Indirect Program Costs</b>       | <b>\$0</b>          | <b>\$2,556,907</b> | <b>-\$2,556,907</b>  | <b>0.00</b>       |
| <b>Grand Total</b>                  | <b>\$32,058,610</b> | <b>\$8,891,333</b> | <b>\$23,167,277</b>  | <b>3.61</b>       |

## 2018 Societal Test Summary

*All values are discounted to 2018*

|                                     | Societal Benefits   | Societal Costs      | Societal Net Benefits | Societal B/C Ratio |
|-------------------------------------|---------------------|---------------------|-----------------------|--------------------|
| <b>Total Direct Impact Programs</b> | <b>\$44,873,415</b> | <b>\$22,180,444</b> | <b>\$22,692,970</b>   | <b>2.02</b>        |
| Total Power of One Home             | \$12,028,341        | \$4,129,116         | \$7,899,225           | 2.91               |
| Total Energy Partners               | \$1,080,797         | \$538,713           | \$542,085             | 2.01               |
| Total Power of One Business         | \$31,764,276        | \$17,512,616        | \$14,251,660          | 1.81               |
| <b>Indirect Program Costs</b>       | <b>\$0</b>          | <b>\$2,556,907</b>  | <b>-\$2,556,907</b>   | <b>0.00</b>        |
| <b>Grand Total</b>                  | <b>\$44,873,415</b> | <b>\$24,737,351</b> | <b>\$20,136,063</b>   | <b>1.81</b>        |

## 2018 Participant Test Summary

*All values are discounted to 2018*

|                                     | Participant Benefits | Participant Costs   | Participant Net Benefits | Participant B/C Ratio |
|-------------------------------------|----------------------|---------------------|--------------------------|-----------------------|
| <b>Total Direct Impact Programs</b> | <b>\$82,535,513</b>  | <b>\$19,874,883</b> | <b>\$62,660,631</b>      | <b>4.15</b>           |
| Total Power of One Home             | \$28,236,629         | \$3,341,307         | \$24,895,322             | 8.45                  |
| Total Energy Partners               | \$2,966,929          | \$410,759           | \$2,556,170              | 7.22                  |
| Total Power of One Business         | \$51,331,955         | \$16,122,816        | \$35,209,139             | 3.18                  |
| <b>Indirect Program Costs</b>       | <b>\$0</b>           | <b>\$0</b>          | <b>\$0</b>               | <b>0.00</b>           |
| <b>Grand Total</b>                  | <b>\$82,535,513</b>  | <b>\$19,874,883</b> | <b>\$62,660,631</b>      | <b>4.15</b>           |

## 2018 Ratepayer Impact Test Summary

*All values are discounted to 2018*

|                                     | Ratepayer Benefits  | Ratepayer Costs     | Ratepayer Net Benefits | Ratepayer B/C Ratio |
|-------------------------------------|---------------------|---------------------|------------------------|---------------------|
| <b>Total Direct Impact Programs</b> | <b>\$30,390,188</b> | <b>\$71,021,624</b> | <b>-\$40,631,436</b>   | <b>0.43</b>         |
| Total Power of One Home             | \$7,481,369         | \$18,792,844        | -\$11,311,475          | 0.40                |
| Total Energy Partners               | \$728,918           | \$2,250,817         | -\$1,521,899           | 0.32                |
| Total Power of One Business         | \$22,179,900        | \$49,977,963        | -\$27,798,063          | 0.44                |
| <b>Indirect Program Costs</b>       | <b>\$0</b>          | <b>\$2,423,838</b>  | <b>-\$2,423,838</b>    | <b>0.00</b>         |
| <b>Grand Total</b>                  | <b>\$30,390,188</b> | <b>\$73,445,462</b> | <b>-\$43,055,274</b>   | <b>0.41</b>         |

## 2018 Power of One Home Annual Energy Savings

All values are discounted to 2018

|                                            | kWh - Meter       | kW - Meter     | kWh - Generator   | kW - Generator |
|--------------------------------------------|-------------------|----------------|-------------------|----------------|
| <b>Lighting</b>                            | <b>8,431,638</b>  | <b>967.1</b>   | <b>9,316,479</b>  | <b>1,068.6</b> |
| LED Bulbs                                  | 8,232,279         | 944.3          | 9,096,199         | 1,043.4        |
| LED Fixture - Indoor                       | 198,512           | 22.8           | 219,344           | 25.2           |
| LED Fixture - Outdoor                      | 847               | 0.0            | 936               | 0.0            |
| Bulb Recycling                             | 0                 | 0.0            | 0                 | 0.0            |
| <b>Appliances</b>                          | <b>1,142,036</b>  | <b>131.0</b>   | <b>1,261,885</b>  | <b>144.8</b>   |
| Refrigerators                              | 63,011            | 7.2            | 69,624            | 8.0            |
| Freezers                                   | 6,624             | 0.8            | 7,319             | 0.8            |
| Refrigerator Turn-Ins                      | 835,395           | 95.8           | 923,064           | 105.9          |
| Freezer Turn-Ins                           | 237,006           | 27.2           | 261,878           | 30.0           |
| <b>HVAC</b>                                | <b>2,168,006</b>  | <b>445.6</b>   | <b>2,395,523</b>  | <b>492.4</b>   |
| CAC - Proper Installation                  | 38,760            | 44.0           | 42,828            | 48.6           |
| ASHP - Proper Installation                 | 16,020            | 1.4            | 17,701            | 1.5            |
| ASHP - Ducted                              | 209,407           | 17.7           | 231,383           | 19.5           |
| ASHP - Ductless                            | 1,112,032         | 93.8           | 1,228,732         | 103.6          |
| GSHP - Closed Loop                         | 103,077           | 8.7            | 113,894           | 9.6            |
| GSHP - Replacement Heat Pump               | 8,000             | 0.7            | 8,840             | 0.7            |
| ECM - Circulator Pump                      | 85,289            | 0.0            | 94,239            | 0.0            |
| ECM - New Furnace                          | 508,200           | 198.1          | 561,532           | 218.8          |
| ECM - Replacement Motor                    | 3,500             | 1.4            | 3,867             | 1.5            |
| Dehumidifiers                              | 69,525            | 78.9           | 76,821            | 87.2           |
| Smart Thermostat                           | 14,196            | 1.2            | 15,686            | 1.3            |
| <b>Home Performance</b>                    | <b>64,975</b>     | <b>2.6</b>     | <b>71,794</b>     | <b>2.9</b>     |
| Triple E - Level 2 Projects                | 64,975            | 2.6            | 71,794            | 2.9            |
| <b>Water Heating</b>                       | <b>3,056</b>      | <b>0.3</b>     | <b>3,377</b>      | <b>0.3</b>     |
| Heat Pump Water Heater                     | 3,056             | 0.3            | 3,377             | 0.3            |
| <b>Energy Efficiency Products and Kits</b> | <b>223,707</b>    | <b>19.6</b>    | <b>247,183</b>    | <b>21.6</b>    |
| SmartPak                                   | 176,902           | 14.7           | 195,467           | 16.2           |
| Starter Kit                                | 46,805            | 4.9            | 51,717            | 5.4            |
| <b>Direct Install</b>                      | <b>757,495</b>    | <b>76.1</b>    | <b>836,989</b>    | <b>84.0</b>    |
| LED Bulbs                                  | 277,761           | 31.9           | 306,910           | 35.2           |
| Pipe Insulation                            | 65,458            | 5.4            | 72,327            | 6.0            |
| Showerheads                                | 134,300           | 11.1           | 148,394           | 12.3           |
| Thermostatic Restriction Showerheads       | 21,420            | 1.8            | 23,668            | 2.0            |
| Aerator                                    | 39,864            | 3.3            | 44,047            | 3.7            |
| Water Heater Temperature Set-backs         | 9,520             | 0.8            | 10,519            | 0.9            |
| Shower Timers                              | 68,808            | 5.7            | 76,029            | 6.3            |
| Refrigerator Thermometers                  | 83,980            | 9.6            | 92,793            | 10.6           |
| Enable Power Management                    | 7,200             | 0.8            | 7,956             | 0.9            |
| Power Strips - Tier 1                      | 49,184            | 5.6            | 54,346            | 6.2            |
| <b>Administrative Costs</b>                | <b>0</b>          | <b>0.0</b>     | <b>0</b>          | <b>0.0</b>     |
| Administrative Costs                       | 0                 | 0.0            | 0                 | 0.0            |
| <b>Grand Total</b>                         | <b>12,790,913</b> | <b>1,642.2</b> | <b>14,133,230</b> | <b>1,814.6</b> |

**2018 Power of One Home Utility Test***All values are discounted to 2018*

|                                            | Utility Benefits   | Utility Costs      | Utility Net Benefits | Utility B/C Ratio |
|--------------------------------------------|--------------------|--------------------|----------------------|-------------------|
| <b>Lighting</b>                            | <b>\$5,450,620</b> | <b>\$606,876</b>   | <b>\$4,843,744</b>   | <b>8.98</b>       |
| LED Bulbs                                  | \$5,321,850        | \$567,014          | \$4,754,836          | 9.39              |
| LED Fixture - Indoor                       | \$128,330          | \$30,271           | \$98,060             | 4.24              |
| LED Fixture - Outdoor                      | \$440              | \$105              | \$335                | 4.19              |
| Bulb Recycling                             | \$0                | \$9,487            | -\$9,487             | 0.00              |
| <b>Appliances</b>                          | <b>\$410,058</b>   | <b>\$186,000</b>   | <b>\$224,058</b>     | <b>2.20</b>       |
| Refrigerators                              | \$33,521           | \$16,360           | \$17,161             | 2.05              |
| Freezers                                   | \$2,959            | \$2,500            | \$459                | 1.18              |
| Refrigerator Turn-Ins                      | \$291,015          | \$136,270          | \$154,745            | 2.14              |
| Freezer Turn-Ins                           | \$82,563           | \$30,870           | \$51,692             | 2.67              |
| <b>HVAC</b>                                | <b>\$1,590,851</b> | <b>\$256,120</b>   | <b>\$1,334,731</b>   | <b>6.21</b>       |
| CAC - Proper Installation                  | \$54,503           | \$11,650           | \$42,853             | 4.68              |
| ASHP - Proper Installation                 | \$10,408           | \$300              | \$10,108             | 34.69             |
| ASHP - Ducted                              | \$136,051          | \$15,100           | \$120,951            | 9.01              |
| ASHP - Ductless                            | \$722,486          | \$48,000           | \$674,486            | 15.05             |
| GSHP - Closed Loop                         | \$71,217           | \$4,400            | \$66,817             | 16.19             |
| GSHP - Replacement Heat Pump               | \$5,527            | \$1,550            | \$3,977              | 3.57              |
| ECM - Circulator Pump                      | \$45,077           | \$5,800            | \$39,277             | 7.77              |
| ECM - New Furnace                          | \$463,551          | \$159,175          | \$304,376            | 2.91              |
| ECM - Replacement Motor                    | \$1,826            | \$700              | \$1,126              | 2.61              |
| Dehumidifiers                              | \$74,095           | \$8,045            | \$66,050             | 9.21              |
| Smart Thermostat                           | \$6,110            | \$1,400            | \$4,710              | 4.36              |
| <b>Home Performance</b>                    | <b>\$41,906</b>    | <b>\$12,150</b>    | <b>\$29,756</b>      | <b>3.45</b>       |
| Triple E - Level 2 Projects                | \$41,906           | \$12,150           | \$29,756             | 3.45              |
| <b>Water Heating</b>                       | <b>\$1,470</b>     | <b>\$100</b>       | <b>\$1,370</b>       | <b>14.70</b>      |
| Heat Pump Water Heater                     | \$1,470            | \$100              | \$1,370              | 14.70             |
| <b>Energy Efficiency Products and Kits</b> | <b>\$68,400</b>    | <b>\$12,697</b>    | <b>\$55,703</b>      | <b>5.39</b>       |
| SmartPak                                   | \$52,681           | \$6,954            | \$45,728             | 7.58              |
| Starter Kit                                | \$15,718           | \$5,743            | \$9,975              | 2.74              |
| <b>Direct Install</b>                      | <b>\$328,792</b>   | <b>\$72,198</b>    | <b>\$256,594</b>     | <b>4.55</b>       |
| LED Bulbs                                  | \$179,562          | \$46,677           | \$132,885            | 3.85              |
| Pipe Insulation                            | \$31,493           | \$1,099            | \$30,394             | 28.65             |
| Showerheads                                | \$53,178           | \$5,710            | \$47,468             | 9.31              |
| Thermostatic Restriction Showerheads       | \$8,482            | \$1,390            | \$7,091              | 6.10              |
| Aerator                                    | \$15,785           | \$1,701            | \$14,084             | 9.28              |
| Water Heater Temperature Set-backs         | \$935              | \$672              | \$263                | 1.39              |
| Shower Timers                              | \$9,950            | \$1,354            | \$8,596              | 7.35              |
| Refrigerator Thermometers                  | \$12,642           | \$2,679            | \$9,964              | 4.72              |
| Enable Power Management                    | \$1,002            | \$540              | \$462                | 1.86              |
| Power Strips - Tier 1                      | \$15,764           | \$10,376           | \$5,388              | 1.52              |
| <b>Administrative Costs</b>                | <b>\$0</b>         | <b>\$787,808</b>   | <b>-\$787,808</b>    | <b>0.00</b>       |
| Administrative Costs                       | \$0                | \$787,808          | -\$787,808           | 0.00              |
| <b>Grand Total</b>                         | <b>\$7,892,097</b> | <b>\$1,933,950</b> | <b>\$5,958,147</b>   | <b>4.08</b>       |

## 2018 Power of One Home Societal Test

All values are discounted to 2018

|                                            | Societal Benefits   | Societal Costs     | Societal Net Benefits | Societal B/C Ratio |
|--------------------------------------------|---------------------|--------------------|-----------------------|--------------------|
| <b>Lighting</b>                            | <b>\$8,479,500</b>  | <b>\$2,275,088</b> | <b>\$6,204,412</b>    | <b>3.73</b>        |
| LED Bulbs                                  | \$8,279,173         | \$2,170,328        | \$6,108,845           | 3.81               |
| LED Fixture - Indoor                       | \$199,643           | \$104,480          | \$95,163              | 1.91               |
| LED Fixture - Outdoor                      | \$684               | \$280              | \$404                 | 2.44               |
| Bulb Recycling                             | \$0                 | \$0                | \$0                   | 0.00               |
| <b>Appliances</b>                          | <b>\$497,022</b>    | <b>\$134,200</b>   | <b>\$362,822</b>      | <b>3.70</b>        |
| Refrigerators                              | \$46,466            | \$19,240           | \$27,226              | 2.42               |
| Freezers                                   | \$3,814             | \$2,760            | \$1,054               | 1.38               |
| Refrigerator Turn-Ins                      | \$348,010           | \$91,300           | \$256,710             | 3.81               |
| Freezer Turn-Ins                           | \$98,732            | \$20,900           | \$77,832              | 4.72               |
| <b>HVAC</b>                                | <b>\$2,439,153</b>  | <b>\$802,035</b>   | <b>\$1,637,118</b>    | <b>3.04</b>        |
| CAC - Proper Installation                  | \$83,316            | \$57,000           | \$26,316              | 1.46               |
| ASHP - Proper Installation                 | \$15,841            | \$1,500            | \$14,341              | 10.56              |
| ASHP - Ducted                              | \$207,073           | \$26,730           | \$180,343             | 7.75               |
| ASHP - Ductless                            | \$1,099,636         | \$456,000          | \$643,636             | 2.41               |
| GSHP - Closed Loop                         | \$113,343           | \$15,120           | \$98,223              | 7.50               |
| GSHP - Replacement Heat Pump               | \$8,797             | \$6,380            | \$2,417               | 1.38               |
| ECM - Circulator Pump                      | \$63,992            | \$43,500           | \$20,492              | 1.47               |
| ECM - New Furnace                          | \$738,944           | \$181,500          | \$557,444             | 4.07               |
| ECM - Replacement Motor                    | \$2,243             | \$925              | \$1,318               | 2.42               |
| Dehumidifiers                              | \$98,286            | \$10,300           | \$87,986              | 9.54               |
| Smart Thermostat                           | \$7,683             | \$3,080            | \$4,603               | 2.49               |
| <b>Home Performance</b>                    | <b>\$66,660</b>     | <b>\$45,675</b>    | <b>\$20,985</b>       | <b>1.46</b>        |
| Triple E - Level 2 Projects                | \$66,660            | \$45,675           | \$20,985              | 1.46               |
| <b>Water Heating</b>                       | <b>\$1,988</b>      | <b>\$1,568</b>     | <b>\$420</b>          | <b>1.27</b>        |
| Heat Pump Water Heater                     | \$1,988             | \$1,568            | \$420                 | 1.27               |
| <b>Energy Efficiency Products and Kits</b> | <b>\$80,160</b>     | <b>\$10,544</b>    | <b>\$69,616</b>       | <b>7.60</b>        |
| SmartPak                                   | \$61,370            | \$5,610            | \$55,760              | 10.94              |
| Starter Kit                                | \$18,790            | \$4,934            | \$13,856              | 3.81               |
| <b>Direct Install</b>                      | <b>\$463,858</b>    | <b>\$72,198</b>    | <b>\$391,660</b>      | <b>6.42</b>        |
| LED Bulbs                                  | \$279,343           | \$46,677           | \$232,666             | 5.98               |
| Pipe Insulation                            | \$42,573            | \$1,099            | \$41,474              | 38.73              |
| Showerheads                                | \$66,785            | \$5,710            | \$61,075              | 11.70              |
| Thermostatic Restriction Showerheads       | \$10,652            | \$1,390            | \$9,261               | 7.66               |
| Aerator                                    | \$19,824            | \$1,701            | \$18,123              | 11.66              |
| Water Heater Temperature Set-backs         | \$960               | \$672              | \$288                 | 1.43               |
| Shower Timers                              | \$10,490            | \$1,354            | \$9,136               | 7.75               |
| Refrigerator Thermometers                  | \$13,331            | \$2,679            | \$10,653              | 4.98               |
| Enable Power Management                    | \$1,056             | \$540              | \$516                 | 1.96               |
| Power Strips - Tier 1                      | \$18,843            | \$10,376           | \$8,467               | 1.82               |
| <b>Administrative Costs</b>                | <b>\$0</b>          | <b>\$787,808</b>   | <b>-\$787,808</b>     | <b>0.00</b>        |
| Administrative Costs                       | \$0                 | \$787,808          | -\$787,808            | 0.00               |
| <b>Grand Total</b>                         | <b>\$12,028,341</b> | <b>\$4,129,116</b> | <b>\$7,899,225</b>    | <b>2.91</b>        |

