minnesota power
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power of one
a conservation program

2017 Consolidated Filing

Conservation Improvement Program

Understanding • Tools and Resources • Informed Choices • Right Fit Options

April 2, 2018

Docket No. E015/CIP-16-117.01 E015/M-18-116

"At the core of the Power of One® purpose-based strategy is a commitment to help our customers make informed choices about how they use the vital product we provide."

Tina Koecher
Manager—Customer Solutions for Minnesota Power

Minnesota Power
2017 Conservation Improvement Program (CIP)
EXECUTIVE SUMMARY

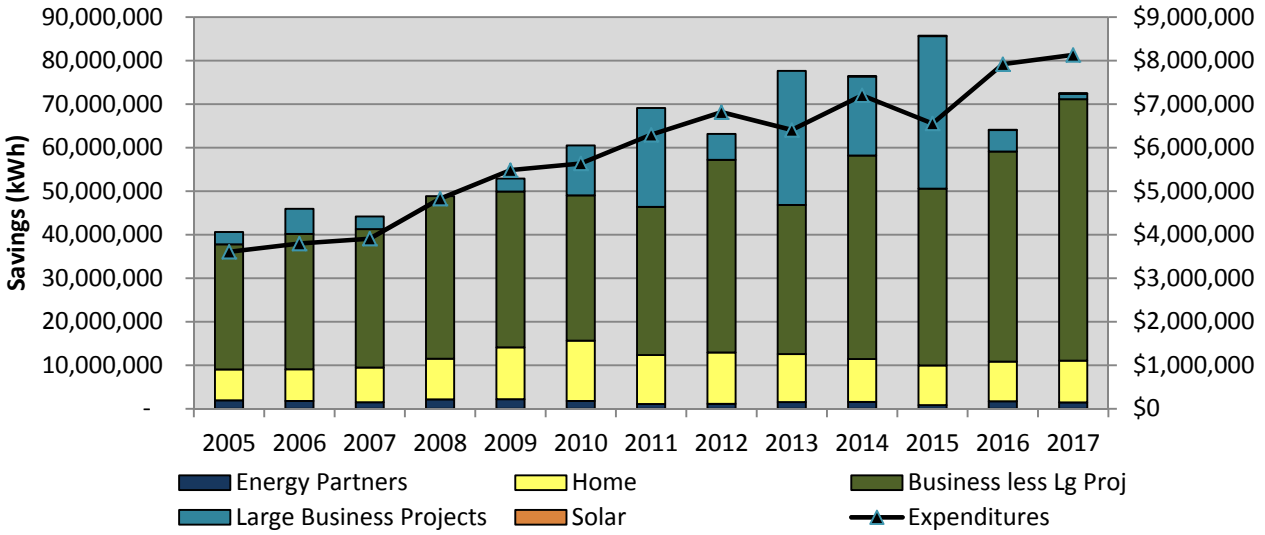
Through its energy conservation program efforts, Minnesota Power (the Company) is pleased to report its 2017 results:

- Minnesota Power achieved energy savings of **2.6%** of retail energy sales,[1] well above the 1.5% energy-savings goal established in Minn. Stat. § 216B.241.
- The Company achieved energy savings totaling **72,467,019 kWh** and **8,594 kW** in demand savings, which is **126%** of the approved energy-savings goal for the year. The proposed energy-savings target for 2017 was well above the 1.5% energy-savings goal for CIP, aligning with the preferred plan in Minnesota Power's 2015 Integrated Resource Plan.[2]
- Expenditures totaled **$8,129,337**, which was **79%** of the approved program budget for 2017.

Minnesota Power has met or exceeded Minnesota's 1.5% energy savings goal since 2010, and this strong level of performance continued in 2017. The program success in 2017 is attributable in part to a greater number of smaller commercial projects, pursuing new and previously under-served market opportunities, additional Company resources, and exploring new program strategies. Minnesota Power also accredits its proven program delivery methods, strong trade ally network, engaged customers and talented employees.

Figure 1 illustrates historical and recent kWh energy-savings achievements, along with CIP expenditures. As can be seen in the chart below, large projects (one million kWh or greater) have become a much smaller portion of overall CIP energy savings.

Figure 1: Minnesota Power's 2005–2017 CIP Achievements



[1] 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 2017 are calculated as a percentage of this adjusted figure.

[2] Docket No. E015/RP-15-690.

Table 1: Minnesota Power's 2017 CIP Expenditures and Energy Savings

2017	*Expenditures*	*Energy Savings (kWh) at busbar*
Direct Savings Programs:		
Energy Partners (Low Income)	$366,971	1,458,538
Power of One® Home (Residential)	$1,488,380	9,614,443
Power of One® Business (Business/Commercial/Industrial/Agricultural)	$3,691,784	61,299,182
Indirect Savings Programs:		
Customer Engagement	$536,634	
Energy Analysis	$734,331	
Research & Development	$210,660	
Evaluation & Program Development	$796,973	
Regulatory Charges (including MIM solar assessment)	$303,604 *(1)*	94,856 *(2)*
Total	**$8,129,337**	**72,467,019**

(1) 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.

(2) Credited 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 85,847 kWh at the meter and 94,856 kWh at the busbar (and not inclusive of demand savings).