2018 Power of One Home Participant Test

All values are discounted to 2018

|                                            | Participant Benefits | Participant Costs  | Participant Net Benefits | Participant B/C Ratio |
|--------------------------------------------|----------------------|--------------------|--------------------------|-----------------------|
| <b>Lighting</b>                            | <b>\$20,226,450</b>  | <b>\$2,275,088</b> | <b>\$17,951,362</b>      | <b>8.89</b>           |
| LED Bulbs                                  | \$19,722,699         | \$2,170,328        | \$17,552,371             | 9.09                  |
| LED Fixture - Indoor                       | \$492,188            | \$104,480          | \$387,708                | 4.71                  |
| LED Fixture - Outdoor                      | \$2,076              | \$280              | \$1,796                  | 7.41                  |
| Bulb Recycling                             | \$9,487              | \$0                | \$9,487                  | 0.00                  |
| <b>Appliances</b>                          | <b>\$1,360,005</b>   | <b>\$134,200</b>   | <b>\$1,225,805</b>       | <b>10.13</b>          |
| Refrigerators                              | \$124,506            | \$19,240           | \$105,266                | 6.47                  |
| Freezers                                   | \$11,447             | \$2,760            | \$8,687                  | 4.15                  |
| Refrigerator Turn-Ins                      | \$959,599            | \$91,300           | \$868,299                | 10.51                 |
| Freezer Turn-Ins                           | \$264,453            | \$20,900           | \$243,553                | 12.65                 |
| <b>HVAC</b>                                | <b>\$5,087,431</b>   | <b>\$802,035</b>   | <b>\$4,285,396</b>       | <b>6.34</b>           |
| CAC - Proper Installation                  | \$97,103             | \$57,000           | \$40,103                 | 1.70                  |
| ASHP - Proper Installation                 | \$35,619             | \$1,500            | \$34,119                 | 23.75                 |
| ASHP - Ducted                              | \$476,772            | \$26,730           | \$450,042                | 17.84                 |
| ASHP - Ductless                            | \$2,499,654          | \$456,000          | \$2,043,654              | 5.48                  |
| GSHP - Closed Loop                         | \$256,856            | \$15,120           | \$241,736                | 16.99                 |
| GSHP - Replacement Heat Pump               | \$21,144             | \$6,380            | \$14,764                 | 3.31                  |
| ECM - Circulator Pump                      | \$162,587            | \$43,500           | \$119,087                | 3.74                  |
| ECM - New Furnace                          | \$1,403,857          | \$181,500          | \$1,222,357              | 7.73                  |
| ECM - Replacement Motor                    | \$4,575              | \$925              | \$3,650                  | 4.95                  |
| Dehumidifiers                              | \$110,420            | \$10,300           | \$100,120                | 10.72                 |
| Smart Thermostat                           | \$18,846             | \$3,080            | \$15,766                 | 6.12                  |
| <b>Home Performance</b>                    | <b>\$171,287</b>     | <b>\$45,675</b>    | <b>\$125,612</b>         | <b>3.75</b>           |
| Triple E - Level 2 Projects                | \$171,287            | \$45,675           | \$125,612                | 3.75                  |
| <b>Water Heating</b>                       | <b>\$4,972</b>       | <b>\$1,568</b>     | <b>\$3,404</b>           | <b>3.17</b>           |
| Heat Pump Water Heater                     | \$4,972              | \$1,568            | \$3,404                  | 3.17                  |
| <b>Energy Efficiency Products and Kits</b> | <b>\$211,665</b>     | <b>\$10,544</b>    | <b>\$201,121</b>         | <b>20.08</b>          |
| SmartPak                                   | \$159,792            | \$5,610            | \$154,182                | 28.48                 |
| Starter Kit                                | \$51,872             | \$4,934            | \$46,939                 | 10.51                 |
| <b>Direct Install</b>                      | <b>\$1,174,819</b>   | <b>\$72,198</b>    | <b>\$1,102,621</b>       | <b>16.27</b>          |
| LED Bulbs                                  | \$692,999            | \$46,677           | \$646,322                | 14.85                 |
| Pipe Insulation                            | \$105,463            | \$1,099            | \$104,364                | 95.94                 |
| Showerheads                                | \$170,752            | \$5,710            | \$165,042                | 29.90                 |
| Thermostatic Restriction Showerheads       | \$27,714             | \$1,390            | \$26,323                 | 19.93                 |
| Aerator                                    | \$50,690             | \$1,701            | \$48,989                 | 29.81                 |
| Water Heater Temperature Set-backs         | \$3,094              | \$672              | \$2,422                  | 4.60                  |
| Shower Timers                              | \$27,454             | \$1,354            | \$26,100                 | 20.27                 |
| Refrigerator Thermometers                  | \$34,534             | \$2,679            | \$31,855                 | 12.89                 |
| Enable Power Management                    | \$3,271              | \$540              | \$2,731                  | 6.06                  |
| Power Strips - Tier 1                      | \$58,849             | \$10,376           | \$48,474                 | 5.67                  |
| <b>Administrative Costs</b>                | <b>\$0</b>           | <b>\$0</b>         | <b>\$0</b>               | <b>0.00</b>           |
| Administrative Costs                       | \$0                  | \$0                | \$0                      | 0.00                  |
| <b>Grand Total</b>                         | <b>\$28,236,629</b>  | <b>\$3,341,307</b> | <b>\$24,895,322</b>      | <b>8.45</b>           |

## 2018 Power of One Home Ratepayer Impact Test

All values are discounted to 2018

|                                            | Ratepayer Benefits | Ratepayer Costs     | Ratepayer Net Benefits | Ratepayer B/C Ratio |
|--------------------------------------------|--------------------|---------------------|------------------------|---------------------|
| <b>Lighting</b>                            | <b>\$5,166,954</b> | <b>\$12,601,505</b> | <b>-\$7,434,551</b>    | <b>0.41</b>         |
| LED Bulbs                                  | \$5,044,885        | \$12,279,367        | -\$7,234,482           | 0.41                |
| LED Fixture - Indoor                       | \$121,652          | \$311,837           | -\$190,185             | 0.39                |
| LED Fixture - Outdoor                      | \$417              | \$1,308             | -\$891                 | 0.32                |
| Bulb Recycling                             | \$0                | \$8,993             | -\$8,993               | 0.00                |
| <b>Appliances</b>                          | <b>\$388,718</b>   | <b>\$1,096,574</b>  | <b>-\$707,857</b>      | <b>0.35</b>         |
| Refrigerators                              | \$31,777           | \$89,830            | -\$58,054              | 0.35                |
| Freezers                                   | \$2,805            | \$8,973             | -\$6,167               | 0.31                |
| Refrigerator Turn-Ins                      | \$275,870          | \$783,011           | -\$507,142             | 0.35                |
| Freezer Turn-Ins                           | \$78,266           | \$214,760           | -\$136,494             | 0.36                |
| <b>HVAC</b>                                | <b>\$1,508,058</b> | <b>\$3,249,298</b>  | <b>-\$1,741,240</b>    | <b>0.46</b>         |
| CAC - Proper Installation                  | \$51,666           | \$64,612            | -\$12,945              | 0.80                |
| ASHP - Proper Installation                 | \$9,866            | \$22,425            | -\$12,558              | 0.44                |
| ASHP - Ducted                              | \$128,971          | \$303,723           | -\$174,752             | 0.42                |
| ASHP - Ductless                            | \$684,885          | \$1,582,376         | -\$897,491             | 0.43                |
| GSHP - Closed Loop                         | \$67,511           | \$155,520           | -\$88,009              | 0.43                |
| GSHP - Replacement Heat Pump               | \$5,240            | \$13,216            | -\$7,976               | 0.40                |
| ECM - Circulator Pump                      | \$42,731           | \$110,764           | -\$68,033              | 0.39                |
| ECM - New Furnace                          | \$439,426          | \$897,088           | -\$457,662             | 0.49                |
| ECM - Replacement Motor                    | \$1,731            | \$3,666             | -\$1,935               | 0.47                |
| Dehumidifiers                              | \$70,239           | \$81,390            | -\$11,151              | 0.86                |
| Smart Thermostat                           | \$5,792            | \$14,518            | -\$8,726               | 0.40                |
| <b>Home Performance</b>                    | <b>\$39,725</b>    | <b>\$106,921</b>    | <b>-\$67,196</b>       | <b>0.37</b>         |
| Triple E - Level 2 Projects                | \$39,725           | \$106,921           | -\$67,196              | 0.37                |
| <b>Water Heating</b>                       | <b>\$1,394</b>     | <b>\$3,523</b>      | <b>-\$2,129</b>        | <b>0.40</b>         |
| Heat Pump Water Heater                     | \$1,394            | \$3,523             | -\$2,129               | 0.40                |
| <b>Energy Efficiency Products and Kits</b> | <b>\$64,840</b>    | <b>\$173,098</b>    | <b>-\$108,258</b>      | <b>0.37</b>         |
| SmartPak                                   | \$49,940           | \$131,021           | -\$81,081              | 0.38                |
| Starter Kit                                | \$14,900           | \$42,077            | -\$27,177              | 0.35                |
| <b>Direct Install</b>                      | <b>\$311,681</b>   | <b>\$815,116</b>    | <b>-\$503,435</b>      | <b>0.38</b>         |
| LED Bulbs                                  | \$170,217          | \$440,424           | -\$270,207             | 0.39                |
| Pipe Insulation                            | \$29,854           | \$74,473            | -\$44,619              | 0.40                |
| Showerheads                                | \$50,410           | \$130,201           | -\$79,791              | 0.39                |
| Thermostatic Restriction Showerheads       | \$8,040            | \$21,221            | -\$13,181              | 0.38                |
| Aerator                                    | \$14,963           | \$38,653            | -\$23,689              | 0.39                |
| Water Heater Temperature Set-backs         | \$887              | \$2,873             | -\$1,986               | 0.31                |
| Shower Timers                              | \$9,432            | \$24,769            | -\$15,337              | 0.38                |
| Refrigerator Thermometers                  | \$11,984           | \$31,203            | -\$19,219              | 0.38                |
| Enable Power Management                    | \$950              | \$2,969             | -\$2,020               | 0.32                |
| Power Strips - Tier 1                      | \$14,944           | \$48,330            | -\$33,387              | 0.31                |
| <b>Administrative Costs</b>                | <b>\$0</b>         | <b>\$746,809</b>    | <b>-\$746,809</b>      | <b>0.00</b>         |
| Administrative Costs                       | \$0                | \$746,809           | -\$746,809             | 0.00                |
| <b>Grand Total</b>                         | <b>\$7,481,369</b> | <b>\$18,792,844</b> | <b>-\$11,311,475</b>   | <b>0.40</b>         |

## 2018 Energy Partners Annual Energy Savings

All values are discounted to 2018

|                                            | kWh - Meter      | kW - Meter   | kWh - Generator  | kW - Generator |
|--------------------------------------------|------------------|--------------|------------------|----------------|
| <b>Lighting</b>                            | <b>564,214</b>   | <b>64.7</b>  | <b>623,424</b>   | <b>71.5</b>    |
| CFL Bulb                                   | 22,351           | 2.6          | 24,697           | 2.8            |
| LED Bulb                                   | 494,743          | 56.8         | 546,663          | 62.7           |
| LED Torchiere                              | 47,120           | 5.4          | 52,065           | 6.0            |
| <b>HVAC</b>                                | <b>41,731</b>    | <b>11.0</b>  | <b>46,110</b>    | <b>12.1</b>    |
| Dehumidifier                               | 9,669            | 11.0         | 10,684           | 12.1           |
| Furnace - Delivered Fuels                  | 18,815           | 0.0          | 20,790           | 0.0            |
| Air Sealing and Insulation                 | 13,247           | 0.0          | 14,637           | 0.0            |
| <b>Appliances</b>                          | <b>286,023</b>   | <b>31.9</b>  | <b>316,039</b>   | <b>35.3</b>    |
| Refrigerator Replacement 18 cu. ft.        | 62,370           | 7.2          | 68,915           | 7.9            |
| Refrigerator Replacement 15 cu. ft.        | 9,152            | 1.0          | 10,112           | 1.2            |
| Freezer Replacement 15 cu. ft.             | 3,601            | 0.4          | 3,979            | 0.5            |
| Freezer Replacement 5-9 cu. ft.            | 4,598            | 0.5          | 5,081            | 0.6            |
| Refrigerator Turn-In                       | 155,550          | 17.8         | 171,874          | 19.7           |
| Freezer Turn-In                            | 31,752           | 3.6          | 35,084           | 4.0            |
| Microwave Oven                             | 19,000           | 1.3          | 20,994           | 1.4            |
| <b>Water Heating</b>                       | <b>440,446</b>   | <b>36.5</b>  | <b>486,668</b>   | <b>40.3</b>    |
| Showerhead                                 | 218,040          | 18.1         | 240,922          | 20.0           |
| Aerator                                    | 103,400          | 8.6          | 114,251          | 9.5            |
| Pipe Insulation                            | 4,416            | 0.4          | 4,879            | 0.4            |
| Shower Timer                               | 113,740          | 9.4          | 125,676          | 10.4           |
| Water Heater Temperature Set-Back          | 850              | 0.1          | 939              | 0.1            |
| <b>Energy Efficiency Products and Kits</b> | <b>304,956</b>   | <b>33.5</b>  | <b>336,959</b>   | <b>37.1</b>    |
| Energy Expo Kits                           | 77,710           | 7.6          | 85,865           | 8.3            |
| Refrigerator Thermometer                   | 110,010          | 12.6         | 121,555          | 13.9           |
| Power Strip - Tier 1                       | 117,236          | 13.4         | 129,539          | 14.8           |
| <b>Multifamily</b>                         | <b>48,856</b>    | <b>5.6</b>   | <b>53,983</b>    | <b>6.2</b>     |
| LED Bulb                                   | 36,575           | 4.2          | 40,413           | 4.6            |
| Refrigerator Thermometer                   | 11,115           | 1.3          | 12,281           | 1.4            |
| Power Strip - Tier 1                       | 1,166            | 0.1          | 1,288            | 0.1            |
| <b>Administrative Costs</b>                | <b>0</b>         | <b>0.0</b>   | <b>0</b>         | <b>0.0</b>     |
| Administrative Costs                       | 0                | 0.0          | 0                | 0.0            |
| <b>Grand Total</b>                         | <b>1,686,226</b> | <b>183.3</b> | <b>1,863,183</b> | <b>202.5</b>   |

## 2018 Energy Partners Utility Test

All values are discounted to 2018

|                                            | Utility Benefits | Utility Costs    | Utility Net Benefits | Utility B/C Ratio |
|--------------------------------------------|------------------|------------------|----------------------|-------------------|
| <b>Lighting</b>                            | <b>\$358,843</b> | <b>\$135,655</b> | <b>\$223,188</b>     | <b>2.65</b>       |
| CFL Bulb                                   | \$8,550          | \$2,855          | \$5,694              | 2.99              |
| LED Bulb                                   | \$319,832        | \$74,489         | \$245,343            | 4.29              |
| LED Torchiere                              | \$30,461         | \$58,311         | -\$27,850            | 0.52              |
| <b>HVAC</b>                                | <b>\$30,528</b>  | <b>\$49,570</b>  | <b>-\$19,042</b>     | <b>0.62</b>       |
| Dehumidifier                               | \$10,305         | \$20,525         | -\$10,220            | 0.50              |
| Furnace - Delivered Fuels                  | \$11,868         | \$23,715         | -\$11,847            | 0.50              |
| Air Sealing and Insulation                 | \$8,355          | \$5,330          | \$3,025              | 1.57              |
| <b>Appliances</b>                          | <b>\$115,685</b> | <b>\$179,884</b> | <b>-\$64,198</b>     | <b>0.64</b>       |
| Refrigerator Replacement 18 cu. ft.        | \$33,180         | \$129,067        | -\$95,887            | 0.26              |
| Refrigerator Replacement 15 cu. ft.        | \$4,869          | \$17,486         | -\$12,617            | 0.28              |
| Freezer Replacement 15 cu. ft.             | \$1,609          | \$7,041          | -\$5,432             | 0.23              |
| Freezer Replacement 5-9 cu. ft.            | \$2,054          | \$5,829          | -\$3,775             | 0.35              |
| Refrigerator Turn-In                       | \$54,187         | \$15,300         | \$38,887             | 3.54              |
| Freezer Turn-In                            | \$11,061         | \$2,520          | \$8,541              | 4.39              |
| Microwave Oven                             | \$8,726          | \$2,641          | \$6,085              | 3.30              |
| <b>Water Heating</b>                       | <b>\$145,933</b> | <b>\$16,094</b>  | <b>\$129,840</b>     | <b>9.07</b>       |
| Showerhead                                 | \$86,336         | \$9,180          | \$77,156             | 9.41              |
| Aerator                                    | \$40,943         | \$4,548          | \$36,394             | 9.00              |
| Pipe Insulation                            | \$2,125          | \$67             | \$2,057              | 31.62             |
| Shower Timer                               | \$16,447         | \$2,239          | \$14,209             | 7.35              |
| Water Heater Temperature Set-Back          | \$84             | \$60             | \$24                 | 1.39              |
| <b>Energy Efficiency Products and Kits</b> | <b>\$92,255</b>  | <b>\$39,988</b>  | <b>\$52,267</b>      | <b>2.31</b>       |
| Energy Expo Kits                           | \$38,119         | \$12,203         | \$25,917             | 3.12              |
| Refrigerator Thermometer                   | \$16,560         | \$3,509          | \$13,052             | 4.72              |
| Power Strip - Tier 1                       | \$37,576         | \$24,277         | \$13,299             | 1.55              |
| <b>Multifamily</b>                         | <b>\$25,691</b>  | <b>\$8,533</b>   | <b>\$17,158</b>      | <b>3.01</b>       |
| LED Bulb                                   | \$23,644         | \$7,871          | \$15,773             | 3.00              |
| Refrigerator Thermometer                   | \$1,673          | \$355            | \$1,319              | 4.72              |
| Power Strip - Tier 1                       | \$374            | \$307            | \$66                 | 1.22              |
| <b>Administrative Costs</b>                | <b>\$0</b>       | <b>\$127,954</b> | <b>-\$127,954</b>    | <b>0.00</b>       |
| Administrative Costs                       | \$0              | \$127,954        | -\$127,954           | 0.00              |
| <b>Grand Total</b>                         | <b>\$768,936</b> | <b>\$557,678</b> | <b>\$211,259</b>     | <b>1.38</b>       |

## 2018 Energy Partners Societal Test

All values are discounted to 2018

|                                            | Societal Benefits  | Societal Costs   | Societal Net Benefits | Societal B/C Ratio |
|--------------------------------------------|--------------------|------------------|-----------------------|--------------------|
| <b>Lighting</b>                            | <b>\$555,432</b>   | <b>\$135,655</b> | <b>\$419,776</b>      | <b>4.09</b>        |
| CFL Bulb                                   | \$10,482           | \$2,855          | \$7,627               | 3.67               |
| LED Bulb                                   | \$497,561          | \$74,489         | \$423,072             | 6.68               |
| LED Torchiere                              | \$47,388           | \$58,311         | -\$10,923             | 0.81               |
| <b>HVAC</b>                                | <b>\$45,833</b>    | <b>\$30,605</b>  | <b>\$15,228</b>       | <b>1.50</b>        |
| Dehumidifier                               | \$13,669           | \$1,560          | \$12,109              | 8.76               |
| Furnace - Delivered Fuels                  | \$18,875           | \$23,715         | -\$4,840              | 0.80               |
| Air Sealing and Insulation                 | \$13,289           | \$5,330          | \$7,959               | 2.49               |
| <b>Appliances</b>                          | <b>\$146,458</b>   | <b>\$179,884</b> | <b>-\$33,426</b>      | <b>0.81</b>        |
| Refrigerator Replacement 18 cu. ft.        | \$45,993           | \$129,067        | -\$83,073             | 0.36               |
| Refrigerator Replacement 15 cu. ft.        | \$6,749            | \$17,486         | -\$10,737             | 0.39               |
| Freezer Replacement 15 cu. ft.             | \$2,073            | \$7,041          | -\$4,967              | 0.29               |
| Freezer Replacement 5-9 cu. ft.            | \$2,647            | \$5,829          | -\$3,182              | 0.45               |
| Refrigerator Turn-In                       | \$64,799           | \$15,300         | \$49,499              | 4.24               |
| Freezer Turn-In                            | \$13,227           | \$2,520          | \$10,707              | 5.25               |
| Microwave Oven                             | \$10,969           | \$2,641          | \$8,328               | 4.15               |
| <b>Water Heating</b>                       | <b>\$180,145</b>   | <b>\$16,094</b>  | <b>\$164,052</b>      | <b>11.19</b>       |
| Showerhead                                 | \$108,428          | \$9,180          | \$99,248              | 11.81              |
| Aerator                                    | \$51,419           | \$4,548          | \$46,871              | 11.31              |
| Pipe Insulation                            | \$2,872            | \$67             | \$2,805               | 42.74              |
| Shower Timer                               | \$17,340           | \$2,238          | \$15,102              | 7.75               |
| Water Heater Temperature Set-Back          | \$86               | \$60             | \$26                  | 1.43               |
| <b>Energy Efficiency Products and Kits</b> | <b>\$113,935</b>   | <b>\$39,988</b>  | <b>\$73,947</b>       | <b>2.85</b>        |
| Energy Expo Kits                           | \$51,558           | \$12,203         | \$39,355              | 4.23               |
| Refrigerator Thermometer                   | \$17,464           | \$3,509          | \$13,955              | 4.98               |
| Power Strip - Tier 1                       | \$44,914           | \$24,277         | \$20,637              | 1.85               |
| <b>Multifamily</b>                         | <b>\$38,994</b>    | <b>\$8,533</b>   | <b>\$30,461</b>       | <b>4.57</b>        |
| LED Bulb                                   | \$36,783           | \$7,871          | \$28,912              | 4.67               |
| Refrigerator Thermometer                   | \$1,764            | \$355            | \$1,410               | 4.98               |
| Power Strip - Tier 1                       | \$447              | \$307            | \$139                 | 1.45               |
| <b>Administrative Costs</b>                | <b>\$0</b>         | <b>\$127,954</b> | <b>-\$127,954</b>     | <b>0.00</b>        |
| Administrative Costs                       | \$0                | \$127,954        | -\$127,954            | 0.00               |
| <b>Grand Total</b>                         | <b>\$1,080,797</b> | <b>\$538,713</b> | <b>\$542,085</b>      | <b>2.01</b>        |

2018 Energy Partners Participant Test

All values are discounted to 2018

|                                            | Participant Benefits | Participant Costs | Participant Net Benefits | Participant B/C Ratio |
|--------------------------------------------|----------------------|-------------------|--------------------------|-----------------------|
| <b>Lighting</b>                            | <b>\$1,421,263</b>   | <b>\$135,655</b>  | <b>\$1,285,608</b>       | <b>10.48</b>          |
| CFL Bulb                                   | \$27,602             | \$2,855           | \$24,747                 | 9.67                  |
| LED Bulb                                   | \$1,225,706          | \$74,489          | \$1,151,217              | 16.45                 |
| LED Torchiere                              | \$167,955            | \$58,311          | \$109,644                | 2.88                  |
| <b>HVAC</b>                                | <b>\$142,333</b>     | <b>\$30,605</b>   | <b>\$111,728</b>         | <b>4.65</b>           |
| Dehumidifier                               | \$34,762             | \$1,560           | \$33,202                 | 22.28                 |
| Furnace - Delivered Fuels                  | \$69,797             | \$23,715          | \$46,082                 | 2.94                  |
| Air Sealing and Insulation                 | \$37,774             | \$5,330           | \$32,444                 | 7.09                  |
| <b>Appliances</b>                          | <b>\$521,657</b>     | <b>\$179,884</b>  | <b>\$341,774</b>         | <b>2.90</b>           |
| Refrigerator Replacement 18 cu. ft.        | \$236,113            | \$129,067         | \$107,046                | 1.83                  |
| Refrigerator Replacement 15 cu. ft.        | \$33,194             | \$17,486          | \$15,708                 | 1.90                  |
| Freezer Replacement 15 cu. ft.             | \$11,904             | \$7,041           | \$4,864                  | 1.69                  |
| Freezer Replacement 5-9 cu. ft.            | \$12,039             | \$5,829           | \$6,210                  | 2.07                  |
| Refrigerator Turn-In                       | \$168,603            | \$15,300          | \$153,303                | 11.02                 |
| Freezer Turn-In                            | \$33,813             | \$2,520           | \$31,293                 | 13.42                 |
| Microwave Oven                             | \$25,990             | \$2,641           | \$23,349                 | 9.84                  |
| <b>Water Heating</b>                       | <b>\$461,513</b>     | <b>\$16,094</b>   | <b>\$445,419</b>         | <b>28.68</b>          |
| Showerhead                                 | \$277,130            | \$9,180           | \$267,950                | 30.19                 |
| Aerator                                    | \$131,617            | \$4,548           | \$127,069                | 28.94                 |
| Pipe Insulation                            | \$7,108              | \$67              | \$7,041                  | 105.77                |
| Shower Timer                               | \$45,382             | \$2,238           | \$43,144                 | 20.27                 |
| Water Heater Temperature Set-Back          | \$276                | \$60              | \$216                    | 4.60                  |
| <b>Energy Efficiency Products and Kits</b> | <b>\$321,158</b>     | <b>\$39,988</b>   | <b>\$281,170</b>         | <b>8.03</b>           |
| Energy Expo Kits                           | \$136,101            | \$12,203          | \$123,898                | 11.15                 |
| Refrigerator Thermometer                   | \$45,238             | \$3,509           | \$41,729                 | 12.89                 |
| Power Strip - Tier 1                       | \$139,819            | \$24,277          | \$115,543                | 5.76                  |
| <b>Multifamily</b>                         | <b>\$99,005</b>      | <b>\$8,533</b>    | <b>\$90,472</b>          | <b>11.60</b>          |
| LED Bulb                                   | \$92,978             | \$7,871           | \$85,106                 | 11.81                 |
| Refrigerator Thermometer                   | \$4,571              | \$355             | \$4,216                  | 12.89                 |
| Power Strip - Tier 1                       | \$1,457              | \$307             | \$1,149                  | 4.74                  |
| <b>Administrative Costs</b>                | <b>\$0</b>           | <b>\$0</b>        | <b>\$0</b>               | <b>0.00</b>           |
| Administrative Costs                       | \$0                  | \$0               | \$0                      | 0.00                  |
| <b>Grand Total</b>                         | <b>\$2,966,929</b>   | <b>\$410,759</b>  | <b>\$2,556,170</b>       | <b>7.22</b>           |

## 2018 Energy Partners Ratepayer Impact Test

All values are discounted to 2018

|                                            | Ratepayer Benefits | Ratepayer Costs    | Ratepayer Net Benefits | Ratepayer B/C Ratio |
|--------------------------------------------|--------------------|--------------------|------------------------|---------------------|
| <b>Lighting</b>                            | <b>\$340,168</b>   | <b>\$920,639</b>   | <b>-\$580,471</b>      | <b>0.37</b>         |
| CFL Bulb                                   | \$8,105            | \$21,881           | -\$13,776              | 0.37                |
| LED Bulb                                   | \$303,187          | \$776,274          | -\$473,087             | 0.39                |
| LED Torchiere                              | \$28,876           | \$122,485          | -\$93,609              | 0.24                |
| <b>HVAC</b>                                | <b>\$28,939</b>    | <b>\$104,325</b>   | <b>-\$75,387</b>       | <b>0.28</b>         |
| Dehumidifier                               | \$9,768            | \$29,715           | -\$19,947              | 0.33                |
| Furnace - Delivered Fuels                  | \$11,250           | \$50,107           | -\$38,857              | 0.22                |
| Air Sealing and Insulation                 | \$7,921            | \$24,503           | -\$16,582              | 0.32                |
| <b>Appliances</b>                          | <b>\$109,665</b>   | <b>\$427,304</b>   | <b>-\$317,639</b>      | <b>0.26</b>         |
| Refrigerator Replacement 18 cu. ft.        | \$31,453           | \$195,915          | -\$164,462             | 0.16                |
| Refrigerator Replacement 15 cu. ft.        | \$4,615            | \$27,371           | -\$22,756              | 0.17                |
| Freezer Replacement 15 cu. ft.             | \$1,525            | \$10,264           | -\$8,739               | 0.15                |
| Freezer Replacement 5-9 cu. ft.            | \$1,947            | \$10,109           | -\$8,162               | 0.19                |
| Refrigerator Turn-In                       | \$51,367           | \$136,247          | -\$84,880              | 0.38                |
| Freezer Turn-In                            | \$10,485           | \$27,240           | -\$16,755              | 0.38                |
| Microwave Oven                             | \$8,272            | \$20,158           | -\$11,886              | 0.41                |
| <b>Water Heating</b>                       | <b>\$138,339</b>   | <b>\$357,905</b>   | <b>-\$219,566</b>      | <b>0.39</b>         |
| Showerhead                                 | \$81,842           | \$211,299          | -\$129,457             | 0.39                |
| Aerator                                    | \$38,812           | \$100,388          | -\$61,577              | 0.39                |
| Pipe Insulation                            | \$2,014            | \$5,018            | -\$3,004               | 0.40                |
| Shower Timer                               | \$15,591           | \$40,943           | -\$25,352              | 0.38                |
| Water Heater Temperature Set-Back          | \$79               | \$257              | -\$177                 | 0.31                |
| <b>Energy Efficiency Products and Kits</b> | <b>\$87,454</b>    | <b>\$254,386</b>   | <b>-\$166,932</b>      | <b>0.34</b>         |
| Energy Expo Kits                           | \$36,136           | \$98,743           | -\$62,607              | 0.37                |
| Refrigerator Thermometer                   | \$15,699           | \$40,874           | -\$25,175              | 0.38                |
| Power Strip - Tier 1                       | \$35,620           | \$114,770          | -\$79,150              | 0.31                |
| <b>Multifamily</b>                         | <b>\$24,354</b>    | <b>\$64,963</b>    | <b>-\$40,609</b>       | <b>0.37</b>         |
| LED Bulb                                   | \$22,414           | \$59,629           | -\$37,215              | 0.38                |
| Refrigerator Thermometer                   | \$1,586            | \$4,130            | -\$2,544               | 0.38                |
| Power Strip - Tier 1                       | \$354              | \$1,204            | -\$850                 | 0.29                |
| <b>Administrative Costs</b>                | <b>\$0</b>         | <b>\$121,295</b>   | <b>-\$121,295</b>      | <b>0.00</b>         |
| Administrative Costs                       | \$0                | \$121,295          | -\$121,295             | 0.00                |
| <b>Grand Total</b>                         | <b>\$728,918</b>   | <b>\$2,250,817</b> | <b>-\$1,521,899</b>    | <b>0.32</b>         |

## 2018 Power of One Business Annual Energy Savings

*All values are discounted to 2018*

|                                 | kWh - Meter       | kW - Meter     | kWh - Generator   | kW - Generator |
|---------------------------------|-------------------|----------------|-------------------|----------------|
| <b>Lighting</b>                 | <b>26,779,966</b> | <b>3,593.2</b> | <b>29,590,336</b> | <b>3,970.3</b> |
| Energy Efficient Fluorescent    | 1,337,275         | 197.2          | 1,477,613         | 217.8          |
| LED                             | 5,625,117         | 954.4          | 6,215,434         | 1,054.5        |
| LED Outdoor                     | 3,135,469         | 0.0            | 3,464,515         | 0.0            |
| Mixed Energy Efficient Lighting | 16,185,882        | 2,441.7        | 17,884,477        | 2,697.9        |
| Lighting Controls               | 496,223           | 0.0            | 548,298           | 0.0            |
| <b>Refrigeration</b>            | <b>3,596,200</b>  | <b>243.5</b>   | <b>3,973,596</b>  | <b>269.1</b>   |
| Refrigeration Improvement       | 3,529,705         | 241.5          | 3,900,123         | 266.9          |
| Refrigeration Controls          | 66,495            | 2.0            | 73,473            | 2.2            |
| <b>Motors and Drives</b>        | <b>9,723,672</b>  | <b>353.4</b>   | <b>10,744,103</b> | <b>390.5</b>   |
| Standard to Eff Motor           | 1,712,512         | 342.8          | 1,892,228         | 378.8          |
| Standard to VSD Motor           | 7,626,432         | 4.1            | 8,426,773         | 4.6            |
| Motor Controls                  | 384,728           | 6.5            | 425,103           | 7.1            |
| <b>HVAC</b>                     | <b>2,249,155</b>  | <b>544.2</b>   | <b>2,485,188</b>  | <b>601.3</b>   |
| AC Improvements                 | 875,232           | 450.1          | 967,081           | 497.4          |
| Heat Pump - Cooling and Heating | 145,911           | 43.7           | 161,223           | 48.3           |
| HVAC and EMS Controls           | 1,228,012         | 50.4           | 1,356,883         | 55.7           |
| <b>Miscellaneous</b>            | <b>8,769,590</b>  | <b>767.1</b>   | <b>9,689,897</b>  | <b>847.6</b>   |
| Compressed Air Upgrades         | 1,389,177         | 59.6           | 1,534,961         | 65.9           |
| Process Improvements            | 2,732,690         | 211.8          | 3,019,467         | 234.0          |
| Appliances                      | 169,435           | 39.4           | 187,216           | 43.5           |
| Shell Measures                  | 243,197           | 1.3            | 268,719           | 1.5            |
| Heat Recovery                   | 146,957           | 79.5           | 162,379           | 87.8           |
| Miscellaneous Controls          | 3,668,138         | 296.7          | 4,053,083         | 327.8          |
| IT Equipment                    | 419,996           | 78.9           | 464,072           | 87.1           |
| <b>Administrative Costs</b>     | <b>0</b>          | <b>0.0</b>     | <b>0</b>          | <b>0.0</b>     |
| Administrative Costs            | 0                 | 0.0            | 0                 | 0.0            |
| <b>Grand Total</b>              | <b>51,118,583</b> | <b>5,501.4</b> | <b>56,483,120</b> | <b>6,078.8</b> |

## 2018 Power of One Business Utility Test

All values are discounted to 2018

|                                 | Utility Benefits    | Utility Costs      | Utility Net Benefits | Utility B/C Ratio |
|---------------------------------|---------------------|--------------------|----------------------|-------------------|
| <b>Lighting</b>                 | <b>\$12,483,515</b> | <b>\$1,392,349</b> | <b>\$11,091,166</b>  | <b>8.97</b>       |
| Energy Efficient Fluorescent    | \$638,539           | \$64,711           | \$573,828            | 9.87              |
| LED                             | \$2,779,018         | \$318,882          | \$2,460,136          | 8.71              |
| LED Outdoor                     | \$1,169,395         | \$146,935          | \$1,022,460          | 7.96              |
| Mixed Energy Efficient Lighting | \$7,733,838         | \$835,487          | \$6,898,350          | 9.26              |
| Lighting Controls               | \$162,725           | \$26,332           | \$136,393            | 6.18              |
| <b>Refrigeration</b>            | <b>\$1,612,815</b>  | <b>\$139,616</b>   | <b>\$1,473,200</b>   | <b>11.55</b>      |
| Refrigeration Improvement       | \$1,585,797         | \$136,120          | \$1,449,677          | 11.65             |
| Refrigeration Controls          | \$27,018            | \$3,495            | \$23,523             | 7.73              |
| <b>Motors and Drives</b>        | <b>\$4,047,904</b>  | <b>\$392,188</b>   | <b>\$3,655,716</b>   | <b>10.32</b>      |
| Standard to Eff Motor           | \$1,045,053         | \$97,256           | \$947,797            | 10.75             |
| Standard to VSD Motor           | \$2,851,619         | \$280,633          | \$2,570,986          | 10.16             |
| Motor Controls                  | \$151,231           | \$14,299           | \$136,933            | 10.58             |
| <b>HVAC</b>                     | <b>\$1,334,933</b>  | <b>\$178,221</b>   | <b>\$1,156,712</b>   | <b>7.49</b>       |
| AC Improvements                 | \$671,789           | \$111,538          | \$560,251            | 6.02              |
| Heat Pump - Cooling and Heating | \$109,871           | \$19,757           | \$90,113             | 5.56              |
| HVAC and EMS Controls           | \$553,273           | \$46,926           | \$506,347            | 11.79             |
| <b>Miscellaneous</b>            | <b>\$3,918,411</b>  | <b>\$350,627</b>   | <b>\$3,567,784</b>   | <b>11.18</b>      |
| Compressed Air Upgrades         | \$590,086           | \$42,116           | \$547,970            | 14.01             |
| Process Improvements            | \$959,508           | \$104,900          | \$854,609            | 9.15              |
| Appliances                      | \$112,875           | \$20,555           | \$92,320             | 5.49              |
| Shell Measures                  | \$99,469            | \$8,700            | \$90,769             | 11.43             |
| Heat Recovery                   | \$155,065           | \$22,284           | \$132,781            | 6.96              |
| Miscellaneous Controls          | \$1,810,976         | \$133,883          | \$1,677,093          | 13.53             |
| IT Equipment                    | \$190,433           | \$18,190           | \$172,242            | 10.47             |
| <b>Administrative Costs</b>     | <b>\$0</b>          | <b>\$1,389,800</b> | <b>-\$1,389,800</b>  | <b>0.00</b>       |
| Administrative Costs            | \$0                 | \$1,389,800        | -\$1,389,800         | 0.00              |
| <b>Grand Total</b>              | <b>\$23,397,578</b> | <b>\$3,842,799</b> | <b>\$19,554,779</b>  | <b>6.09</b>       |

## 2018 Power of One Business Societal Test

*All values are discounted to 2018*

|                                 | Societal Benefits   | Societal Costs      | Societal Net Benefits | Societal B/C Ratio |
|---------------------------------|---------------------|---------------------|-----------------------|--------------------|
| <b>Lighting</b>                 | <b>\$16,486,462</b> | <b>\$7,558,512</b>  | <b>\$8,927,950</b>    | <b>2.18</b>        |
| Energy Efficient Fluorescent    | \$843,281           | \$484,924           | \$358,356             | 1.74               |
| LED                             | \$3,671,330         | \$1,438,560         | \$2,232,771           | 2.55               |
| LED Outdoor                     | \$1,543,942         | \$1,095,136         | \$448,806             | 1.41               |
| Mixed Energy Efficient Lighting | \$10,213,969        | \$4,429,609         | \$5,784,360           | 2.31               |
| Lighting Controls               | \$213,940           | \$110,283           | \$103,657             | 1.94               |
| <b>Refrigeration</b>            | <b>\$2,284,890</b>  | <b>\$1,484,235</b>  | <b>\$800,655</b>      | <b>1.54</b>        |
| Refrigeration Improvement       | \$2,246,661         | \$1,464,901         | \$781,760             | 1.53               |
| Refrigeration Controls          | \$38,229            | \$19,334            | \$18,895              | 1.98               |
| <b>Motors and Drives</b>        | <b>\$5,729,282</b>  | <b>\$2,061,546</b>  | <b>\$3,667,736</b>    | <b>2.78</b>        |
| Standard to Eff Motor           | \$1,485,348         | \$665,247           | \$820,101             | 2.23               |
| Standard to VSD Motor           | \$4,030,052         | \$1,275,941         | \$2,754,111           | 3.16               |
| Motor Controls                  | \$213,882           | \$120,357           | \$93,524              | 1.78               |
| <b>HVAC</b>                     | <b>\$1,895,124</b>  | <b>\$1,148,202</b>  | <b>\$746,922</b>      | <b>1.65</b>        |
| AC Improvements                 | \$955,731           | \$419,140           | \$536,590             | 2.28               |
| Heat Pump - Cooling and Heating | \$156,306           | \$77,945            | \$78,361              | 2.01               |
| HVAC and EMS Controls           | \$783,088           | \$651,117           | \$131,971             | 1.20               |
| <b>Miscellaneous</b>            | <b>\$5,368,519</b>  | <b>\$3,870,322</b>  | <b>\$1,498,197</b>    | <b>1.39</b>        |
| Compressed Air Upgrades         | \$835,411           | \$213,606           | \$621,805             | 3.91               |
| Process Improvements            | \$1,204,011         | \$1,398,969         | -\$194,959            | 0.86               |
| Appliances                      | \$160,557           | \$59,151            | \$101,406             | 2.71               |
| Shell Measures                  | \$140,597           | \$50,738            | \$89,859              | 2.77               |
| Heat Recovery                   | \$221,240           | \$273,848           | -\$52,608             | 0.81               |
| Miscellaneous Controls          | \$2,567,138         | \$1,724,095         | \$843,044             | 1.49               |
| IT Equipment                    | \$239,565           | \$149,916           | \$89,649              | 1.60               |
| <b>Administrative Costs</b>     | <b>\$0</b>          | <b>\$1,389,800</b>  | <b>-\$1,389,800</b>   | <b>0.00</b>        |
| Administrative Costs            | \$0                 | \$1,389,800         | -\$1,389,800          | 0.00               |
| <b>Grand Total</b>              | <b>\$31,764,276</b> | <b>\$17,512,616</b> | <b>\$14,251,660</b>   | <b>1.81</b>        |