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Minnesota Power's 2017 Conservation Improvement Program Consolidated Filing	Reporting on CIP Tracker Account Activity, Financial Incentives Report, Proposed CPA Factors and 2017 Project Evaluations Docket No. E-015/M-18-116 E-015/CIP-16-117.01

SUMMARY OF FILING

Minnesota Power hereby files with the Minnesota Public Utilities Commission (MPUC or Commission) its annual Conservation Improvement Program Consolidated Filing in compliance with Minn. Stat. § 216B.241. Minnesota Power requests approval of the following:

- **$3,315,558** 2017 CIP Tracker Account activity year-end balance
- **$0.002741/kWh** revised Conservation Program Adjustment (CPA), to be first implemented without proration on July 1, 2018
- 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 (CIP) Consolidated Filing via eFiling with the Department of Commerce, Division of Energy Resources (Department) to comply with annual CIP project evaluation filing requirements. Please note that this filing is available through the eDockets system maintained by the Department and the MPUC. Access this document by going to eDockets at https://www.edockets.state.mn.us/EFiling/home.jsp and selecting "Search documents." For Docket Number, insert "16" for the year and "117.01" for the number and then click on "Search." The MPUC Docket Number is "18" for the year and "116" for the number. A paper copy of this filing is available upon request.

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Minnesota Power's 2017 Conservation Improvement Program Consolidated Filing	Reporting on CIP Tracker Account Activity, Financial Incentives Report, Proposed CPA Factors and 2017 Project Evaluations Docket No. E-015/M-18-116 E-015/CIP-16-117.01

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"Minnesota Power believes in the value of long-term partnerships and healthy relationships with customers."

Kris Spenningsby
Supervisor–Retail Accounts for Minnesota Power

SECTION 1

INTRODUCTION AND BACKGROUND

In its Order in Docket No. E015/M-91-458 (August 4, 1993), the Minnesota Public Utilities Commission (MPUC or Commission) combined future Conservation Improvement Program (CIP) tracker reports and Demand Side Management (DSM) financial incentives reports into a single submittal filed annually. This is the twenty-fifth annual filing by Minnesota Power in compliance with that Order. In addition, when the MPUC 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 of Commerce, Division of Energy Resources (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 the Department filing requirements. Finally, prior orders from the Department (formerly the Office of Energy Security or OES) have required Minnesota Power to respond in one manner or another 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 2017. This report is organized into several sections. Each section is dependent on information from the other sections, making it appropriate to file the collection of sections as a single document. The sections and information addressed are:

1) **Summary—**Introduction and Background
2) **CIP Tracker Account Activity Report**, including 2017 expenditures and cost recovery by month.
3) **Financial Incentives Report**
4) **2018–2019 Proposed Conservation Program Adjustment (CPA)**

   This is the calculation of the CPA factor for the period from July 2018 through June 2019 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.[3] 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) **2017 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) **2017 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**

[3] 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 2, 2018. The revised CPA factor is proposed to take effect without proration on July 1, 2018. 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

Tina S. Koecher
Manager – Customer Solutions
Minnesota Power
30 West Superior Street
Duluth, MN 55802
(218) 355-3805
tkoecher@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:

Tina S. Koecher
Manager – Customer Solutions
Minnesota Power
30 West Superior Street
Duluth, MN 55802
(218) 355-3805
tkoecher@mnpower.com

David R. Moeller
Senior Attorney
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Deb Knoll
Supervisor – Eval. & Compliance
Minnesota Power
30 West Superior Street
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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 2017 CIP Tracker activity, resulting in a year-end 2017 balance of **$3,315,558**.
- Approval to book CIP Financial Incentives of **$2,994,840** as per Exhibit 2 of this filing to the CIP Tracker.
- Approval to implement Minnesota Power's proposed revised CPA factor of **$0.002741/kWh** without proration for bills rendered on and after July 1, 2018.
- 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 **0.4063%** for the CIP Tracker as per Exhibit 1 of this filing.

From the Department:

- Approval of the individual 2017 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:

Tina S. Koecher
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Minnesota Power
30 West Superior Street
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(218) 723-7458
(218) 723-3931 (fax)
dknoll@mnpower.com

Respectfully submitted,

Date: April 2, 2018

Tina S. Koecher
Manager – Customer Solutions
Minnesota Power

SECTION 2

CIP TRACKER ACCOUNT ACTIVITY REPORT

On May 16, 1991, in Docket No. E015/M-91-90, the MPUC 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 2016 and 2017 and presents the tracker balance month-by-month throughout each year. Tracker Account activity for 2017 includes the following:

- **$8,129,337** of CIP Expenditures were charged to Tracker 2
- **$4,648,147** was recovered through Base Rates
- **$9,812,149** was recovered through the Conservation Program Adjustment (CPA) factor
- **$88,914** in Carrying Charges were booked to Tracker 2
- **$5,528,499** of Financial Incentives were booked to Tracker 2
- **$3,315,558** was the resulting CIP Tracker Account balance at the end of 2017

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 MPUC action has modified the CPA factor yearly.

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

- **$0.002494/kWh**, effective August 2016, as approved by the MPUC Order dated July 19, 2016, in Docket No. E015/M-16-226 and consistent with the subsequent compliance filing submitted July 29, 2016.
- **$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.

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 MPUC issued 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 2017 program year. Page 3 of Exhibit 1 reflects the rate that was effective August 2016 through May 2017. Page 4 of Exhibit 1 reflects the rate that was effective beginning June 2017. As part of this filing, Minnesota Power presents an updated carrying charge rate and proposes an effective date of July 1, 2018, or upon approval by the MPUC. The proposed carrying charge rate can be found on page 5 of Exhibit 1.