## 2018 Power of One Business Participant Test

All values are discounted to 2018

|                                 | Participant Benefits | Participant Costs   | Participant Net Benefits | Participant B/C Ratio |
|---------------------------------|----------------------|---------------------|--------------------------|-----------------------|
| <b>Lighting</b>                 | <b>\$25,646,258</b>  | <b>\$7,558,512</b>  | <b>\$18,087,746</b>      | <b>3.39</b>           |
| Energy Efficient Fluorescent    | \$1,330,028          | \$484,924           | \$845,103                | 2.74                  |
| LED                             | \$5,590,721          | \$1,438,560         | \$4,152,162              | 3.89                  |
| LED Outdoor                     | \$2,804,655          | \$1,095,136         | \$1,709,519              | 2.56                  |
| Mixed Energy Efficient Lighting | \$15,447,828         | \$4,429,609         | \$11,018,219             | 3.49                  |
| Lighting Controls               | \$473,026            | \$110,283           | \$362,743                | 4.29                  |
| <b>Refrigeration</b>            | <b>\$3,838,647</b>   | <b>\$1,484,235</b>  | <b>\$2,354,412</b>       | <b>2.59</b>           |
| Refrigeration Improvement       | \$3,766,254          | \$1,464,901         | \$2,301,353              | 2.57                  |
| Refrigeration Controls          | \$72,393             | \$19,334            | \$53,059                 | 3.74                  |
| <b>Motors and Drives</b>        | <b>\$10,232,876</b>  | <b>\$2,061,546</b>  | <b>\$8,171,330</b>       | <b>4.96</b>           |
| Standard to Eff Motor           | \$1,867,587          | \$665,247           | \$1,202,340              | 2.81                  |
| Standard to VSD Motor           | \$7,931,167          | \$1,275,941         | \$6,655,226              | 6.22                  |
| Motor Controls                  | \$434,121            | \$120,357           | \$313,763                | 3.61                  |
| <b>HVAC</b>                     | <b>\$2,695,693</b>   | <b>\$1,148,202</b>  | <b>\$1,547,491</b>       | <b>2.35</b>           |
| AC Improvements                 | \$1,107,374          | \$419,140           | \$688,234                | 2.64                  |
| Heat Pump - Cooling and Heating | \$190,528            | \$77,945            | \$112,583                | 2.44                  |
| HVAC and EMS Controls           | \$1,397,791          | \$651,117           | \$746,674                | 2.15                  |
| <b>Miscellaneous</b>            | <b>\$8,918,483</b>   | <b>\$3,870,322</b>  | <b>\$5,048,161</b>       | <b>2.30</b>           |
| Compressed Air Upgrades         | \$1,387,661          | \$213,606           | \$1,174,055              | 6.50                  |
| Process Improvements            | \$2,394,079          | \$1,398,969         | \$995,110                | 1.71                  |
| Appliances                      | \$221,500            | \$59,151            | \$162,349                | 3.74                  |
| Shell Measures                  | \$252,158            | \$50,738            | \$201,420                | 4.97                  |
| Heat Recovery                   | \$173,876            | \$273,848           | -\$99,972                | 0.63                  |
| Miscellaneous Controls          | \$4,174,533          | \$1,724,095         | \$2,450,438              | 2.42                  |
| IT Equipment                    | \$314,675            | \$149,916           | \$164,760                | 2.10                  |
| <b>Administrative Costs</b>     | <b>\$0</b>           | <b>\$0</b>          | <b>\$0</b>               | <b>0.00</b>           |
| Administrative Costs            | \$0                  | \$0                 | \$0                      | 0.00                  |
| <b>Grand Total</b>              | <b>\$51,331,955</b>  | <b>\$16,122,816</b> | <b>\$35,209,139</b>      | <b>3.18</b>           |

## 2018 Power of One Business Ratepayer Impact Test

All values are discounted to 2018

|                                 | Ratepayer Benefits  | Ratepayer Costs     | Ratepayer Net Benefits | Ratepayer B/C Ratio |
|---------------------------------|---------------------|---------------------|------------------------|---------------------|
| <b>Lighting</b>                 | <b>\$11,833,836</b> | <b>\$24,311,552</b> | <b>-\$12,477,716</b>   | <b>0.49</b>         |
| Energy Efficient Fluorescent    | \$605,308           | \$1,260,809         | -\$655,502             | 0.48                |
| LED                             | \$2,634,390         | \$5,299,764         | -\$2,665,374           | 0.50                |
| LED Outdoor                     | \$1,108,536         | \$2,658,693         | -\$1,550,156           | 0.42                |
| Mixed Energy Efficient Lighting | \$7,331,346         | \$14,643,878        | -\$7,312,532           | 0.50                |
| Lighting Controls               | \$154,256           | \$448,408           | -\$294,152             | 0.34                |
| <b>Refrigeration</b>            | <b>\$1,528,880</b>  | <b>\$3,638,873</b>  | <b>-\$2,109,993</b>    | <b>0.42</b>         |
| Refrigeration Improvement       | \$1,503,268         | \$3,570,247         | -\$2,066,979           | 0.42                |
| Refrigeration Controls          | \$25,612            | \$68,625            | -\$43,013              | 0.37                |
| <b>Motors and Drives</b>        | <b>\$3,837,239</b>  | <b>\$9,700,327</b>  | <b>-\$5,863,088</b>    | <b>0.40</b>         |
| Standard to Eff Motor           | \$990,665           | \$1,770,393         | -\$779,727             | 0.56                |
| Standard to VSD Motor           | \$2,703,213         | \$7,518,407         | -\$4,815,194           | 0.36                |
| Motor Controls                  | \$143,361           | \$411,528           | -\$268,167             | 0.35                |
| <b>HVAC</b>                     | <b>\$1,265,459</b>  | <b>\$2,555,401</b>  | <b>-\$1,289,942</b>    | <b>0.50</b>         |
| AC Improvements                 | \$636,827           | \$1,049,743         | -\$412,916             | 0.61                |
| Heat Pump - Cooling and Heating | \$104,153           | \$180,612           | -\$76,459              | 0.58                |
| HVAC and EMS Controls           | \$524,479           | \$1,325,046         | -\$800,567             | 0.40                |
| <b>Miscellaneous</b>            | <b>\$3,714,486</b>  | <b>\$8,454,339</b>  | <b>-\$4,739,854</b>    | <b>0.44</b>         |
| Compressed Air Upgrades         | \$559,376           | \$1,315,443         | -\$756,067             | 0.43                |
| Process Improvements            | \$909,573           | \$2,269,484         | -\$1,359,912           | 0.40                |
| Appliances                      | \$107,000           | \$209,973           | -\$102,973             | 0.51                |
| Shell Measures                  | \$94,293            | \$239,035           | -\$144,742             | 0.39                |
| Heat Recovery                   | \$146,995           | \$164,827           | -\$17,832              | 0.89                |
| Miscellaneous Controls          | \$1,716,728         | \$3,957,278         | -\$2,240,551           | 0.43                |
| IT Equipment                    | \$180,522           | \$298,299           | -\$117,777             | 0.61                |
| <b>Administrative Costs</b>     | <b>\$0</b>          | <b>\$1,317,470</b>  | <b>-\$1,317,470</b>    | <b>0.00</b>         |
| Administrative Costs            | \$0                 | \$1,317,470         | -\$1,317,470           | 0.00                |
| <b>Grand Total</b>              | <b>\$22,179,900</b> | <b>\$49,977,963</b> | <b>-\$27,798,063</b>   | <b>0.44</b>         |

# Investor Owned Electric Utility 2017-19 CIP Report Overview

## GENERAL UTILITY INFORMATION

2017-19  
Electric**1. Utility Information**

|                |                      |
|----------------|----------------------|
| Utility Name   | Minnesota Power      |
| Street Address | 30 W Superior Street |
| Street Address |                      |
| City           | Duluth               |
| State          | MN                   |
| Zip Code       | 55802                |

**2. Contact Information**

|               |                                                                  |
|---------------|------------------------------------------------------------------|
| Contact Name  | Leah Peterson                                                    |
| Contact Title | Supervisor - Customer Business Analyti                           |
| Telephone     | (218) 355-3014                                                   |
| Fax           | (218) 723-3984                                                   |
| Email Address | <a href="mailto:lpeterson@mnpower.com">lpeterson@mnpower.com</a> |

**3. Utility Type**

Indicate utility type by entering an "X" below.

|                |   |
|----------------|---|
| Municipal      |   |
| Cooperative    |   |
| Investor Owned | X |

**4. Data Type**

Indicate data type by entering an "X" below.

|                    |   |
|--------------------|---|
| Public Information | X |
| Trade secret       |   |

**5. Customer Profile** (Reference year 2015)

| Category             | # of Customers | kWh Sales     |
|----------------------|----------------|---------------|
| Residential          | 121,515        | 1,026,454,000 |
| Commercial           | 22,170         | 1,254,681,000 |
| Industrial           | 394            | 6,073,273,000 |
| Farm                 | incl above     | incl above    |
| Other                | 954            | 70,272,000    |
| Total                | 145,033        | 8,424,680,000 |
| *Total Net of Exempt | 145,017        | 2,701,717,658 |

\*reflecting newly exempt customers in 2017 &amp; weather normalization

**6. 2015 Adjusted Gross Operating Revenue (GOR)**

|                                   |               |
|-----------------------------------|---------------|
| Gross Operating Revenue 2015      | \$528,805,775 |
| Less Exempt Facility Revenue 2015 | \$346,088,050 |
| Adjusted GOR 2015                 | \$182,717,725 |

**6b. 2015 Adjusted Gross Operating Revenue (GOR)**

|                                    |               |
|------------------------------------|---------------|
| Gross Operating Revenue 2015       | \$528,805,775 |
| Less Exempt Facility Revenue 2015* | \$366,248,874 |
| Adjusted GOR 2015                  | \$162,556,901 |

\*reflecting newly exempt customers in 2017

## CIP SPENDING REPORT

**7. Annual CIP Minimum Spending Requirement**

|      |             |
|------|-------------|
| 2017 | \$2,438,000 |
| 2018 | \$2,438,000 |
| 2019 | \$2,438,000 |

**8. 2017 CIP Actual** (most recently approved)

|                                   |             |
|-----------------------------------|-------------|
| Annual Total Expenditures         | \$8,129,337 |
| Annual Energy Savings - (Gen kWh) | 72,467,019  |
| Annual Demand Savings - (Gen kW)  | 8,594.0     |

**9. 2017 CIP Plan**

|                                   |              |
|-----------------------------------|--------------|
| Annual Total Expenditures         | \$10,265,125 |
| Annual Energy Savings - (Gen kWh) | 57,390,222   |
| Annual Demand Savings - (Gen kW)  | 9,111.6      |

**10. 2018 CIP Actual**

|                                   |             |
|-----------------------------------|-------------|
| Annual Total Expenditures         | \$9,031,446 |
| Annual Energy Savings - (Gen kWh) | 72,479,534  |
| Annual Demand Savings - (Gen kW)  | 8,095.9     |

**11. 2018 CIP Plan**

|                                   |              |
|-----------------------------------|--------------|
| Annual Total Expenditures         | \$10,327,880 |
| Annual Energy Savings - (Gen kWh) | 57,390,222   |
| Annual Demand Savings - (Gen kW)  | 9,111.6      |

**12. 2019 CIP Actual**

|                                   |  |
|-----------------------------------|--|
| Annual Total Expenditures         |  |
| Annual Energy Savings - (Gen kWh) |  |
| Annual Demand Savings - (Gen kW)  |  |

**13. 2019 CIP Plan**

|                                   |              |
|-----------------------------------|--------------|
| Annual Total Expenditures         | \$10,518,770 |
| Annual Energy Savings - (Gen kWh) | 57,390,222   |
| Annual Demand Savings - (Gen kW)  | 9,111.6      |

**12. # of Projects**

8

Status (indicate with "X" below)

| Project Name                      | New | Existing |
|-----------------------------------|-----|----------|
| 1 Power of One Home - Residential |     | X        |
| 2 Energy Partners - Low Income    |     | X        |
| 3 Power of One Business - C/I/Ag  |     | X        |
| 4 Renewable Energy                |     |          |
| 5 Customer Engagement             |     | X        |
| 6 Energy Analysis                 |     | X        |
| 7 Research & Development          |     | X        |
| 8 CIP Evaluation & Planning       |     | X        |
| 9 Regulatory Charges              |     | X        |
| 10                                |     |          |

| Electric Conservation Project Information Sheet |                    |                                                                                                  |                    | 2017/2018/2019 Cons1 BudgtSavgs |                    |                    |                    |                  |                |
|-------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------|--------------------|---------------------------------|--------------------|--------------------|--------------------|------------------|----------------|
| Utility Name:                                   |                    | Minnesota Power                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Project Name:                                   |                    | Power of One Home - Residential                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Project Description:                            |                    | This Project provides a comprehensive package of products and services to residential customers. |                    |                                 |                    |                    |                    |                  |                |
| Type                                            |                    | Conservation                                                                                     |                    |                                 |                    |                    |                    |                  |                |
| Status:                                         |                    | Existing                                                                                         |                    |                                 |                    |                    |                    |                  |                |
|                                                 | 2017<br>Proposed   | 2017<br>Approved                                                                                 | 2017<br>Actual     | 2018<br>Proposed                | 2018<br>Approved   | 2018<br>Actual     | 2019<br>Proposed   | 2019<br>Approved | 2019<br>Actual |
| <b>Project Type -- Enter "X"</b>                |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Indirect (No kWh or kW Savings)                 |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Audit/Info                                      |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Education                                       |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Classroom Training/Instructional                |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| R&D                                             |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Renewable                                       |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Other                                           |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Direct (kWh or kW Savings)                      | X                  | X                                                                                                | X                  | X                               | X                  | X                  | X                  |                  |                |
| <b>Cost Components -- Enter Dollars</b>         |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Project Delivery                                | 970,000            | 970,000                                                                                          | 548,712            | 977,650                         | 977,650            | 698,579            | 985,530            |                  |                |
| Utility Administration                          | 62,500             | 62,500                                                                                           | 63,685             | 64,375                          | 64,375             | 63,338             | 66,310             |                  |                |
| Evaluation Labor                                |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Advertising & Promotion                         | 61,000             | 61,000                                                                                           | 11,873             | 61,000                          | 61,000             | 25,891             | 61,000             |                  |                |
| Participant Incentives                          | 1,264,412          | 1,264,412                                                                                        | 864,111            | 1,264,412                       | 1,264,412          | 1,146,141          | 1,264,412          |                  |                |
| R&D                                             |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Other                                           |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| <b>Total Costs</b>                              | <b>\$2,357,912</b> | <b>\$2,357,912</b>                                                                               | <b>\$1,488,380</b> | <b>\$2,367,437</b>              | <b>\$2,367,437</b> | <b>\$1,933,950</b> | <b>\$2,377,252</b> | <b>\$0</b>       | <b>\$0</b>     |
| <b>Project Participants</b>                     |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Total Participants (Measures)                   | 151,053            | 122,841                                                                                          | 168,322            | 151,053                         | 122,841            | 271,137            | 151,053            |                  |                |
| <b>% of Spending by Customer Segment</b>        |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Residential                                     | 100%               | 100%                                                                                             | 100%               | 100%                            | 100%               | 100%               | 100%               |                  |                |
| Commercial                                      |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Industrial                                      |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Farm                                            |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Other                                           |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| <b>Total % of Spending (must equal 100%)</b>    | <b>100%</b>        | <b>100%</b>                                                                                      | <b>100%</b>        | <b>100%</b>                     | <b>100%</b>        | <b>100%</b>        | <b>100%</b>        | <b>0%</b>        | <b>0%</b>      |
| <b>Low-Income &amp; Renter Participation</b>    |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Participants % (% of Row 31)                    |                    |                                                                                                  | 5%                 |                                 |                    | 5%                 |                    |                  |                |
| Budget % (% of Row 29)                          |                    |                                                                                                  | 6%                 |                                 |                    | 6%                 |                    |                  |                |
| <b>End-Use Target -- Enter "X" or %</b>         |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Building Efficiency                             | X                  | X                                                                                                | X                  | X                               | X                  | X                  | X                  |                  |                |
| Compressed Air                                  |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Energy Star Appliances                          | X                  | X                                                                                                | X                  | X                               | X                  | X                  | X                  |                  |                |
| Lighting                                        | X                  | X                                                                                                | X                  | X                               | X                  | X                  | X                  |                  |                |
| Motors (including ASD, Fans, Pumps)             | X                  | X                                                                                                | X                  | X                               | X                  | X                  | X                  |                  |                |
| Manufacturing Process                           |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Refrigeration                                   | X                  | X                                                                                                | X                  | X                               | X                  | X                  | X                  |                  |                |
| Space Cooling                                   | X                  | X                                                                                                | X                  | X                               | X                  | X                  | X                  |                  |                |
| Space Heating                                   | X                  | X                                                                                                | X                  | X                               | X                  | X                  | X                  |                  |                |
| Water Heating                                   | X                  | X                                                                                                | X                  | X                               | X                  | X                  | X                  |                  |                |
| Weatherization                                  | X                  | X                                                                                                | X                  | X                               | X                  | X                  | X                  |                  |                |
| General/Other                                   | X                  | X                                                                                                | X                  | X                               | X                  | X                  | X                  |                  |                |
| <b>Energy and Demand Savings - Generator</b>    |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Average Annual kWh Savings per Participant      | 70                 | 86                                                                                               | 57                 | 70                              | 86                 | 52                 | 70                 | 0                | 0              |
| Annual kWh Saved - Generator                    | 10,590,448         | 10,590,448                                                                                       | 9,614,443          | 10,590,448                      | 10,590,448         | 14,133,230         | 10,590,448         |                  |                |
| Cost per Annual kWh Saved                       | \$0.2226           | \$0.2226                                                                                         | \$0.1548           | \$0.2235                        | \$0.2235           | \$0.1368           | \$0.2245           | \$0.0000         | \$0.0000       |
| Measure Lifetime (Years)                        |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Lifetime kWh savings                            | 0                  | 0                                                                                                | 0                  | 0                               | 0                  | 0                  | 0                  | 0                | 0              |
| Cost per kWh Lifetime                           | \$0.0000           | \$0.0000                                                                                         | \$0.0000           | \$0.0000                        | \$0.0000           | \$0.0000           | \$0.0000           | \$0.0000         | \$0.0000       |
| Average kW Savings per Participant              | 0.01               | 0.01                                                                                             | 0.01               | 0.01                            | 0.01               | 0.01               | 0.01               | 0.00             | 0.00           |
| Annual kW Savings - Generator                   | 1,125.5            | 1,125.5                                                                                          | 1,198.9            | 1,125.5                         | 1,125.5            | 1,814.6            | 1,125.5            |                  |                |
| Cost per kW Saved                               | \$2,094.99         | \$2,094.99                                                                                       | \$1,241.42         | \$2,103.45                      | \$2,103.45         | \$1,065.77         | \$2,112.17         | \$0.00           | \$0.00         |
| <b>Cost/Benefit Results</b>                     |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| <b>Societal</b>                                 | <b>3 Years</b>     | <b>3 Years</b>                                                                                   | <b>1 Year</b>      | <b>3 Years</b>                  | <b>3 Years</b>     | <b>1 Year</b>      | <b>3 Years</b>     | <b>3 Years</b>   | <b>1 Year</b>  |
| Net present value                               | 21,545,366         | 21,574,277                                                                                       | 7,863,477          | 21,545,366                      | 21,574,277         | 7,899,225          | 21,545,366         | 21,574,277       |                |
| B/C ratio                                       | 2.92               | 2.92                                                                                             | 3.70               | 2.92                            | 2.92               | 2.91               | 2.92               | 2.92             |                |
| <b>Participant</b>                              |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Net present value                               | 59,223,016         | 59,223,016                                                                                       | 19,011,847         | 59,223,016                      | 59,223,016         | 24,895,322         | 59,223,016         | 59,223,016       |                |
| B/C ratio                                       | 8.42               | 8.42                                                                                             | 9.31               | 8.42                            | 8.42               | 8.45               | 8.42               | 8.42             |                |
| <b>Rate Payer</b>                               |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Net present value                               | (26,765,669)       | (26,737,257)                                                                                     | (8,146,357)        | (26,765,669)                    | (26,737,257)       | (11,311,475)       | (26,765,669)       | (26,737,257)     |                |
| B/C ratio                                       | 0.37               | 0.37                                                                                             | 0.38               | 0.37                            | 0.37               | 0.40               | 0.37               | 0.37             |                |
| <b>Utility</b>                                  |                    |                                                                                                  |                    |                                 |                    |                    |                    |                  |                |
| Net present value                               | 8,858,496          | 8,886,909                                                                                        | 3,512,405          | 8,858,496                       | 8,886,909          | 5,958,147          | 8,858,496          | 8,886,909        |                |
| B/C ratio                                       | 2.34               | 2.35                                                                                             | 3.36               | 2.34                            | 2.35               | 4.08               | 2.34               | 2.35             |                |

| Electric Conservation Project Information Sheet |                                                                                                                                                                                                                                                                 |                  | 2017/2018/2019 Cons1 BudgtSavgs |                  |                  |                |                  |                  |                |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------|------------------|------------------|----------------|------------------|------------------|----------------|
| <b>Utility Name:</b>                            | Minnesota Power                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| <b>Project Name:</b>                            | Energy Partners - Low Income                                                                                                                                                                                                                                    |                  |                                 |                  |                  |                |                  |                  |                |
| <b>Project Description:</b>                     | This Project provides the products and services that have the greatest impact on saving energy across a broad base of customer and dwelling types. Although the structure is the same as in previous years, measures that meet customer needs will be provided. |                  |                                 |                  |                  |                |                  |                  |                |
| <b>Type</b>                                     | Conservation                                                                                                                                                                                                                                                    |                  |                                 |                  |                  |                |                  |                  |                |
| <b>Status:</b>                                  | Existing                                                                                                                                                                                                                                                        |                  |                                 |                  |                  |                |                  |                  |                |
|                                                 | 2017<br>Proposed                                                                                                                                                                                                                                                | 2017<br>Approved | 2017<br>Actual                  | 2018<br>Proposed | 2018<br>Approved | 2018<br>Actual | 2019<br>Proposed | 2019<br>Approved | 2019<br>Actual |
| <b>Project Type -- Enter "X"</b>                |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| <b>Indirect (No kWh or kW Savings)</b>          |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Audit/Info                                      |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Education                                       |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Classroom Training/Instructional                |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| R&D                                             |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Renewable                                       |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Other                                           |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| <b>Direct (kWh or kW Savings)</b>               | X                                                                                                                                                                                                                                                               | X                | X                               | X                | X                | X              | X                |                  |                |
| <b>Cost Components -- Enter Dollars</b>         |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Project Delivery                                | 67,030                                                                                                                                                                                                                                                          | 67,030           | 63,560                          | 68,245           | 68,245           | 103,703        | 69,495           |                  |                |
| Utility Administration                          | 20,430                                                                                                                                                                                                                                                          | 20,430           | 15,676                          | 21,045           | 21,045           | 24,251         | 21,675           |                  |                |
| Evaluation Labor                                |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Advertising & Promotion                         |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Participant Incentives                          | 305,860                                                                                                                                                                                                                                                         | 305,860          | 287,735                         | 305,860          | 305,860          | 429,724        | 305,860          |                  |                |
| R&D                                             |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Other                                           |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| <b>Total Costs</b>                              | \$393,320                                                                                                                                                                                                                                                       | \$393,320        | \$366,971                       | \$395,150        | \$395,150        | \$557,678      | \$397,030        | \$0              | \$0            |
| <b>Project Participants</b>                     |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Total Participants (Measures)                   | 7,229                                                                                                                                                                                                                                                           | 7,229            | 18,137                          | 7,229            | 7,229            | 22,765         | 7,229            |                  |                |
| <b>% of Spending by Customer Segment</b>        |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Residential                                     | 100%                                                                                                                                                                                                                                                            | 100%             | 100%                            | 100%             | 100%             | 100%           | 100%             |                  |                |
| Commercial                                      |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Industrial                                      |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Farm                                            |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Other                                           |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| <b>Total % of Spending (must equal 100%)</b>    | 100%                                                                                                                                                                                                                                                            | 100%             | 100%                            | 100%             | 100%             | 100%           | 100%             | 0%               | 0%             |
| <b>Low-Income &amp; Renter Participation</b>    |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Participants % (% of Row 31)                    | 100%                                                                                                                                                                                                                                                            | 100%             | 100%                            | 100%             | 100%             | 100%           | 100%             |                  |                |
| Budget % (% of Row 29)                          | 100%                                                                                                                                                                                                                                                            | 100%             | 100%                            | 100%             | 100%             | 100%           | 100%             |                  |                |
| <b>End-Use Target -- Enter "X" or %</b>         |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Building Efficiency                             | X                                                                                                                                                                                                                                                               | X                | X                               | X                | X                | X              | X                |                  |                |
| Compressed Air                                  |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Energy Star Appliances                          | X                                                                                                                                                                                                                                                               | X                | X                               | X                | X                | X              | X                |                  |                |
| Lighting                                        | X                                                                                                                                                                                                                                                               | X                | X                               | X                | X                | X              | X                |                  |                |
| Motors (including ASD, Fans, Pumps)             |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Manufacturing Process                           |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Refrigeration                                   | X                                                                                                                                                                                                                                                               | X                | X                               | X                | X                | X              | X                |                  |                |
| Space Cooling                                   | X                                                                                                                                                                                                                                                               | X                | X                               | X                | X                | X              | X                |                  |                |
| Space Heating                                   | X                                                                                                                                                                                                                                                               | X                | X                               | X                | X                | X              | X                |                  |                |
| Water Heating                                   | X                                                                                                                                                                                                                                                               | X                | X                               | X                | X                | X              | X                |                  |                |
| Weatherization                                  | X                                                                                                                                                                                                                                                               | X                | X                               | X                | X                | X              | X                |                  |                |
| General/Other                                   | X                                                                                                                                                                                                                                                               | X                | X                               | X                | X                | X              | X                |                  |                |
| <b>Energy and Demand Savings - Generator</b>    |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Average Annual kWh Savings per Participant      | 129                                                                                                                                                                                                                                                             | 129              | 80                              | 129              | 129              | 82             | 129              | 0                | 0              |
| Annual kWh Saved - Generator                    | 936,080                                                                                                                                                                                                                                                         | 936,080          | 1,458,538                       | 936,080          | 936,080          | 1,863,183      | 936,080          |                  |                |
| Cost per Annual kWh Saved                       | \$0.4202                                                                                                                                                                                                                                                        | \$0.4202         | \$0.2516                        | \$0.4221         | \$0.4221         | \$0.2993       | \$0.4241         | \$0.0000         | \$0.0000       |
| Measure Lifetime (Years)                        |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Lifetime kWh savings                            | 0                                                                                                                                                                                                                                                               | 0                | 0                               | 0                | 0                | 0              | 0                | 0                | 0              |
| Cost per kWh Lifetime                           | \$0.0000                                                                                                                                                                                                                                                        | \$0.0000         | \$0.0000                        | \$0.0000         | \$0.0000         | \$0.0000       | \$0.0000         | \$0.0000         | \$0.0000       |
| Average kW Savings per Participant              | 0.01                                                                                                                                                                                                                                                            | 0.01             | 0.01                            | 0.01             | 0.01             | 0.01           | 0.01             | 0.00             | 0.00           |
| Annual kW Savings - Generator                   | 105.2                                                                                                                                                                                                                                                           | 105.2            | 156.7                           | 105.2            | 105.2            | 202.5          | 105.2            |                  |                |
| Cost per KW Saved                               | \$3,738.78                                                                                                                                                                                                                                                      | \$3,738.78       | \$2,342.35                      | \$3,756.18       | \$3,756.18       | \$2,753.64     | \$3,774.05       | \$0.00           | \$0.00         |
| <b>Cost/Benefit Results</b>                     | 3 Years                                                                                                                                                                                                                                                         | 3 Years          | 1 Year                          | 3 Years          | 3 Years          | 1 Year         | 3 Years          | 3 Years          | 1 Year         |
| <b>Societal</b>                                 |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Net present value                               | 823,722                                                                                                                                                                                                                                                         | 829,266          | 667,398                         | 823,722          | 829,266          | 542,085        | 823,722          | 829,266          |                |
| B/C ratio                                       | 1.78                                                                                                                                                                                                                                                            | 1.79             | 2.97                            | 1.78             | 1.79             | 2.01           | 1.78             | 1.79             |                |
| <b>Participant</b>                              |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Net present value                               | 3,660,482                                                                                                                                                                                                                                                       | 3,660,482        | 1,986,055                       | 3,660,482        | 3,660,482        | 2,556,170      | 3,660,482        | 3,660,482        |                |
| B/C ratio                                       | 5.65                                                                                                                                                                                                                                                            | 5.65             | 8.66                            | 5.65             | 5.65             | 7.22           | 5.65             | 5.65             |                |
| <b>Rate Payer</b>                               |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Net present value                               | (2,389,981)                                                                                                                                                                                                                                                     | (2,384,533)      | (1,115,615)                     | (2,389,981)      | (2,384,533)      | (1,521,899)    | (2,389,981)      | (2,384,533)      |                |
| B/C ratio                                       | 0.28                                                                                                                                                                                                                                                            | 0.28             | 0.31                            | 0.28             | 0.28             | 0.32           | 0.28             | 0.28             |                |
| <b>Utility</b>                                  |                                                                                                                                                                                                                                                                 |                  |                                 |                  |                  |                |                  |                  |                |
| Net present value                               | (183,583)                                                                                                                                                                                                                                                       | (178,135)        | 143,700                         | (183,583)        | (178,135)        | 211,259        | (183,583)        | (178,135)        |                |
| B/C ratio                                       | 0.83                                                                                                                                                                                                                                                            | 0.84             | 1.39                            | 0.83             | 0.84             | 1.38           | 0.83             | 0.84             |                |

| Electric Conservation Project Information Sheet |                    |                                                                                                                                                                                                       | 2017/2018/2019 Cons1 BudgtSavgs |                    |                    |                    |                    |                  |                |
|-------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------|--------------------|--------------------|--------------------|------------------|----------------|
| Utility Name:                                   |                    | Minnesota Power                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Project Name:                                   |                    | Power of One Business - C/I/Ag                                                                                                                                                                        |                                 |                    |                    |                    |                    |                  |                |
| Project Description:                            |                    | This Project uses a "Three-Phased Market Strategy" to customize a package of products and services that meets the unique needs of distinct business, industrial, agricultural and public communities. |                                 |                    |                    |                    |                    |                  |                |
| Type                                            |                    | Conservation                                                                                                                                                                                          |                                 |                    |                    |                    |                    |                  |                |
| Status:                                         |                    | Existing                                                                                                                                                                                              |                                 |                    |                    |                    |                    |                  |                |
|                                                 | 2017<br>Proposed   | 2017<br>Approved                                                                                                                                                                                      | 2017<br>Actual                  | 2018<br>Proposed   | 2018<br>Approved   | 2018<br>Actual     | 2019<br>Proposed   | 2019<br>Approved | 2019<br>Actual |
| <b>Project Type -- Enter "X"</b>                |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Indirect (No kWh or kW Savings)                 |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Audit/Info                                      |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Education                                       |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Classroom Training/Instructional                |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| R&D                                             |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Renewable                                       |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Other                                           |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Direct (kWh or kW Savings)                      | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| <b>Cost Components -- Enter Dollars</b>         |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Project Delivery                                | 1,305,655          | 1,305,655                                                                                                                                                                                             | 981,371                         | 1,360,100          | 1,360,100          | 924,411            | 1,417,055          |                  |                |
| Utility Administration                          | 100,000            | 100,000                                                                                                                                                                                               | 100,137                         | 103,000            | 103,000            | 121,305            | 106,095            |                  |                |
| Evaluation Labor                                |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Advertising & Promotion                         | 246,170            | 246,170                                                                                                                                                                                               | 128,802                         | 329,965            | 329,965            | 340,360            | 416,090            |                  |                |
| Participant Incentives                          | 2,626,368          | 2,626,368                                                                                                                                                                                             | 2,475,454                       | 2,626,368          | 2,626,368          | 2,452,999          | 2,626,368          |                  |                |
| R&D                                             |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Other (Edu)                                     |                    |                                                                                                                                                                                                       | 6,020                           | 0                  |                    | 3,724              | 0                  |                  |                |
| <b>Total Costs</b>                              | <b>\$4,278,193</b> | <b>\$4,278,193</b>                                                                                                                                                                                    | <b>\$3,691,784</b>              | <b>\$4,419,433</b> | <b>\$4,419,433</b> | <b>\$3,842,799</b> | <b>\$4,565,608</b> | <b>\$0</b>       | <b>\$0</b>     |
| <b>Project Participants</b>                     |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Total Participants (Projects)                   | 3,366              | 3,366                                                                                                                                                                                                 | 905                             | 3,366              | 3,366              | 940                | 3,366              |                  |                |
| <b>% of Spending by Customer Segment</b>        |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Residential                                     |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Commercial                                      | 100%               | 100%                                                                                                                                                                                                  | 77%                             | 100%               | 100%               | 63%                | 100%               |                  |                |
| Industrial                                      |                    |                                                                                                                                                                                                       | 23%                             |                    |                    | 35%                |                    |                  |                |
| Farm                                            |                    |                                                                                                                                                                                                       | 0%                              |                    |                    | 2%                 |                    |                  |                |
| Other                                           |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| <b>Total % of Spending (must equal 100%)</b>    | <b>100%</b>        | <b>100%</b>                                                                                                                                                                                           | <b>100%</b>                     | <b>100%</b>        | <b>100%</b>        | <b>100%</b>        | <b>100%</b>        | <b>0%</b>        | <b>0%</b>      |
| <b>Low-Income &amp; Renter Participation</b>    |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Participants % (% of Row 31)                    | 0%                 | 0%                                                                                                                                                                                                    | 0%                              | 0%                 | 0%                 | 0%                 | 0%                 |                  |                |
| Budget % (% of Row 29)                          | 0%                 | 0%                                                                                                                                                                                                    | 0%                              | 0%                 | 0%                 | 0%                 | 0%                 |                  |                |
| <b>End-Use Target -- Enter "X" or %</b>         |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Building Efficiency                             | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| Compressed Air                                  | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| Energy Star Appliances                          | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| Lighting                                        | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| Motors (including ASD, Fans, Pumps)             | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| Manufacturing Process                           | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| Refrigeration                                   | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| Space Cooling                                   | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| Space Heating                                   | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| Water Heating                                   | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| Weatherization                                  | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| General/Other                                   | X                  | X                                                                                                                                                                                                     | X                               | X                  | X                  | X                  | X                  |                  |                |
| <b>Energy and Demand Savings - Generator</b>    |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Average Annual kWh Savings per Participant      | 13626              | 13626                                                                                                                                                                                                 | 67734                           | 13626              | 13626              | 60088              | 13626              | 0                | 0              |
| Annual kWh Saved - Generator                    | 45,863,694         | 45,863,694                                                                                                                                                                                            | 61,299,182                      | 45,863,694         | 45,863,694         | 56,483,120         | 45,863,694         |                  |                |
| Cost per Annual kWh Saved                       | \$0.0933           | \$0.0933                                                                                                                                                                                              | \$0.0602                        | \$0.0964           | \$0.0964           | \$0.0680           | \$0.0995           | \$0.0000         | \$0.0000       |
| Measure Lifetime (Years)                        |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Lifetime kWh savings                            | 0                  | 0                                                                                                                                                                                                     | 0                               | 0                  | 0                  | 0                  | 0                  | 0                | 0              |
| Cost per kWh Lifetime                           | \$0.0000           | \$0.0000                                                                                                                                                                                              | \$0.0000                        | \$0.0000           | \$0.0000           | \$0.0000           | \$0.0000           | \$0.0000         | \$0.0000       |
| Average kW Savings per Participant              | 2.34               | 2.34                                                                                                                                                                                                  | 8.00                            | 2.34               | 2.34               | 6.47               | 2.34               | 0.00             | 0.00           |
| Annual kW Savings - Generator                   | 7,881.0            | 7,881.0                                                                                                                                                                                               | 7,238.4                         | 7,881.0            | 7,881.0            | 6,078.8            | 7,881.0            |                  |                |
| Cost per kW Saved                               | \$542.85           | \$542.85                                                                                                                                                                                              | \$510.03                        | \$560.77           | \$560.77           | \$632.17           | \$579.32           | \$0.00           | \$0.00         |
| <b>Cost/Benefit Results</b>                     |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
|                                                 | 3 Years            | 3 Years                                                                                                                                                                                               | 1 Year                          | 3 Years            | 3 Years            | 1 Year             | 3 Years            | 3 Years          | 1 Year         |
| <b>Societal</b>                                 |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Net present value                               | 40,115,573         | 40,545,528                                                                                                                                                                                            | 16,935,451                      | 40,115,573         | 40,545,528         | 14,251,660         | 40,115,573         | 40,545,528       |                |
| B/C ratio                                       | 1.80               | 1.82                                                                                                                                                                                                  | 1.94                            | 1.80               | 1.82               | 1.81               | 1.80               | 1.82             |                |
| <b>Participant</b>                              |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Net present value                               | 80,548,320         | 80,548,320                                                                                                                                                                                            | 37,671,716                      | 80,548,320         | 80,548,320         | 35,209,139         | 80,548,320         | 80,548,320       |                |
| B/C ratio                                       | 2.91               | 2.91                                                                                                                                                                                                  | 3.25                            | 2.91               | 2.91               | 3.18               | 2.91               | 2.91             |                |
| <b>Rate Payer</b>                               |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Net present value                               | (67,298,834)       | (66,876,297)                                                                                                                                                                                          | (30,928,024)                    | (67,298,834)       | (66,876,297)       | (27,798,063)       | (67,298,834)       | (66,876,297)     |                |
| B/C ratio                                       | 0.47               | 0.48                                                                                                                                                                                                  | 0.44                            | 0.47               | 0.48               | 0.44               | 0.47               | 0.48             |                |
| <b>Utility</b>                                  |                    |                                                                                                                                                                                                       |                                 |                    |                    |                    |                    |                  |                |
| Net present value                               | 48,170,393         | 48,592,930                                                                                                                                                                                            | 21,014,762                      | 48,170,393         | 48,592,930         | 19,554,779         | 48,170,393         | 48,592,930       |                |
| B/C ratio                                       | 4.80               | 4.96                                                                                                                                                                                                  | 6.69                            | 4.80               | 4.96               | 6.09               | 4.80               | 4.96             |                |













## PROGRAM TITLE: RESEARCH & DEVELOPMENT

### PROGRAM DESCRIPTION

The Research and Development (“R&D”) program continues to be a successful proactive program to help identify and implement new markets, products and underutilized energy-saving technologies. As customers determine where to allocate their limited resources, the R&D program helps shoulder the risk of implementing innovative and emerging technologies by identifying solutions that are the right fit for customers. The R&D program provides information on the feasibility, market acceptance and economic justification of new products and energy-saving strategies and helps continue to enhance the CIP program by identifying new initiatives.