Since the MPUC 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 - 2017

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL YEAR
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
	2016													
1	BEGINNING OF PERIOD BALANCE	($2,649,747.91)	($3,049,438.38)	($3,202,434.66)	($3,102,102.89)	($2,772,522.68)	($2,546,669.42)	($2,335,276.06)	$5,089,791.83	$4,884,818.20	$4,471,527.44	$3,901,182.11	$3,475,396.75	($2,649,747.91)
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)	
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	($2,649,747.91)	($3,049,438.38)	($3,202,434.66)	($3,102,102.89)	($2,772,522.68)	($2,546,669.42)	($2,335,276.06)	$5,089,791.83	$4,884,818.20	$4,471,527.44	$3,901,182.11	$3,475,396.75	
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%	
6	DEFERRED TAXES ON NET BEGIN BAL 1/	($1,096,200.71)	($1,261,552.66)	($1,324,847.22)	($1,283,339.97)	($1,146,992.63)	($1,053,557.14)	($966,103.71)	$2,105,646.88	$2,020,849.29	$1,849,870.90	$1,613,919.04	$1,437,771.64	
7	NET INVESTMENT (L20 - L25)	($1,553,547.20)	($1,787,885.72)	($1,877,587.44)	($1,818,762.92)	($1,625,530.05)	($1,493,112.28)	($1,369,172.35)	$2,984,144.95	$2,863,968.91	$2,621,656.54	$2,287,263.07	$2,037,625.11	
8	MONTHLY CARRYING CHARGE RATE 2/	0.2813%	0.2813%	0.2813%	0.2813%	0.2813%	0.2813%	0.2813%	0.3021%	0.3021%	0.3021%	0.3021%	0.3021%	
9	MONTHLY CARRYING CHARGE 0483 (L26 * L27)	($4,370.00)	($5,029.00)	($5,282.00)	($5,116.00)	($4,573.00)	($4,200.00)	($3,851.00)	$9,015.00	$8,652.00	$7,920.00	$6,910.00	$6,156.00	$6,232.00
10	CIP PROGRAM CHARGES TO DEFERRED DEBIT	$160,105.08	$422,298.75	$607,206.19	$822,128.84	$676,238.98	$642,410.75	$448,463.63	$586,907.27	$630,155.75	$366,224.25	$522,271.55	$1,567,546.88	$7,451,957.92
11	FINANCIAL INCENTIVES 4/	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$7,476,643.00	$0.00	$0.00	$0.00	$0.00	$0.00	$7,476,643.00
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	$210,949.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$210,949.00
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	$0.00
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/	($640,663.85)	($446,063.87)	($383,389.74)	($377,791.50)	($346,796.00)	($326,546.73)	($389,437.97)	($306,658.30)	($432,760.00)	($385,888.64)	($392,601.59)	($394,854.65)	($4,823,452.84)
17	LESS: CIP COSTS RECOVERED via CPA 0481 6/	($125,710.70)	($124,202.16)	($118,202.68)	($109,641.13)	($99,016.72)	($100,270.66)	($106,749.77)	($494,237.60)	($619,338.51)	($558,600.94)	($562,365.32)	($625,141.22)	($3,643,477.41)
18	END OF PERIOD BALANCE (L20 + L28 + L29..L36)	($3,049,438.38)	($3,202,434.66)	($3,102,102.89)	($2,772,522.68)	($2,546,669.42)	($2,335,276.06)	$5,089,791.83	$4,884,818.20	$4,471,527.44	$3,901,182.11	$3,475,396.75	$4,029,103.76	$4,029,103.76
19	TOTAL CPA & CCRC REVENUE	$555,425.55	$570,266.03	$501,592.42	$487,432.63	$445,812.72	$426,817.39	$496,187.74	$800,895.90	$1,052,098.51	$944,489.58	$954,966.91	$1,019,995.87	$8,255,981.25
	2017													
20	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
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)	
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	$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	
24	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%	
25	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	
26	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	
27	MONTHLY CARRYING CHARGE RATE 2/	0.3021%	0.3021%	0.3021%	0.3021%	0.3021%	0.3229%	0.3229%	0.3229%	0.3229%	0.3229%	0.3229%	0.3229%	
28	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
29	CIP PROGRAM CHARGES TO DEFERRED DEBIT	$274,724.01	$306,623.57	$823,121.94	$915,839.42	$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
30	FINANCIAL INCENTIVES 4/	$0.00	$0.00	$0.00	$0.00	$0.00	$5,528,499.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$5,528,499.00
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	($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	($6,232.00)
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	$0.00
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/	($474,181.02)	($445,006.36)	($382,531.61)	($410,367.61)	($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)
36	LESS: CIP COSTS RECOVERED via CPA 0481 6/	($660,998.65)	($629,706.47)	($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)
37	END OF PERIOD BALANCE (L20 + L28 + L29..L36)	$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
38	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

1/ Deferred taxes are determined based on the composite tax rate in effect at the time in question. The rate has been 41.370% since 1/1/1993.

2/ Monthly carrying charge rate of 1.0675% is applicable for the period 3/1/94-10/31/2009; 0.9946% is applicable for the period 11/01/2009 - 05/31/2011; 0.9601% is applicable for the period 06/01/2011 - 08/31/2015; 0.2813% is applicable 9/01/2015; 0.3021% is applicable 8/01/2016 - 5/31/2017; 0.3229% is applicable 6/01/2017 - present

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 LPIP funds except for the amortized amount.

4/ Financial Incentives approved in Docket No. E015/M-16-226 dated 7/19/16 and Docket No. E015/M-17-178 dated 6/22/17.

5/ Rate of $0.001209033/kWh, effective November 2009 through May 2011 as approved in Docket No. E-015/GR-08-415. Rate of $0.001466772/kWh, effective June 2011 as approved in Docket No. E-015/GR-09-1151.

6/ CPA OF 1.08% 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, 0.12% Jul 06, 0.36% Dec 07, 1.01% Nov 08, 1.22% Oct 09, $0.001448/kWh Oct 10, $0.003728/kWh Feb 12, $0.004537/kWh Jan 13; $0.004062/kWh Nov 13; $0.003425 Sep 14; $0.000442 Nov 15; $0.002494 Aug 16; $0.005052 Jul 2017

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 & CIP Tracker

CHARGE #	DESCRIPTION	TOTAL	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Direct Impact Projects														
	CIP: ENERGY PARTNERS (Low Income)	$366,971.22	$2,766.32	$18,147.90	$20,951.89	$41,624.76	$19,584.15	$29,955.30	$17,246.66	$72,681.87	$31,673.48	$37,783.94	$53,526.64	$21,028.31
	CIP: ONE HOME (Residential)	$1,488,380.33	$31,934.79	$37,662.46	$52,773.69	$197,440.49	$97,650.88	$62,408.74	$142,058.91	$111,885.93	$84,875.30	$138,190.55	$193,347.36	$338,151.23
	CIP: ONE BUSINESS (C/I/Ag)	$3,691,783.95	$206,156.11	$100,994.10	$369,351.97	$407,551.11	$259,281.69	$220,264.56	$280,684.61	$462,923.02	$194,696.26	$243,008.06	$677,755.33	$269,117.13
	Total Direct Impact Projects	$5,547,135.50	$240,857.22	$156,804.46	$443,077.55	$646,616.36	$376,516.72	$312,628.60	$439,990.18	$647,490.82	$311,245.04	$418,982.55	$924,629.33	$628,296.67
Indirect Impact Projects														
	CIP: CUSTOMER ENGAGEMENT	$536,633.56	$15,674.31	($23,346.90)	$117,327.48	$130,796.96	$49,388.30	$19,595.96	$23,153.55	$15,930.55	$41,783.31	$48,110.39	$33,841.84	$64,377.81
	CIP: RENEWABLE ENERGY*	$137,050.00	$0.00	$137,050.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	CIP: ENERGY ANALYSIS	$734,330.98	$282.19	$2,408.78	$114,994.32	$82,153.56	$79,291.76	$13,131.96	$63,713.83	$64,494.40	$65,806.61	$51,721.87	$116,803.76	$79,527.94
	CIP: EVALUATION & PLANNING	$796,972.63	$16,510.20	$32,281.09	$93,467.88	$43,510.19	$52,190.54	$31,964.90	$33,324.09	$19,810.96	$44,728.41	$58,814.90	$233,511.32	$136,858.15
	CIP: REGULATORY CHARGES	$166,553.90			$44,043.59		$34.97	$44,043.59			$35,805.85		$4,495.72	$38,130.18
	CIP: RESEARCH & DEVELOPMENT	$210,660.39	$1,400.09	$1,426.14	$10,211.12	$12,762.35	$15,434.42	$11,009.37	$32,274.86	$9,181.95	$21,579.02	$32,971.57	$52,009.44	$10,400.06
	Total Indirect Impact Projects	$2,582,201.46	$33,866.79	$149,819.11	$380,044.39	$269,223.06	$196,339.99	$119,745.78	$152,466.33	$109,417.86	$209,703.20	$191,618.73	$440,662.08	$329,294.14
	Total Project Charges	$8,129,336.96	$274,724.01	$306,623.57	$823,121.94	$915,839.42	$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
Other CIP Tracker Account Charges														
1864-0484	CIP: FINANCIAL INCENTIVES - TRACKER	$5,528,499.00	$0.00	$0.00	$0.00	$0.00	$0.00	$5,528,499.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
1864-0483	CIP: CARRYING CHARGE - TRACKER 2	$88,914.00	$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
	Total Charges to the Deferred Debit	$5,617,413.00	$7,136.00	$5,614.00	$4,263.00	$4,051.00	$3,967.00	$5,532,236.00	$13,392.00	$12,068.00	$10,720.00	$8,968.00	$7,558.00	$7,440.00
CIP Tracker Account Recovery														
1864-0481	CIP: CPA RECOVERY - TRACKER 2	($9,812,149.17)	($660,998.65)	($629,706.47)	($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)
1864-0482	CIP: CCRC CLEARANCE - TRACKER 2	($4,648,146.79)	($480,413.02)	($445,006.36)	($382,531.61)	($410,367.61)	($347,913.26)	($354,023.38)	($357,409.57)	($386,270.86)	($380,653.63)	($353,607.70)	($361,530.00)	($388,419.79)
	YEAR END CARRYING CHARGE COST RE	$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
1864-0483	CIP: CARRYING CHARGE - TRACKER 2 CLOSING	($6,232.00)	($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
	Total CIP Tracker Account Recovery	($14,460,295.96)	($1,147,643.67)	($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)

**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.*

Minnesota Power
CIP Tracker Account
Carrying Charge Rate
Effective August 2016 to May 2017*

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/ A/ A2	≥ A-/ A-/A3	≥ BBB+/ BBB+/ Baa1	≥ BBB/ BBB/ Baa2	< BBB/ BBB/ 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 17, 2015 to December 14, 2016.