### EVALUATION METHODOLOGY

Although each project has its own set of deliverables, the overall R&D function should be evaluated in terms of ability to identify new energy-efficient technologies, markets and delivery strategies that enhance existing CIP initiatives in multiple sectors. This helps create dynamic CIP projects that deliver the valued outcomes of energy efficiency—successful customers and communities, sustainable energy savings and long-term market transformation—to benefit communities, the region and Minnesota as a whole.

Potential projects are evaluated through a defined set of criteria that evaluates each of the projects for its potential for overall energy savings, the number of customers that could be impacted by the measure, delivery strategy, and the technology type.

### RESULTS

|                            | <i>Approved<br/>Goals</i> | <i>Actual<br/>Results</i> | <i>% of<br/>Approved<br/>Goal</i> |
|----------------------------|---------------------------|---------------------------|-----------------------------------|
| Total Project Expenditures | \$243,800                 | \$232,861                 | 96%                               |

The R&D program is designed to take advantage of a broad base of technologies across customer classes—residential and low income, commercial, public and agricultural, and industrial—to ensure that each customer class benefits from participation in technology development, application, and market-based research.

The results of the 2018 R&D projects are detailed below.

#### ***Triple E Wall Performance*** (\$2,556)

##### *Project Description*

This research investigates the growing movement in the building industry to insulate more on the exterior of the building and less in the cavities. The concept is to install enough insulation on the outside of the building so that the sheathing of the building stays above the dew point. With warm sheathing, there is less need for a vapor barrier or the installed vapor barrier is less critical because the dew point is on the outer portion of the wall assembly. This is a growing trend

throughout the industry. Minnesota Power, along with a local builder, decided to test this insulation strategy in a cold climate.

A wall assembly was constructed with two layers of 2” high density foam board insulation on the exterior of a 2” X 6” wall with R-19 fiberglass batt insulation in the wall cavity (builder design).

Temperature sensors were placed in five separate locations within the wall.

These sensor are located in the following locations:

1. Behind the siding – outside the foamboard insulation
2. Between the two layers of foamboard insulation
3. On the warm side of the foamboard insulation – outside the sheathing
4. On the warm side of the sheathing – outside of the fiberglass
5. On the warm side of the fiberglass – inside the sheetrock

An additional set of sensors are installed on the south facing side of the house that is exposed to the winter sun and on the north facing wall that will not be subjected to the sun.

#### *Current Status*

Monitoring is ongoing along with collecting the associated climate information. Once the 2018-2019 heating season winds down, a study summary will be developed.

#### ***Embedded Engineering Intern***

(\$25,023)

#### *Project Description*

This research is to determine the effectiveness of embedding a college engineering intern within a commercial business or facility to assist in identifying conservation improvement projects. As facility budgets and staffing is reduced in these energy intensive businesses, the goal is to determine whether an embedded intern could provide assistance to the facility manager to help reduce the overall energy costs of the facility while providing valuable training and education to the intern. This R&D project helps quantify the benefit of an intern identifying low cost/no cost energy-saving projects as well as assisting the facility manager with potential future energy-saving capital projects.

#### *Current Status*

Continuing from 2017, for 2018, Minnesota Power embedded a mechanical engineering student with a large school district to assist them with identifying and quantifying energy-saving projects. The primary focus was to review five recently completed recommissioning studies, implement the low cost/no cost measures identified and assist with reviewing the district’s Building Automation System for any deviations from the original commissioning set points. The intern identified savings of over 3,000,000 kWh and \$250,000 cost savings.

In 2018, UMD also participated with the embedded intern program by having the individual survey the entire campus, eventually documenting all existing lighting and other miscellaneous equipment. The intern covered over 3,100,000 square feet, identifying all lighting, electric heating, washers/dryers, mini refrigerators, appliances, air conditioners and unit ventilators. This included

54 buildings, 6,853 spaces, 40,576 fixtures and 74,875 lamps. Currently, MP is working with the university in prioritizing and completing retrofits and or new fixture installations.

### ***Innovative Lighting***

(\$21,544)

#### ***Project Description***

Lighting research keeps Minnesota Power current with new and innovative lighting products and technologies and allows customers to make informed decisions in the constantly changing LED market. Lighting samples provided to customers in 2018 included LED tubes, integrated controls, high bay retrofits and exterior and street lighting alternatives. This no-obligation approach allows customers to trial new lighting options in their space to determine if it meets their needs.

#### ***Current Status***

Minnesota Power continues to identify and gather information on new lighting products, controls, and technologies on the market. Lighting samples are acquired through local suppliers and provided through Minnesota Power for trial use. Customer input has been recorded along with the sample product model number and information. This is ongoing research that has been useful to Minnesota Power and their customers for making informed energy-efficient product choices.

### ***Multifamily and Low Income Outreach***

(\$2,065)

#### ***Project Description***

In 2017, Minnesota Power began exploring ways in which to expand multifamily outreach. This effort continued into 2018, piloting strategies with other utilities and doing some program planning and design to come up with the best strategy for customers to approach these situations. Efforts focused around working with other providers and utilities to offer customers a ‘one-stop-shop’ when it came to learning about their conservation opportunities for all fuels across the board. Joint partnerships included properties served by both Minnesota Power and Minnesota Energy Resources in 2018.

#### ***Current Status***

Minnesota Power is working with different providers and partnering with overlapping utilities to provide shared customers with the best experience possible. These efforts are being made with the intention of coming up with a clear multifamily program that can be replicated throughout Minnesota Power’s service territory.

### ***Net Zero Housing***

(\$26,234)

#### ***Project Description***

Minnesota Power will research the loads and design requirements for NetZero, Near NetZero and NetZero Ready residential housing, and work with local architects, professionals and builders to develop a low-cost construction plan for residential housing. The objective is to have a plan that is applicable and available for distribution in Northern Minnesota climates. Minnesota Power will also research the heat loads of appliances and major equipment in the home for sizing renewable energy production requirements. The NetZero plan will be designed for low income housing. As

the project progresses, the aim is to identify areas that are slowing the progress of NetZero housing in northern Minnesota. Some examples of areas that may limit NetZero Certification are lack of: experience, certified designers and contractors, and verification authorities.

### *Current Status*

Minnesota Power and Fond du Lac Reservation Housing teamed up to develop a NetZero Low Income Housing Plan. After developing a conceptual plan, bids were solicited from various architectural firms to present their concept for a NetZero ready home. Wagner Zaun was chosen and developed the final design for the NetZero team. This was presented to Fond du Lac Housing in 2018 and is currently being evaluated by their staff.

### **HVACR Technologies** (\$133,620)

#### *Project Description*

This research focuses on retrofit equipment and controls for HVAC Roof Top Units (RTUs), refrigeration systems and integrated controls for energy use monitoring. With new equipment coming on line, Minnesota Power will explore the viability of the energy savings potential and install some units at participating customer sites for evaluation and product visibility. There are a number of new products on the market that Minnesota Power began to evaluate in 2018.

75F—This Company retrofits existing RTUs with new and additional sensors utilizing cloud based technology and offers trending and control capabilities. They claim savings of up to 50% depending on the installation, location and the type of retrofit.

Honeywell LCBS—Similar to 75F, this is a solution where new sensors are installed or existing are incorporated into a cloud based solution. Light Commercial Building Solutions (LCBS) claims savings of 10 to 40%.

Emerson Einstein Refrigeration and BAS Controls—This product incorporates the proven refrigeration control of the E3 controller with a Building Automation package.

Minnesota Power believes these products offer potential cost-effective energy-savings opportunities for small to mid-size commercial customers.

### *Current Status*

Minnesota Power identified two customers to participate in this study. A small office/retail/restaurant complex and an auto dealer. 75F provided the site assessment, quotation and trained a HVACR contractor that Minnesota Power identified as wanting to learn more about the 75F product. The installation for both sites is complete. Minnesota Power will be performing a M&V of the savings of this product in 2019.

Minnesota Power partnered with a local restaurant to install LCBS from Honeywell but this didn't work as the customer had some other technical issues. Minnesota Power will continue looking for opportunities to test this product.

E3 controller – Minnesota Power identified a small community center with an indoor skating arena as a potential site to the E3 controller with BAS. The existing rink compressor did not have advanced controls and the building RTUs were controlled via one thermostat for the entire community center. The installation of the E3 unit and data logging will be implemented during 2019.

Additionally, Minnesota Power explored applications for cold climate variable refrigerant technologies in its Cloquet facility in 2018. The Company will continue to evaluate this project in 2019.

### ***Smart Data Loggers*** ***(\$1,157)***

#### ***Project Description***

The objective of this project is to research the potential that Smart Data Logging equipment has for identifying and developing energy- and cost-saving strategies with pre-existing equipment. Currently, there are a significant number of customers who have aging and oversized equipment that hasn't reached its operational life and, therefore, it would be financially impractical to replace it in the short term. Oftentimes, the inherent inefficiencies of this equipment and resulting operational costs are created by unintended operational practices. The data logging equipment can identify the unintended practices by providing critical and real-time information of the running equipment to the customer. This information can be used to develop new operational practices to improve the overall efficiencies and energy costs of the equipment.

Additionally, the intent of this research is to demonstrate how Smart Data Logging equipment can be used to assist with maintaining, adjusting, and resetting equipment to maximize operational efficiency. It is believed that through continued education on how power is used and how operational choices affect energy consumption, customers can and will make better and more informed choices.

#### ***Current Status***

In 2018, Minnesota Power continued to utilize the capabilities of Smart Data Loggers. This technology provides real time and recorded information on the status of the customer equipment to better understand their energy usage. Due to the proven success of this technology and the positive feedback provided, the Smart Data Logger project will be moved out of Research and Development in 2019 and into the Energy Analysis program.

## **SUMMARY**

In 2018, Minnesota Power funded R&D projects that involved a cross-section of customer classes and will help guide future conservation program design, outreach and offerings. New technologies, delivery methods and pilot programs are ways Minnesota Power helps strengthen its overall portfolio offering and prepares for the ever-changing CIP landscape. Overall, Minnesota Power finds this research to be valuable and informative to program design and delivery techniques, particularly as it relates to developing effective conservation program market strategies.

**“Energy efficiency is a big investment,  
and we want customers to be happy  
with the choices they make.”**

**Chad Trebilcock**

Senior Customer Programs and Services Representative,  
Minnesota Power



**“The best solutions are those we arrive  
at together with our customers.”**

**Tina Koecher**

Customer Experience Operations Manager, Minnesota Power



# 2018 Success Stories

1. **Training for facilities managers delivers big results**
5. **Mall managers, tenants and shoppers are sold on LEDs**
7. **Kolar Toyota takes the high road on energy efficiency**
9. **Goodwill Industries lights up with LEDs—indoors and out**
11. **Low-income programs brighten lives, warm hearts, and empower customers**

# Training for facilities managers delivers big results



“BOC training provides participants with the knowledge and tools to identify energy-saving opportunities and optimize system performance.”

**Craig Kedrowski, Energy Efficiency Analyst-Lead**  
Minnesota Power

Rainy Lake Medical Center (RLMC) in International Falls has made significant advances in recent years, updating and remodeling its surgery center, emergency room, therapy and wellness center, patient wing and administrative services area.

Originally built in the 1960s and 1970s, the community hospital and clinic complex has transformed itself into a 21st century healthcare facility—complete with a new high performance mechanical system, redesigned electrical distribution system and a growing number of LED lights with controls.

“We advanced rapidly to a modern facility with complex building automated systems and controls,” said Brock Morrison, facilities director for RLMC. “The changes in technology were so dramatic, we needed training to fully understand how to utilize our systems.”

Morrison was among 11 building operators and maintenance professionals who recently completed Building Operator Certification (BOC) training in International Falls, sponsored by the Northeast

Minnesota Office of Job Training (NEMOJT) in partnership with Minnesota Power. BOC is a nationally recognized training program designed to help participants understand how systems such as heating, ventilation and air conditioning (HVAC); electrical; and lighting work together so they can operate facilities more energy efficiently. It is increasingly important as building and energy management systems become more integrated and complex.

“Many organizations are choosing to invest in high performance, energy-saving technologies when they construct new buildings or remodel facilities, but if today’s building systems are not monitored and maintained properly, they might not meet expectations for energy and cost savings,” said Craig Kedrowski, energy efficiency analyst-lead for Minnesota Power’s Power of One® Business conservation improvement program (CIP). “BOC training provides participants with the knowledge and tools to identify energy-saving opportunities and optimize system performance.”



"Everyone brought their own knowledge to the table, and everyone shared. A lot of time, we would discuss or troubleshoot problems right in the class."

**Joe Hackenmueller**  
Facilities and Environmental Services Director  
Good Samaritan Society

## Strong advocate and job training resources helped bring BOC to 'The Falls'

Ted Brokaw, street and water commissioner for the city of International Falls, was a driving force in bringing BOC training to the Borderland community. Brokaw attended BOC Level I training sponsored by Minnesota Power a few years ago at Camp Ripley in Central Minnesota. He found it extremely beneficial but inconvenient for building operators in the International Falls region to participate.

"Having to drive four hours to Little Falls once a month to take a class was a challenge," said Brokaw, who was the city's buildings and grounds director at the time and remains passionate about energy efficiency. "My employer saw the value and paid for my travel expenses, but not everyone is so fortunate—that was why I pushed to have BOC training offered up here."

Brokaw facilitated a meeting between Alysa Hackenmueller of NEMOJT and members of Minnesota Power's CIP team, including Kedrowski and commercial energy consultant Tanuj Gulati of Energy Insight Inc., who also is a BOC Level I instructor. NEMOJT's Talent Development Program covered tuition for 10 of the participants.

"Our Talent Development Program specifically provides funding so employers can have efficiently trained employees in a variety of departments that will help offset costs or improve their business processes," Hackenmueller said. "The whole premise of BOC training is to help organizations save money from energy-efficient operations, so, to me, it was a no-brainer."

Six local employers enrolled facility and maintenance staff in the program: RLMC, the city of International Falls, Falls High School, Good Samaritan Society, Rainy River Community College and Backus Community Center.

## Minnesota Power CIP connections engaged participants

Monthly classes began in October 2017 and wrapped up in April 2018. BOC Level I training includes 74 hours of classroom and project work in building systems operation and maintenance. The curriculum centers on energy efficiency and includes topics such as operation of heating, ventilation and air conditioning systems; measuring and benchmarking energy performance; efficient lighting fundamentals; and HVAC controls. In order to graduate, participants must attend classes and develop scoping projects to improve energy efficiency in their own facilities.

One of the greatest benefits for participants in International Falls was that many already knew BOC instructor Tanuj Gulati through his longtime work with Minnesota Power's CIP program. His rapport with the students and familiarity with facilities they managed made it easier to incorporate real local examples into class discussions and to follow up with CIP resources.

"Having Tanuj embedded as a BOC instructor helps solidify the relationship between Minnesota Power and our customers," Kedrowski said. "The final assignment is to complete an actual energy conservation project, and he helps participants succeed by connecting them to the resources and incentives we offer."

"BOC students are facility people that we work with daily on a professional basis," Gulati said. "In class they get to interact with me and ask questions about their current projects and projects that are in the planning stages."

"Everyone brought their own knowledge to the table, and everyone shared," said Joe Hackenmueller, facilities and environmental services director for Good Samaritan Society, an organization with more than 250,000 square feet of residential care facilities. "A lot of time, we would discuss or troubleshoot problems right in the class."



## BOC training leads to real energy-saving projects

During the course, Falls High School was planning a project to replace outdated T12 fluorescent lights with LEDs, and contractors had proposed a light-for-light replacement. After discussing the project in class, Gulati followed up as a representative of Minnesota Power's CIP team and found LEDs could meet the school's lighting requirements with one-third of the bulbs, while qualifying for rebates from Minnesota Power.

"We are using the savings to replace the lights in three additional rooms, and we are still spending less than what we had planned," said Tom Holt, facilities and transportation director for International Falls Public Schools – ISD 361. "I cannot say enough about how Minnesota Power has helped us out, and Tanuj especially goes out of his way. We have only limited funds, and, if it wasn't for him, in this case, we definitely could not have done those extra three rooms."

Other BOC graduates also are in the process of implementing their scoping projects or making changes based on what they learned in the BOC course.

"I found the class on lighting efficiency to be particularly helpful," Morrison said, mentioning one of the sessions taught by Gulati. "As a 24/7 hospital, we need lights and access, but I learned about opportunities to gain efficiencies. After the class, (Minnesota Power) conducted a lighting study, and they are going to give me a report to change out some of our lights and to control usage with timers or motion sensors. It will be a big energy saver and money saver for us, and there are potential rebates and incentives available."

"(Thanks to BOC training) we already have cut costs on contractors coming in to troubleshoot some of our problems, and we are implementing things we learned in class about running our systems more efficiently," Joe Hackenmueller said. "Now we're programming schedules and using variable drives properly so HVAC units don't come on full bore when we only need 25 percent of that power to do the job. We have other projects planned, waiting for capital to put them in place."

## Networking provides additional benefits

In addition to providing local facilities and maintenance personnel with valuable insights and resources to optimize



“It was huge for local maintenance professionals to meet face-to-face with engineers and industry experts. Plus there was the value of networking with others in the community who have similar jobs. That is priceless.”

**Alysa Hackenmueller, Career Counselor**  
Northeast Minnesota Office of Job Training

their buildings’ energy performance, BOC training strengthened participants’ ties with Minnesota Power and with each other.

“It is nice to get out there and talk shop with someone who deals with the same things you do,” Brokaw said. “Building operators are unsung heroes, who only get called when people are uncomfortable.”

“It was huge for local maintenance professionals to meet face-to-face with engineers and industry experts like Tanuj, Craig, and some of the other trainers who came to town,” said Alysa Hackenmueller, noting that International Falls often is overlooked as a training site because of its remote location. “Plus there was the value of networking with others in the community who have similar jobs. That is priceless.”

Nearly all of the participants are interested in BOC Level II training down the road.

“Two months in, people were pushing for BOC Level II, and I think it is going to happen,” Brokaw said. “I’d also like to bring BOC I back in a couple of years, because organizations get new employees. This is a good thing—everyone benefits.”

**Above:** After lighting upgrades and new complex mechanical and electrical systems were installed at Rainy Lake Medical Center, facilities maintenance personnel benefitted from BOC training that is helping them to best monitor and maintain the systems for the most energy and cost savings.

# Mall managers, tenants and shoppers are sold on LEDs



"Working with Minnesota Power is like hitting the 'Easy' button. It frees our staff to focus on other things and speeds up our timelines."