The monthly Carrying Charge equivalent to the alternate base rate loan and facility fees from the multi-year credit facility is **0.3021%.**

= (Prime Rate + Facility Fees) *(1 Month/12 Months)

= (3.50%+0.125%)*(1/12)

Minnesota Power
CIP Tracker Account
Carrying Charge Rate
Effective June 2017*

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/ A/ A2	≥ A-/ A-/A3	≥ BBB+/ BBB+/ Baa1	≥ BBB/ BBB/ Baa2	< BBB/ BBB/ 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 since December 15, 2016.

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

= (Prime Rate + Facility Fees) *(1 Month/12 Months)

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

Minnesota Power
CIP Tracker Account
Carrying Charge Rate
Proposed to be effective July 1, 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/ A/ A2	≥ A-/ A-/A3	≥ BBB+/ BBB+/ Baa1	≥ BBB/ BBB/ Baa2	< BBB/ BBB/ 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 since March 22, 2018.

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

= (Prime Rate + Facility Fees) *(1 Month/12 Months)

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

SECTION 3

FINANCIAL INCENTIVES REPORT

As part of the MPUC's 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, its 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.

BACKGROUND

In 1989, the MPUC initiated its own 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 MPUC 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 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 (CEE); 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,[4] 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 Savings DSM Financial Incentive on Investor-Owned Utility Conservation Achievements and Customer Costs.[5] 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.[6] 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

[4] 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.

[5] Id., December 20, 2012.

[6] 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.

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 Benefit 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."

In this filing and as shown in Exhibit 2, Minnesota Power has calculated its financial incentives for 2017 performance consistent with the outcome of the procedures as set forth in Docket No. E,G-999/CI-08-133. For 2017, Minnesota Power adjusted its average sales to reflect the removal of one newly exempt customer.[7] The adjustments to the average retail energy sales are also reflected in its 2017 financial incentive calculation.

[7] 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.

2017 **EXHIBIT 2**

UTILITY

Minnesota Power - 2017 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	$9,943,225	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	$16,611,758	From Utility 2017-2019 Triennial CIP Filing.
Energy savings at 1.5% (kWh)	41,246,294	
Incentive Calibration		
Max Percent of Net Benefits Awarded	13.5%	maximum net benefits awarded
Max Percent Expenditures Awarded	40.0%	
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 2017 Achievements	
Expenditures	$7,806,679
Energy Saved (first year kWh saved)	71,896,709
Net Benefits Achieved	$22,184,003
Shared Savings Incentive Results	
Achievement Level	2.61%
Percent of Net Benefits Awarded	13.5000%
Financial Incentive Award	**$2,994,840**
Incentive/First Year kWh Saved $	$0.0417
Incentive/Net Benefits	13.50%
Incentive/CIP Expenditures	38.36%

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%	$795,924	**$0**	$0.000	$0.000
0.2%	5,499,506	0.00%	$1,591,847	**$0**	$0.000	$0.000
0.3%	8,249,259	0.00%	$2,387,771	**$0**	$0.000	$0.000
0.4%	10,999,012	0.00%	$3,183,694	**$0**	$0.000	$0.000
0.5%	13,748,765	0.00%	$3,979,618	**$0**	$0.000	$0.000
0.6%	16,498,518	0.00%	$4,775,541	**$0**	$0.000	$0.000
0.7%	19,248,271	0.00%	$5,571,465	**$0**	$0.000	$0.000
0.8%	21,998,024	0.00%	$6,367,389	**$0**	$0.000	$0.000
0.9%	24,747,777	0.00%	$7,163,312	**$0**	$0.000	$0.000
1.0%	27,497,530	8.25%	$7,959,236	**$656,637**	$0.024	$0.239
1.1%	30,247,283	9.00%	$8,755,159	**$787,964**	$0.026	$0.048
1.2%	32,997,036	9.75%	$9,551,083	**$931,231**	$0.028	$0.052
1.3%	35,746,788	10.50%	$10,347,006	**$1,086,436**	$0.030	$0.056
1.4%	38,496,541	11.25%	$11,142,930	**$1,253,580**	$0.033	$0.061
1.5%	41,246,294	12.00%	$11,938,854	**$1,432,662**	$0.035	$0.065
1.6%	43,996,047	12.75%	$12,734,777	**$1,623,684**	$0.037	$0.069
1.7%	46,745,800	13.50%	$13,530,701	**$1,826,645**	$0.039	$0.074
1.8%	49,495,553	13.50%	$14,326,624	**$1,934,094**	$0.039	$0.039
1.9%	52,245,306	13.50%	$15,122,548	**$2,041,544**	$0.039	$0.039
2.0%	54,995,059	13.50%	$15,918,472	**$2,148,994**	$0.039	$0.039
2.1%	57,744,812	13.50%	$16,714,395	**$2,256,443**	$0.039	$0.039
2.2%	60,494,565	13.50%	$17,510,319	**$2,363,893**	$0.039	$0.039
2.3%	63,244,318	13.50%	$18,306,242	**$2,471,343**	$0.039	$0.039
2.4%	65,994,071	13.50%	$19,102,166	**$2,578,792**	$0.039	$0.039
2.5%	68,743,824	13.50%	$19,898,089	**$2,686,242**	$0.039	$0.039
2.6%	71,493,577	13.50%	$20,694,013	**$2,793,692**	$0.039	$0.039
2.7%	74,243,330	13.50%	$21,489,937	**$2,901,141**	$0.039	$0.039
2.8%	76,993,083	13.50%	$22,285,860	**$3,008,591**	$0.039	$0.039
2.9%	79,742,836	13.50%	$23,081,784	**$3,116,041**	$0.039	$0.039
3.0%	82,492,589	13.50%	$23,877,707	**$3,223,490**	$0.039	$0.039