**Dave Danielsen, Operations Director**  
Miller Hill Mall

One basic rule of retail is to display products in the best possible light. Simon Property Group is doing this on multiple levels at Miller Hill Mall in Duluth, where an ongoing transformation to LED lighting is a major selling point for shoppers and tenant businesses alike.

Simon is a global leader in commercial real estate with premier shopping, dining and entertainment properties across North America, Europe and Asia. Miller Hill Mall alone boasts roughly one million square feet and more than 100 stores that offer everything from distinctive apparel and fine jewelry to sporting goods and casual dining. This regional shopping hub draws visitors from across northern Minnesota, Wisconsin and Michigan as well as parts of Canada.

Keeping the property fresh and appealing is important to Dave Danielsen, operations director at Miller Hill Mall. He joined Simon Property Group in 2014 with extensive experience in commercial facilities and conservation technologies. Since then, he has led the conversion to bright, energy-efficient LED lighting and completed numerous other energy-saving upgrades, working closely with Minnesota Power's

Power of One® Business conservation improvement program (CIP).

"Dave has a background in energy efficiency, so he understands the importance and is a strong advocate at the mall," said Chad Trebilcock, a senior customer programs and services representative for Minnesota Power. "Energy efficiency is always at the back of his mind. It is fun to work with people like that."

Projects completed in 2018 included replacement of more than 1,000 outdated metal halide, fluorescent and incandescent fixtures with state-of-the-art LEDs, installation of lighting controls, and a switch to low flow water faucets in restrooms and kitchen sinks. Minnesota Power provided lighting samples and calculated potential savings and rebates for projects to aid with decisions.

"Working with Minnesota Power is like hitting the 'Easy' button," Danielsen said. "It frees our staff to focus on other things and speeds up our timelines."

"Energy efficiency is a big investment, and we want customers to be happy with the choices they make," Trebilcock said. "We often bring in lighting samples so commercial customers like Miller Hill Mall can test

them out, and we run the numbers so they get solutions that make sense for their operations.”

The numbers can be very compelling. Recent upgrades at Miller Hill Mall are expected to save more than 900,000 kWh per year (approximately 873,000 kWh from lighting, 29,000 kWh from cooling as a result of using LEDs, and 700 kWh for low flow aerators). In addition, these choices will reduce monthly demand by nearly 200 kW and result in an estimated \$55,000 in annual cost savings. Completed projects qualified for over \$43,000 in rebates from Minnesota Power, making the improvements even more attractive.

“LEDs really hit on numerous levels for us,” said Danielsen, noting that (as of Nov. 2018) 100 percent of exterior and 75 percent of interior lighting had been converted to LEDs and there were plans to upgrade the remainder. “The payback is phenomenal, right around three years for our last two projects, so, financially, it makes a lot of sense. Beyond that, we have a much brighter mall that provides a safer, more pleasant experience for guests and retailers.”

Tenant businesses also are sold on energy efficiency. The mall has a main electric meter and submeters tenants for their individual usage. As businesses build out or remodel

space, plans must meet the approval of Simon Property Group and help achieve corporate conservation goals.

“We simply forward plans to Minnesota Power,” said Danielsen. “Again, we hit the ‘Easy’ button. They look over the plans and identify energy-saving opportunities, which we strongly recommend that tenants choose to incorporate. It saves tenants money, it is right from an environmental standpoint, and it is a free and easy system for us.”

Being environmentally conscious and maintaining strong, mutually beneficial relationships are part of Simon Property Group’s core value of responsible citizenship. Its partnership with Minnesota Power’s CIP team dates back to 2005. Combined lighting, heating, ventilation, air conditioning and energy management improvements are saving more than 4 million kWh per year.

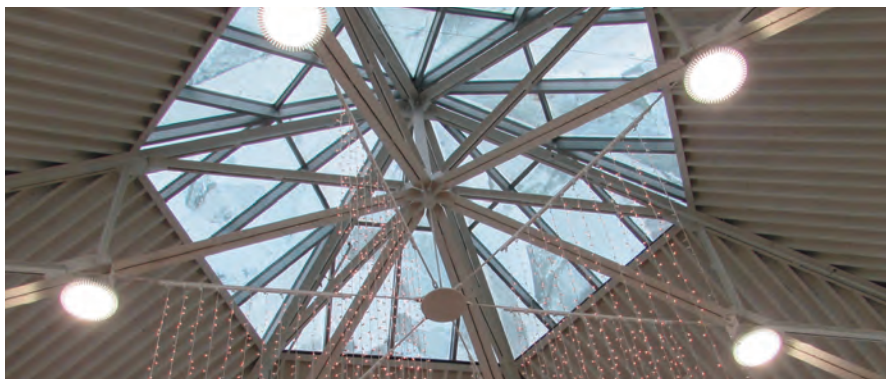
“Miller Hill Mall is a large facility with a lot of different systems in place,” Danielsen said. “Minnesota Power is a real resource provider, getting us to think critically about our building and what we could be doing better from an energy standpoint.”

Another commercial customer sold on energy efficiency!



“Energy efficiency is a big investment, and we want customers to be happy with the choices they make.”

**Chad Trebilcock**  
Senior Customer Programs and Services Representative  
Minnesota Power



**Above:** (From left) Dave Danielsen, Miller Hill Mall, and Chad Trebilcock, Minnesota Power, collaborate to reduce energy usage and demand.; New LED lighting and other energy conservation upgrades enhance the experience for shoppers and retailers while saving Miller Hill Mall around 900,000 kWh and \$55,000 per year.

# Kolar Toyota takes the high road on energy efficiency



"Minnesota Power is a great resource, providing design consultation, sample fixtures and rebates so we don't make mistakes—we do projects right the first time."

**David Solon, General Manager**  
Kolar Toyota

People who are shopping for a new car, truck or sport utility vehicle often consider gas mileage a very important factor. That interest drives many shoppers to visit Kolar Toyota in Hermantown, Minn., in search of a hybrid Prius, Camry, RAV4 or one of many other fuel-efficient vehicles. What shoppers might not realize, however, is that Kolar Toyota's facility itself is miles ahead of most auto dealerships in energy performance.

The recently expanded and remodeled building features 100 percent energy-efficient LED lighting, inside and out, plus newly installed office air conditioning units with a seasonal energy efficiency ratio (SEER) that exceeds Minnesota state code.

General Manager David Solon gets much of the credit for advancing a culture of energy efficiency at Kolar Toyota as well as other nearby dealerships in the Kolar Auto World family. For more than a decade, he has worked with Minnesota Power's Power of One® Business conservation improvement program (CIP) to identify and complete energy-saving facility upgrades.

"Dave is one of our biggest and earliest adopters," said Craig Kedrowski, energy efficiency analyst-lead,

Minnesota Power. "He always looks at the whole building and how energy-efficient choices, such as the newest LED lighting technology, will enhance business while reducing energy usage and lowering costs."

Kolar Toyota's expansion and remodeling project added more than 10,000 square feet to the facility. It expanded the dealership's showroom floor and created an all-new service department, service entry and customer lounge. Minnesota Power's CIP consultants were involved well before ground was broken. They worked closely with architects in the design phase to analyze the energy and cost-saving implications of everything from heating, ventilation and air conditioning equipment to lighting systems.

Lighting is critical in the auto business so shoppers see vehicle colors and features in a flattering way and service personnel can do their auto repair and maintenance work safely and accurately. Recent advances in LED lighting made it the right choice for Kolar Toyota's project—and Minnesota Power's CIP team helped company officials sort through their options. The process involved testing a range of LED lighting fixtures and bulbs in different parts of the building.

“We ran three different samples in the service department to determine which made the service personnel and mechanics happy, then installed the ones they chose.”

**David Solon, General Manager**  
Kolar Toyota

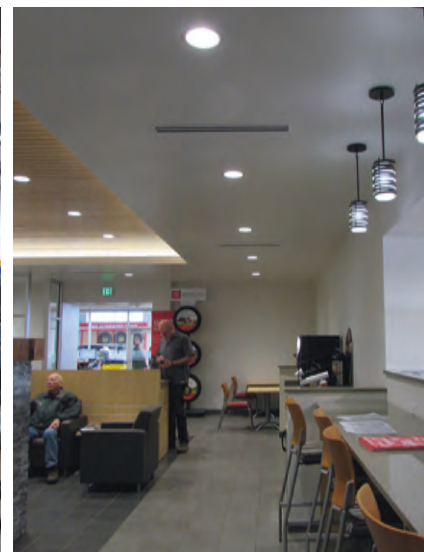
“This was very helpful in making decisions,” Solon said. “For example, we ran three different samples in the service department to determine which made the service personnel and mechanics happy, then installed the ones they chose.”

Outdoor lighting and signage also was upgraded to LED. Pole lights in the auto lot now have occupancy sensors and programmable dimming controls for even greater efficiency and improved security. They soon will be tied into a system that includes similar LED lights and lighting controls at nearby Kolar Hyundai and Kolar Chevrolet Buick GMC Cadillac, allowing Kolar to program and control the lot lights at all three sites from one location. Minnesota Power paid for part of the outdoor lighting control system as a CIP research project.

Altogether, the LED lighting and a high performance heat pump installed at Kolar Toyota during its expansion and renovation will help the company avoid more than 350,000 kilowatt-hours of electricity per year and about 70 kilowatts of monthly demand. The choices qualified the company for around \$20,000 in rebates from Minnesota Power. In addition Kolar will save \$25,000 in cost savings.

“Minnesota Power is a great resource, providing design consultation, sample fixtures and rebates so we don’t make mistakes—we do projects right the first time,” said Solon, pointing out that rebates influence decisions, but energy and cost savings are the real long-term benefits of working with Minnesota Power. “We added over 10,000 square feet, so we have a much larger facility with more lights, and our power bill has gone down!”

“Customer buy-in is important,” Kedrowski said. “Ultimately, it comes down to providing options that help commercial customers like Kolar Toyota get what is best for them.”



“Ultimately, it comes down to providing options that help commercial customers like Kolar Toyota get what is best for them.”

**Craig Kedrowski, Energy Efficiency Analyst-Lead**  
Minnesota Power



# Goodwill Industries lights up with LEDs—indoors and out



"We have received a lot of really positive comments and compliments; it has been a substantial change."

**Mike Smart**  
Facilities, Transportation and Safety Manager  
Goodwill Industries

The retail store at Goodwill Industries' flagship facility in Duluth, Minn., is a bright, cheerful place. Tidy racks of color-coordinated clothing, shelves of gleaming appliances and attractively displayed children's items invite visitors to stay and shop. Overhead, rows of energy-efficient, light emitting diode (LED) fixtures and bulbs show off the store and its merchandise in the best possible light.

The lights were installed as part of a recent project that upgraded all of the interior and exterior lighting at the organization's main building to state-of-the-art LEDs.

Minnesota Power was a partner in the transformation, which has improved the environment for both employees and visitors and is expected to save the nonprofit thousands of dollars per year on its electric bills.

## Aging building had lighting challenges

Goodwill Industries provides employment services, training and jobs to people with disabilities and other barriers to employment. Built in the 1960s as a Goldfine's department store, the nonprofit's 125,000-square-foot facility at 700 Garfield Ave. houses a variety of activities that support its mission. The building is a drop-off site for donations, a sorting and recycling facility, a warehousing and distribution



center, a mattress deconstruction site, a retail outlet and headquarters for program services and administrative offices.

Lighting had long been a concern in the aging building. Prior to the LED conversion, the sorting facility and parking lot were illuminated with outdated metal halides. The retail store, offices, restrooms and other areas used fluorescent lighting. Both of these technologies use far more energy than LEDs, grow dim over time and burn out frequently. This led to significant replacement costs and dark, dingy conditions for employees—particularly in the sorting area.

"It was like a dungeon in some places," said Tedd Ells, director of operations. "We were running into problems retaining workers."



“Savings are dollars that can be put back into our mission.”

**Mike Smart, Facilities,  
Transportation and Safety Manager**  
Goodwill Industries

## Goodwill Industries turned to Minnesota Power

Looking for ways to save money and improve the environment for staff, clients and customers, Goodwill’s leadership team turned to Minnesota Power for energy-efficient lighting recommendations.

“This is a huge facility with hundreds of fixtures,” said Minnesota Power energy analyst Chad Trebilcock. “We came in and took lighting counts, noted wattages and calculated savings in usage and demand. Savings estimates and potential rebates were impressive.”

“They presented a fairly substantial report,” said Mike Smart, facilities, transportation and safety manager. He joined Goodwill Industries in August 2017, shortly after the study was completed, and led the conversion project. “I had to get up to speed pretty quickly.”

Smart was familiar with LEDs but initially had questions about whether LEDs could deliver appropriate lighting levels with half the wattage of metal halides. A sample overhead floodlight was brought in, which quelled his concerns.

“Holy mackerel!” Smart said. “They turned it on, and it was like the sun—a big, big difference.”

“When customers are unsure of a technology, Minnesota Power likes to provide a sample so they can familiarize themselves with how it functions and looks,” Trebilcock said. “You wouldn’t buy a car without test driving it, right? I look at this the same way. We want customers to be comfortable with their decisions.”

Armed with information from Minnesota Power, Goodwill Industries found a contractor, Ideal Energy Solutions, willing to lease the LEDs at no upfront cost. Over the course of several weeks, crews systematically replaced the lighting—inside and out. Officials credit Minnesota Power with getting the project off the ground.

“Having a subject matter expert like Minnesota Power come to the table, analyze what was needed and provide direction gave us the capacity to find a vendor we could partner with in a lease agreement and get the project completed with no capital expenditure,” Ells said. “Plus we got a rebate, which was much larger than we anticipated.”

## Benefits of energy efficiency are powerful

The LED upgrade qualified Goodwill Industries for more than \$24,000 in Power of One Business rebates from Minnesota Power. It is expected to lower the facility’s monthly electric demand by 98 kW and reduce annual electric usage by nearly 305,000 kWh. This will save the nonprofit around \$22,000 per year on its utility bills. The long-lasting LEDs will require less maintenance and could even reduce summer cooling costs because they do not generate as much heat as the lights they replaced.

The transformation already is having profound effects. The ambience and working conditions have improved throughout the facility, and new LED exterior lights have enhanced safety, security and visibility. Employees and shoppers noticed the change.

“We have received a lot of really positive comments and compliments; it has been a substantial change,” Smart said. “This is a busy place. People with various levels of functionality are sorting through donated goods and trying to determine whether something is the type of quality we want to put in our store, and there are lots of tables and moving carts. Being able to see well is pretty important.”

## Mission-focused nonprofit puts savings to work

As far as cost savings, it all goes back to the mission of employing and empowering the people that Goodwill Industries serves. The organization also is considering a solar photovoltaic system as it works to become a more sustainable community resource.

“We try to manage our costs and resources to the greatest extent possible so we can advance our mission of providing training and work for clients,” said Smart, a U.S. Army veteran who values this mission-focused approach. “Savings are dollars that can be put back into our mission.”

That’s what folks at Minnesota Power like to hear.

“We are here to help customers,” Trebilcock said. “Our goal is to help them manage their energy costs so their businesses can be more successful and strengthen our region economically.”

# Low-income programs brighten lives, warm hearts, and empower customers



"Having all of these resources in one place on our website is a big help for customers,"

**Pam Schmitt, Strategic Accounts Specialist**  
Minnesota Power

Cold winter weather and short daylight hours can have dramatic impacts on monthly energy bills. This is particularly troubling for individuals and families with low incomes who may face difficult or even dangerous choices as they struggle to make ends meet.

All regulated utilities are required to develop and deliver programs that help alleviate this burden on low-income customers. As a responsive corporate citizen, Minnesota Power is committed to doing its part and directing resources toward those who need them most. It accomplishes this in meaningful ways that brighten lives, warm hearts, and empower people who are income challenged to use energy more effectively.

## Low-Income Task Force Reaches In and Reaches Out

Passionate people drive the success of Minnesota Power's low-income programs and services. In the spring of 2017, representatives from across the company came together and formed a Low-Income Customer Task Force. Organizers knew a lot of good things were happening in various departments and at different levels to assist customers with low incomes. They just needed to be better aligned and cross promoted.

"We had to break down silos within the organization and get everybody in the same room," said Pam Schmitt, a strategic accounts specialist at Minnesota Power who served as lead of the Low-Income Customer Task Force for its first full year. "The goal was to map out programs and processes already in place for income-challenged customers and brainstorm what was working and what we could be doing better to ensure equitable access."

The task force began with an inventory that identified a myriad of options and choices—from reduced electric rates for income-eligible customers to budget billing services, weatherization and emergency energy assistance partnerships, and energy-efficiency rebates and tools.

"It confirmed there were a lot of resources available and protections in place for folks going through hardships, especially in the cold weather months," Schmitt said. "It was great to get it all laid out in one place, but we could see that perhaps we were not communicating the great things we offered in a coordinated way to customers and even within our organization."



"The best solutions are those we arrive at together with our customers."

**Tina Koecher**  
Customer Experience Operations Manager  
Minnesota Power

Members of the Low-Income Customer Task Force increased internal communications to help fellow employees better understand how the company assists customers who are income challenged manage their energy costs.

"We posted information on our Intranet and sent materials around Minnesota Power facilities, encouraging employees to share it with people in their networks," Schmitt said. "There were a lot of misconceptions about processes, and many employees were not aware of the programs in place, so it was a good opportunity to educate them."

Another simple step was to restructure the Assistance Programs page of Minnesota Power's website ([www.mnpower.com/CustomerService/AssistancePrograms](http://www.mnpower.com/CustomerService/AssistancePrograms)) to reflect the full range of resources available through the utility as well as public and nonprofit partners in the region. The page now serves as a portal for customers and interested employees to access information about the following:

- **Low Income Home Energy Assistance Program (LIHEAP)**, a federally funded program that helps pay for home heating costs and furnace repairs for income-eligible households;
- **Customer Affordability of Residential Electricity (CARE)**, a program administered by Minnesota Power that offers LIHEAP-qualified customers a discount on monthly electric bills;
- **Minnesota's Cold Weather Rule**, which protects customers who are unable to pay their utility bills from disconnection of service between Oct. 15 and April 15;
- **Military Service Personnel Assistance**, which includes utility payment arrangements for military service personnel and their families;
- **HeatShare**, a last-resort program administered by the Salvation Army;
- **Energy Partners**, a program through which Minnesota Power collaborates with local agencies to deliver in-home energy analyses to income-eligible customers; and
- **Life Support**, which provides protections for those who depend upon continuously operating, electric-powered medical equipment at home.

"Having all of these resources in one place on our website is a big help for customers," Schmitt said. "Not all people are comfortable talking with someone on the phone or in person when they are struggling with energy costs or need assistance."

## Cold Weather Rule and Fall Transition Training Help Customer Service Employees Prepare for Seasonal Changes and Changing Customer Needs

As fall and colder weather approached, Minnesota Power customer care and support representatives, meter readers, credit collectors, members of the Low-Income Customer Task Force and employees from the Customer Experience Transformation group received annual training refreshers on Minnesota's Cold Weather Rule, setting up payment plans in the winter, disconnection and reconnection processes, and an overview of available programs and services. In 2018, this was complemented with a training by Sally Anne McShane, a mediator in the Minnesota Public Utilities Commission Consumer Affairs Office. She highlighted important sections of the state statutes that govern the Cold Weather Rule, explained the landlord-tenant rule that protects tenants whose landlords are behind on utility bills, and ran through four possible scenarios involving customer requests for Cold Weather Rule payment plans. The state's Cold Weather Rule allows utility customers who are having trouble paying their bills to ask for protection by setting up a payment plan that can be smaller (not to exceed 10% of their income) to keep their heat on during the winter.