SECTION 4

2018–2019 PROPOSED CONSERVATION PROGRAM ADJUSTMENT

CIP costs are recovered by utilities through base rates via the Conservation Cost Recovery Charge (CCRC) and through an annual CIP adjustment factor called the Conservation Program Adjustment (CPA).[8] 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 MPUC Order dated September 16, 2015, Docket No. E015/M-15-80, Minnesota Power adjusted its CPA calculation to use a fiscal year approach[9] and provided calculation of a new CPA in its September 25, 2015, compliance filing.[10] The proposed CPA for the 2018–2019 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 MPUC its request for a CPA. In its Order in Docket No. E015/M-93-996, the MPUC approved Minnesota Power's proposed CIP adjustment. In addition, the MPUC ordered Minnesota Power to address the issues surrounding the appropriate basis for calculating conservation costs in its next rate filing. Minnesota Power 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 group agreed that electric utilities with CPA factors would file annually on April 1 for

[8] Also referred to as CCRA in other utility filings.
[9] Non-calendar year of July 1–June 30.
[10] 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.

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.[11]

[11] 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,

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.

2018–2019 CPA DEVELOPMENT

The CIP Tracker Account balance at year-end 2017 reflects the result of prior activity in Tracker 2, as indicated on page 1 of Exhibit 1. However, for CPA purposes, the 2017 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 2018–June 2018) as well as anticipated financial incentives, anticipated CIP expenditures, and anticipated cost recovery through base rates for the new CPA period (July 2018–June 2019). 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 MPUC Order dated September 16, 2015, Docket No. E015/M-15-80, Minnesota Power adjusted its CPA calculation to use a fiscal year approach.[12] 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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the per-kWh method is the most straightforward, the easiest for customers to understand, and the most consistent with the 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.

[12] 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 MPUC approval of a proposed CPA factor of $0.002741 per kWh to be effective without proration with bills rendered on or after July 1, 2018. Minnesota Power is filing for CPA modification on April 2, 2018, making the anticipated effective period for this request July 1, 2018 through June 30, 2019. Until subsequent MPUC approval, the existing CPA factor will remain in effect. Of note and consequence, Minnesota Power has proposed an updated CCRC as part of its current and active general rate case.[13] As that was not in effect at the time of this filing, Minnesota Power calculated the proposed CPA factor using the CCRC currently in effect. Based on timing and impact, Minnesota Power will either request a revised CPA factor once the CCRC is updated or wait until the next Consolidated Filing to propose its next revised CPA factor. The determination of timing will be with input from the Department of Commerce and MPUC staff.

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.[14] The Commission has approved this variance several times in the past, most recently in Docket No. E015/M-17-178.[15]

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.

[13] 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.
[14] https://www.mnpower.com/Content/Documents/CustomerService/resource-adjustment.pdf
[15] As part of Minnesota Power's most recent rate case, Docket No. E015/GR-16-664, the Company originally requested to separate the CPA and FPE, but subsequently withdrew the request.

MINNESOTA POWER
Conservation Program Adjustment
Proposed for July 2018 - June 2019

Conservation Program Adjustment:

			Jan 2018 - Jun 2018	Jul 2018 - Jun 2019
1	CIP Tracker 2 Account Balance at the end of 2017	1/	$ 3,315,558	$ (1,700,321)
2	Financial Incentives claimed per Exhibit 2	2/	N/A	2,994,840
3	CIP current year expenditures (actuals)	3/	$ 828,806	N/A
	CIP expenditures approved or budgeted		$ 3,442,627	$ 10,423,325
4	CIP Cost Recovered through Base Rates (actuals)	4/	$ (890,915)	N/A
	CIP Cost Recovered through Base Rates (estimated)		$ (1,292,673)	$ (4,084,323)
5	CIP Cost Recovery through current CPA (actuals)	5/	$ (2,663,628)	N/A
	CIP Cost Recovery through current CPA (estimated)		$ (4,452,353)	N/A
6	Carrying Charges	6/	$ 12,258	N/A
7	**Recoverable Tracker Balance**	7/	**$ (1,700,321)**	**$ 7,633,521**

8	kWh sales subject to CIP	8/	**2,784,566,000**
	monthly		232,047,167

CCRC	$	0.001466772
Current CPA	$	0.005052

Conservation Program Adjustment (per kWh methodology) Line 7/Line 8	**$**	**0.002741**

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

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

3/ Actual CIP expenditures included for Jan-Feb 2018; Estimated expenditures for Mar-Jun 2018 and Jul 2018-Jun 2019 based on 2018 & 2019 modified budgets 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.

4/ Actual CIP Cost Recovery through Base Rates included for Jan-Feb 2018; Estimates for Mar-Jun 2018 based on the Company's approved conservation cost recovery charge (CCRC) [rate] applied to budgeted Mar-Jun 2018 sales subject to CIP*; Estimates for Jul 2018- Jun 2019 based on approved CCRC applied to 2018 budgeted sales subject to CIP*.

5/ Actual CIP Cost Recovery through current CPA included for Jan-Feb 2018; Estimates for Mar-Jun 2018 based on the current CPA applied to 2018 budgeted sales subject to CIP*.

6/ Actual Carrying Charges included for Jan-Feb 2018

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

"When folks are struggling financially it can be hard to feel like they have any control—our job is to show them they have the power to make energy-saving choices to manage their energy bills."

Amanda Oja
Energy Analyst II for Minnesota Power

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

2017 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 2017 spending in relation to the approved minimum spending requirement.[16]

Minimum Spending Requirement	***Approved Spending***	***Actual Spending***	***Variance of Actual to Minimum Spending***
$2,438,354	$10,265,125 *(as modified)*	$8,129,337	$5,690,983

2017 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.

Year	***Energy Savings Achieved (kWh)***	***Total Adjusted Sales (kWh)***	***Savings as % of Retail Sales***
2017	72,467,019	2,749,752,960	2.63%

[16] 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.

2017 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,[17] 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.

Minimum Spending Requirement using Three-year Average	*Approved Spending*	*Actual Spending*	*Variance of Actual to Minimum Spending Requirement using Three-year Average*
$195,929	$393,320	$366,971	$171,042

2017 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.[18]

Annual Spending Cap	*Approved Spending*	*Actual Spending*	*Variance of Actual to Cap*
$243,800	$243,800 *(as modified)*	$210,660	($33,140)

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. Minnesota Power 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.

[17] In the Matter of Minnesota Power's 2013 Conservation Improvement Program Status Report, Docket No. E015/CIP-10-526.03, January 9, 2015.

[18] 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 2017, actual spending, and the percentage of approved budgets, as modified where applicable.

Program	*Approved Budget*	*Actual Spending*	*Percentage of Approved Budget*
Segment: Low Income			
Energy Partners Low Income	$393,320	$366,971	93%
Segment: Residential			
Power of One® Home	$2,357,912	$1,488,380	63%
Segment: Commercial/Industrial			
Power of One® Business	$4,278,193	$3,691,784	86%
Segment: General Indirect			
Customer Engagement	$990,000	$536,634	54%
Energy Analysis	$961,000	$734,331	76%
Research & Development	$243,800 *(1) (as modified)*	$210,660	86%
Evaluation & Planning	$719,000	$796,973	111%
Segment TOTAL:	**$2,913,800**	**$2,278,598**	**78%**
Segment: Regulatory Charges			
Regulatory Charges	$321,900 *(2) (as modified)*	$303,604	94%

(1) 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.

(2) 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.

2017–2019 CIP Triennial Approval Provisions

The Deputy Commissioner approved Minnesota Power's 2017–2019 Triennial CIP[19] 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.[20]
   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.
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.

[19] Docket No. E015/CIP-16-117.

[20] 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.

5. The Deputy Commissioner find 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 reports 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:

      Minnesota Power 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) as a result of the February 10, 2017, MPUC approval of Minnesota Power's SolarSense program (Docket No. E015/M-16-485), and to notify the Department of the impacts on the energy-savings goal as well as spending requirement calculations based on a newly exempt customer in 2017. On November 16, 2017, the Deputy Commissioner approved Minnesota Power's petition.

      For 2017, the following guidance was issued by the Department related to program modifications Minnesota Power submitted through courtesy notification:

      a. 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.

b. 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).

c. 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.

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® Home measures and Power of One® Business measures.

Measurement and Verification Processes

In 2017, Minnesota Power did not file any large Measurement and Verification (M&V) projects. It is important to note that for 2017 a significant portion of the savings were not from the new construction of large industrial operations, which historically have accounted for a large portion of the total claimed savings under Power of One® 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 an 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,[21] 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.[22] 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 an EUIC provision with a separate filing process.

In 2016, Minnesota Power's CIP delivery team participated in Minnesota's Department of Energy Resources (DER) 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.

On December 11, 2017, Staff of the Minnesota Department of Commerce, Division of Energy Resources (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. At this time, Minnesota Power has not requested approval of any EUI projects. Further, there are two potential studies under way in Minnesota that began in 2017 – one on demand side energy efficiency and the other on supply side energy efficiency. The results will likely influence and inform EUI activity.

[21] Docket No. G002/M-11-279.

[22] 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.

2017 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.[23]

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;

[23] 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.

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;
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 2017 expenses that fall within the categories outlined by the Department as follows:

Category	***2017 Amount***	***Description***
Meals	$16,832	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	$45,289	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	$13,843	This includes awards tied to the successful delivery of conservation program energy-savings goals and outreach objectives.
TOTAL	$75,964	This represents 0.9% of the total annual CIP expenditures, with 82% 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 Conservation Program Adjustment (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.

"We have found Minnesota Power to be very easy to work with and supportive of what we have planned here."

Betty Thomas
Paws and Claws

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: Program Spending By Direct and Indirect Savings Programs