McShane also described the legal responsibilities of customers and utilities under the rule and said honesty is important for both parties so they know what the other can and will do. For instance, she said customers may agree to a payment plan that they can't afford because they are reticent to admit the depth of their financial troubles. In all cases, she said utilities should strive to ensure that payment plans will work for customers to avoid appeals and possible disconnections when payment plans are broken by customers.

"The need is often greater than the resources, and what will make the greatest impact will vary by a customer's unique circumstances. Whether it be discount programs, energy efficiency, pointing customers toward LIHEAP, or simply walking customers through payment plans, we need to be ready to present options and help customers, especially during our long, cold Minnesota winters," said Tina Koecher, manager of customer experience operations. "The best solutions are those we arrive at together with our customers."

## Energy Awareness Expo Empowers Low Income Customers

Face-to-face interactions can help build trust and understanding. The Energy Awareness Expo at the Salvation Army in Duluth is a fun and friendly event that draws hundreds of low-income people each year to learn about energy conservation and sign up for assistance programs. It is co-sponsored by Minnesota Power, ComfortSystems, and the Arrowhead Economic Opportunity Agency (AEOA).

More than 600 people attended the 15th annual Energy Awareness Expo in October 2018. Volunteers from AEOA's energy assistance program greeted people as they entered, answering questions and helping those who qualified in applying for energy assistance and weatherization services. Dozens of area residents completed applications on the spot and another 100 were handed out for attendees to bring home or share with neighbors.

Minnesota Power employees visited with customers and answered questions about energy efficiency, Customer Affordability of Residential Electricity (CARE) discounts, and options such as budget billing and payment plans to help low-income residents weather the winter heating season.

Company representatives also handed out free Home Energy Kits with energy-efficient products that included LED bulbs, a faucet aerator, an advanced power strip, shrink wrap for windows, an LED nightlight, and a shower timer. More than 400 kits were distributed.

"Low-income customers often feel like they don't have a lot of control over their situations," said Alyssa Harries, a customer programs and services representative with Minnesota Power's Power of One® conservation program. "Energy efficiency gives them control of their energy usage and lowers their bills, so they feel empowered."

"A lot of people, seniors especially, are unaware of all of the programs available to help us save energy," said Portia Johnson, an Expo attendee. "That is why I like coming to this event. I leave informed and with tools to save energy."

Minnesota Power has used the Energy Awareness Expo to deliver information about both energy efficiency and affordability programs for several years, but Harries said the Low-Income Customer Task Force has reinforced the connection.

"We are building upon what has been done in years past with an extra boost," Harries said. "There definitely is an effort to make affordability programs part of the message we give along with energy efficiency, and there is a similar effort on the affordability program side to promote energy efficiency."

## Ruby's Pantry Events Are Fruitful Partnerships

Another outreach initiative that connects Minnesota Power with low-income customers is a partnership with Ruby's Pantry, an organization that provides generous food shares to people for a \$20 fee. In 2017–2018, Minnesota Power hosted informational booths at two Ruby's Pantry events, one in Little Falls and one in Cloquet. In both cases, the utility partnered with local community action programs to provide information about energy conservation and low-income services.

"It was a great opportunity to work with Minnesota Power at Ruby's Pantry and spread the word about weatherization, energy efficiency programs, and LIHEAP," said Jessie Monson, housing and loan specialist, Tri-County Community Action Partnership, Inc., who participated in the Little Falls event. "I feel like those who attended the event really enjoyed the opportunity to interact with Minnesota Power and Tri-County Community Action."

"By partnering to staff a table at Ruby's Pantry, we are able to reach a broader audience with our resources," said Allan Cekalla, weatherization program manager, Lakes and Pines Community Action Council, at the Ruby's Pantry event in Cloquet. "I like the partnership between Lakes and Pines Community Action Council and Minnesota Power because we get a chance to educate people on energy savings."



Representatives from the Fond du Lac Energy Assistance program also participated. Minnesota Power's relationship with agencies like Lakes and Pines and Fond du Lac make events such as Ruby's Pantry more meaningful to attendees. Not only can they complete their energy assistance program applications, they can find out about additional services for which they may qualify, such as CARE, weatherization, or an Energy Partners audit. Without these relationships and connections, the process for an individual or family can become long and arduous, leading customers to not sign up for programs and services.

## AmeriCorps VISTA Builds Partnerships to Serve Low-Income Sector

Building partnerships is Ilya Yusufov's primary role as an AmeriCorps VISTA member with Ecolibrium3, a Duluth-based nonprofit. Through a unique collaborative partnership, he splits his time between Minnesota Power and Ecolibrium3.

"I was brought in to work on partnerships and outreach, but it is all geared toward low-income customers," said Yusufov, who was drawn to the position by a sense of urgency in the community. "Duluth presents a unique opportunity. Not only is it one of the coldest cities in the United States, it also is one of the lowest income, so you can see where the cycle goes from there when it comes to energy costs."

He is working to strengthen partnerships with organizations that serve low-income populations, such as the United Way, Salvation Army and community action programs across Minnesota Power's service territory. He also is connecting with local governments to share information about the utility's energy efficiency and affordability programs while seeking ways to tap into other low-income services in an effort to create a more seamless experience for economically challenged customers.

"We might send out an image they can use for their newsletter or an advertisement that tells where low-income residents can go and find out more about our programs and how to sign up for them," Yusufov said. "Maybe someone got a postcard from us at their home address and they didn't look at it, but seeing the same message in a different venue will get their attention."

Yusufov also joined a contingent from the Low-Income Customer Task Force at a presentation to Elders of the Fond du Lac Band of Lake Superior Chippewa. "Those types of outreach make people more aware of what we are doing," he said.

## Approach Recognizes and Responds to Unique Needs

"We are more aligned and working more collaboratively together," said Harries, reflecting on the new comprehensive approach to serving low-income customers. "Instead of going out and seeing these customers with different messages at different times, we are providing all of the information at once, giving them the opportunity to pick and choose what they need at that point, but knowing there are other opportunities for them at all times."

"If you create an environment where customers trust you in times of need, it avoids a snowball effect where problems get worse and people don't have many options," Schmitt said. "Customers don't get to choose us. It is our privilege to serve them. Every customer has unique situations and circumstances. With the Low-Income Customer Task Force and other efforts, we are trying to create a more comprehensive approach that recognizes and takes that into account as we serve this population."

"I like the partnership between Lakes and Pines Community Action Council and Minnesota Power because we get a chance to educate people on energy savings."

**Allan Cekalla, Weatherization Program Manager**  
Lakes and Pines Community Action Council





# **Appendix A**

Filing Cover Letter, Filing Summary,  
Affidavit of Service and Service List



Leah N. Peterson  
Supervisor – Customer Business Analytics  
218-355-3014  
[lpeterson@mnpower.com](mailto:lpeterson@mnpower.com)

April 1, 2019

Mr. Daniel P. Wolf  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7th Place East, Suite 350  
St. Paul, MN 55101-2147

Mr. Joseph Sullivan, Deputy Commissioner  
Minnesota Department of Commerce  
Division of Energy Resources  
85 7<sup>th</sup> Place East, Suite 500  
St. Paul, MN 55101-2198

Re: **2018 Conservation Improvement Program Consolidated Filing**  
**MPUC Docket No. E015/M-19-31**  
**DOC Docket No. E015/CIP-16-117.02**

Dear Mr. Wolf and Deputy Commissioner Grant:

Attached please find via eFiling Minnesota Power's 2018 Conservation Improvement Program (CIP) Consolidated Filing. This submittal includes a CIP Tracker Activity Report, a Financial Incentives Report, a Proposed Conservation Program Adjustment Factor, 2018 CIP Project Evaluations and a compliance with Department of Commerce (DOC) orders section. Minnesota Power is filing this information pursuant to Minn. Stat. §§ 216B.241, 216B.16, subd. 6c, 216B.2401, and 216B.2411 and in compliance with Minnesota Public Utilities Commission (MPUC) and DOC rules and orders relating to annual filings associated with Company-sponsored conservation program activities, including Minn. Rule 7690.0550.

Minnesota Power requests that the MPUC review the filed material and approve Minnesota Power's 2018 CIP Tracker Activity, Financial Incentives, proposed Conservation Program Adjustment (CPA) factor, and a variance of Minn. Rules 7820.3500 and 7825.2600 to permit Minnesota Power to continue to combine the CPA factor with the Fuel Clause Adjustment on customer bills. Further, Minnesota Power requests that the DOC review and approve the evaluations of the various CIP projects included herein and the compliance with prior DOC orders.

Minnesota Power has electronically filed this document and copies of this Cover Letter along with the Summary of Filing have been served on the parties on the attached service list.

Please direct any questions relating to the enclosed project evaluations to me at (218) 355-3014 or [lpeterson@mnpower.com](mailto:lpeterson@mnpower.com).

Sincerely,

Leah N. Peterson  
Supervisor – Customer Business Analytics  
Minnesota Power

c: All parties on Minnesota Power's CIP Service List

**STATE OF MINNESOTA  
BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION**

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In the Matter of Minnesota Power's  
2018 Conservation Improvement Program  
Consolidated Filing

Reporting on CIP Tracker Account Activity,  
Financial Incentives Report, Proposed CPA  
Factors and 2018 Project Evaluations

Docket No. E-015/M-19-31  
E-015/CIP-16-117.02

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**SUMMARY OF FILING**

Minnesota Power (or, "the Company") hereby files with the Minnesota Public Utilities Commission ("MPUC or Commission") and the Department of Commerce, Division of Energy Resources ("Department") its annual Conservation Improvement Program ("CIP") Consolidated Filing in compliance with Minn. Stat. § 216B.241. Minnesota Power requests approval of the following:

- Recovery of the 2018 CIP Tracker Account activity year-end balance of (\$1,519,260)
- A revised Conservation Program Adjustment (CPA), to be first implemented without proration on July 1, 2019, of (\$0.000137)/kWh
- A variance of Minn. Rules 7820.3500 and 7825.2600 to permit the continued combination of the Conservation Program Adjustment with the Fuel and Purchased Power Clause Adjustment on customer bills

Minnesota Power submits its Conservation Improvement Program Consolidated Filing via eFiling with the Department of Commerce, Division of Energy Resources to comply with annual CIP project evaluation filing requirements.

STATE OF MINNESOTA     )  
                                          ) ss  
COUNTY OF ST. LOUIS     )

**AFFIDAVIT OF SERVICE VIA  
E-FILING AND U.S. MAIL**

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Jodi Nash of the City of Duluth, County of St. Louis, State of Minnesota, says that on the 1<sup>st</sup> day of April, 2019 she served Minnesota Power's Compliance Filing in Docket No. E015/M-19-31 and Docket No. E015/CIP-16-117.02 on the Minnesota Public Utilities Commission and the Minnesota Department of Commerce via e-Filing. The persons on Minnesota Power's CIP Service List and on the Official Service Lists for each of these Dockets were served as requested.



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Jodi Nash

| First Name     | Last Name          | Email                                | Company Name                           | Address                                                            | Delivery Method    | View Trade Secret | Service List Name                                 |
|----------------|--------------------|--------------------------------------|----------------------------------------|--------------------------------------------------------------------|--------------------|-------------------|---------------------------------------------------|
| Tom            | Balster            | tombalster@alliantenergy.com         | Interstate Power & Light Company       | PO Box 351<br>200 1st St SE<br>Cedar Rapids,<br>IA<br>524060351    | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Lisa           | Beckner            | lbeckner@mnpower.com                 | Minnesota Power                        | 30 W Superior St<br><br>Duluth,<br>MN<br>55802                     | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Christina      | Brusven            | cbrusven@fredlaw.com                 | Fredrikson Byron                       | 200 S 6th St Ste 4000<br><br>Minneapolis,<br>MN<br>554021425       | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Generic Notice | Commerce Attorneys | commerce.attorneys@ag.state.mn.us    | Office of the Attorney General-DOC     | 445 Minnesota Street Suite 1800<br><br>St. Paul,<br>MN<br>55101    | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| George         | Crocker            | gwillc@nawo.org                      | North American Water Office            | PO Box 174<br><br>Lake Elmo,<br>MN<br>55042                        | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Ian            | Dobson             | residential.utilities@ag.state.mn.us | Office of the Attorney General-RUD     | 1400 BRM Tower<br>445 Minnesota St<br>St. Paul,<br>MN<br>551012131 | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Steve          | Downer             | sdowner@mmua.org                     | MMUA                                   | 3025 Harbor Ln N Ste 400<br><br>Plymouth,<br>MN<br>554475142       | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Jim            | Erchul             | jerschul@dbnhs.org                   | Daytons Bluff Neighborhood Housing Sv. | 823 E 7th St<br><br>St. Paul,<br>MN<br>55106                       | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Greg           | Ernst              | gaernst@q.com                        | G. A. Ernst & Associates, Inc.         | 2377 Union Lake Trl<br><br>Northfield,<br>MN<br>55057              | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Melissa S      | Feine              | melissa.feine@semcac.org             | SEMCAC                                 | PO Box 549<br>204 S Elm St<br>Rushford,<br>MN<br>55971             | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
|                |                    |                                      |                                        |                                                                    |                    |                   |                                                   |

| First Name | Last Name | Email                       | Company Name                             | Address                                                      | Delivery Method    | View Trade Secret | Service List Name                                 |
|------------|-----------|-----------------------------|------------------------------------------|--------------------------------------------------------------|--------------------|-------------------|---------------------------------------------------|
| Sharon     | Ferguson  | sharon.ferguson@state.mn.us | Department of Commerce                   | 85 7th Place E Ste 280<br><br>Saint Paul,<br>MN<br>551012198 | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Pat        | Green     | N/A                         | N Energy Dev                             | City Hall<br>401 E 21st St<br>Hibbing,<br>MN<br>55746        | Paper Service      | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Jason      | Grenier   | jgrenier@otpc.com           | Otter Tail Power Company                 | 215 South Cascade Street<br><br>Fergus Falls,<br>MN<br>56537 | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Jeffrey    | Haase     | jhaase@grenergy.com         | Great River Energy                       | 12300 Elm Creek Blvd<br><br>Maple Grove,<br>MN<br>55369      | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Tyler      | Hamman    | tylerh@bepc.com             | Basin Electric Power<br>Cooperative      | 1717 E Interstate Ave<br><br>Bismarck,<br>ND<br>58501        | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Scott      | Hautala   | scotth@hpuc.com             | Hibbing Public Utilities                 | 1902 E 6th Ave<br><br>Hibbing,<br>MN<br>55746                | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Karolanne  | Hoffman   | kmh@dairynet.com            | Dairyland Power<br>Cooperative           | PO Box 817<br><br>La Crosse,<br>WI<br>54602-0817             | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Dave       | Johnson   | dave.johnson@aeoa.org       | Arrowhead Economic<br>Opportunity Agency | 702 3rd Ave S<br><br>Virginia,<br>MN<br>55792                | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Deborah    | Knoll     | dknoll@mnpower.com          | Minnesota Power                          | 30 W Superior St<br><br>Duluth,<br>MN<br>55802               | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Tina       | Koecher   | tkoecher@mnpower.com        | Minnesota Power                          | 30 W Superior St<br><br>Duluth,<br>MN<br>558022093           | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |

| First Name | Last Name  | Email                                | Company Name                          | Address                                                                 | Delivery Method    | View Trade Secret | Service List Name                                 |
|------------|------------|--------------------------------------|---------------------------------------|-------------------------------------------------------------------------|--------------------|-------------------|---------------------------------------------------|
| Kelly      | Lady       | kellyl@austinutilities.com           | Austin Utilities                      | 400 4th St NE<br><br>Austin,<br>MN<br>55912                             | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Martin     | Lepak      | Martin.Lepak@aeoa.org                | Arrowhead Economic<br>Opportunity     | 702 S 3rd Ave<br><br>Virginia,<br>MN<br>55792                           | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Nick       | Mark       | nick.mark@centerpointener<br>gy.com  | CenterPoint Energy                    | 505 Nicollet Mall<br><br>Minneapolis,<br>MN<br>55402                    | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Pam        | Marshall   | pam@energycents.org                  | Energy CENTS Coalition                | 823 7th St E<br><br>St. Paul,<br>MN<br>55106                            | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| John       | McWilliams | jmm@dairynet.com                     | Dairyland Power<br>Cooperative        | 3200 East Ave SPO Box<br>817<br><br>La Crosse,<br>WI<br>54601-7227      | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Brian      | Meloy      | brian.meloy@stinson.com              | Stinson,Leonard, Street<br>LLP        | 50 S 6th St Ste 2600<br><br>Minneapolis,<br>MN<br>55402                 | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| David      | Moeller    | dmoeller@allete.com                  | Minnesota Power                       | 30 W Superior St<br><br>Duluth,<br>MN<br>558022093                      | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Carl       | Nelson     | cnelson@mncee.org                    | Center for Energy and<br>Environment  | 212 3rd Ave N Ste 560<br><br>Minneapolis,<br>MN<br>55401                | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Samantha   | Norris     | samanthanorris@alliantene<br>rgy.com | Interstate Power and Light<br>Company | 200 1st Street SE PO Box<br>351<br><br>Cedar Rapids,<br>IA<br>524060351 | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
|            |            |                                      |                                       |                                                                         |                    |                   |                                                   |

| First Name  | Last Name  | Email                             | Company Name                         | Address                                                         | Delivery Method    | View Trade Secret | Service List Name                                 |
|-------------|------------|-----------------------------------|--------------------------------------|-----------------------------------------------------------------|--------------------|-------------------|---------------------------------------------------|
| Joyce       | Peppin     | joyce@mrea.org                    | Minnesota Rural Electric Association | 11640 73rd Ave N<br>Maple Grove,<br>MN<br>55369                 | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Leah        | Peterson   | lpeterson@mnpower.com             | Minnesota Power                      | 30 West Superior St<br>Duluth,<br>MN<br>55802                   | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Lisa        | Pickard    | lseverson@minnkota.com            | Minnkota Power Cooperative           | 5301 32nd Ave S<br>Grand Forks,<br>ND<br>58201                  | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Dave        | Reinke     | dreinke@dakotaelectric.com        | Dakota Electric Association          | 4300 220th St W<br>Farmington,<br>MN<br>55024-9583              | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Susan       | Romans     | sromans@allete.com                | Minnesota Power                      | 30 West Superior Street<br>Legal Dept<br>Duluth,<br>MN<br>55802 | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Christopher | Schoenherr | cp.schoenherr@smpa.org            | SMMPA                                | 500 First Ave SW<br>Rochester,<br>MN<br>55902-3303              | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Ken         | Smith      | ken.smith@districtenergy.com      | District Energy St. Paul Inc.        | 76 W Kellogg Blvd<br>St. Paul,<br>MN<br>55102                   | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Lynnette    | Sweet      | Regulatory.records@xcelenergy.com | Xcel Energy                          | 414 Nicollet Mall FL 7<br>Minneapolis,<br>MN<br>554011993       | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Michael     | Volker     | mvolker@eastriver.coop            | East River Electric Power Coop       | 211 S. Harth Ave<br>Madison,<br>SD<br>57042                     | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |
| Robyn       | Woeste     | robynwoeste@alliantenergy.com     | Interstate Power and Light Company   | 200 First St SE<br>Cedar Rapids,<br>IA<br>52401                 | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |

| First Name | Last Name | Email                | Company Name                | Address                                                         | Delivery Method    | View Trade Secret | Service List Name                                 |
|------------|-----------|----------------------|-----------------------------|-----------------------------------------------------------------|--------------------|-------------------|---------------------------------------------------|
| Daniel P   | Wolf      | dan.wolf@state.mn.us | Public Utilities Commission | 121 7th Place East<br>Suite 350<br>St. Paul,<br>MN<br>551012147 | Electronic Service | No                | GEN_SL_Minnesota<br>Power_MPs CIP Service<br>List |