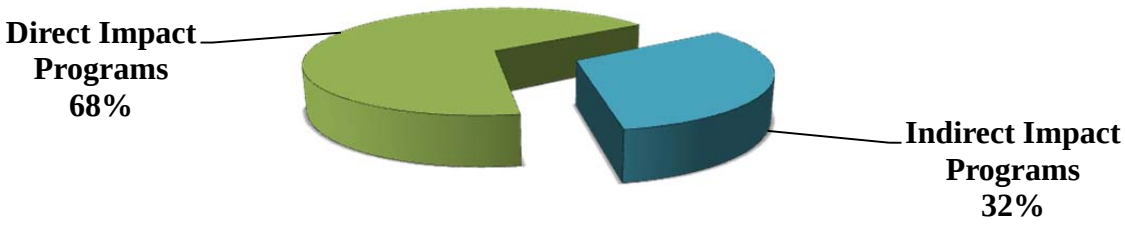
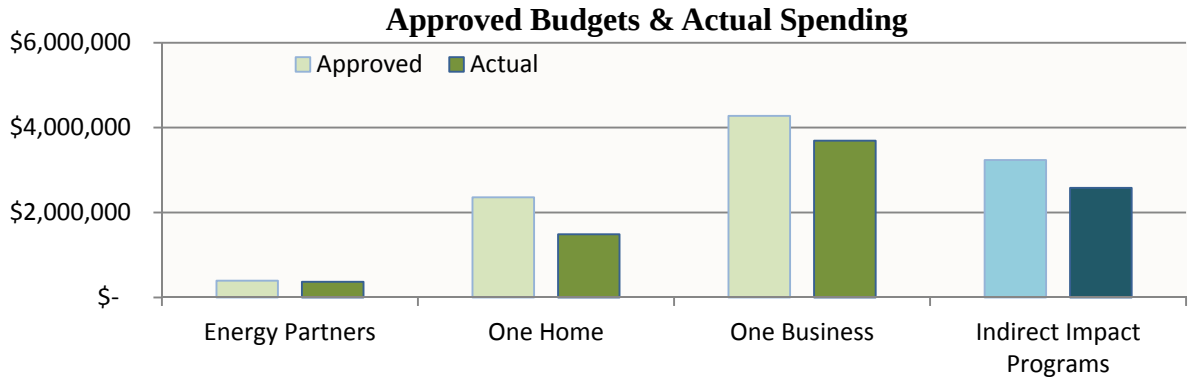


Figure 2: Approved Budgets & Actual Spending



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

Figure 3: Direct Savings Program Spending Breakdown

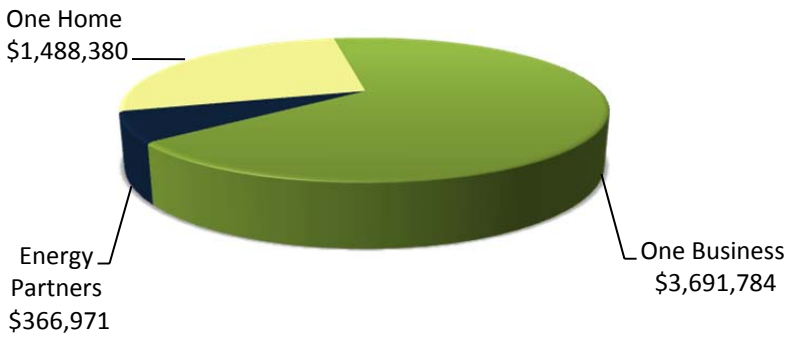
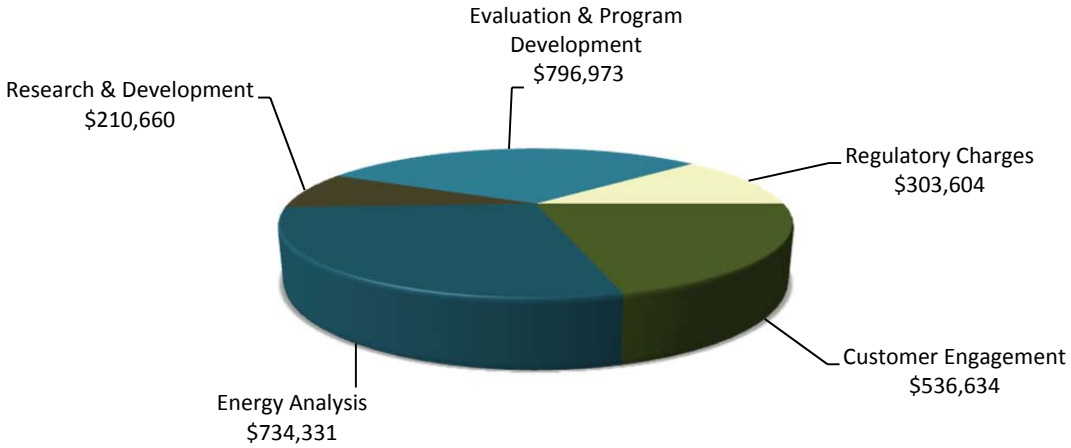
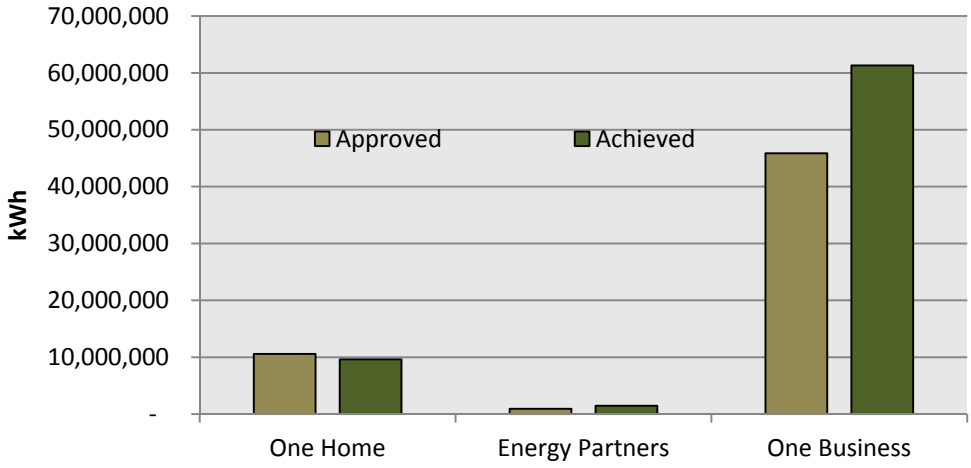


Figure 4: Indirect Savings Program Spending Breakdown



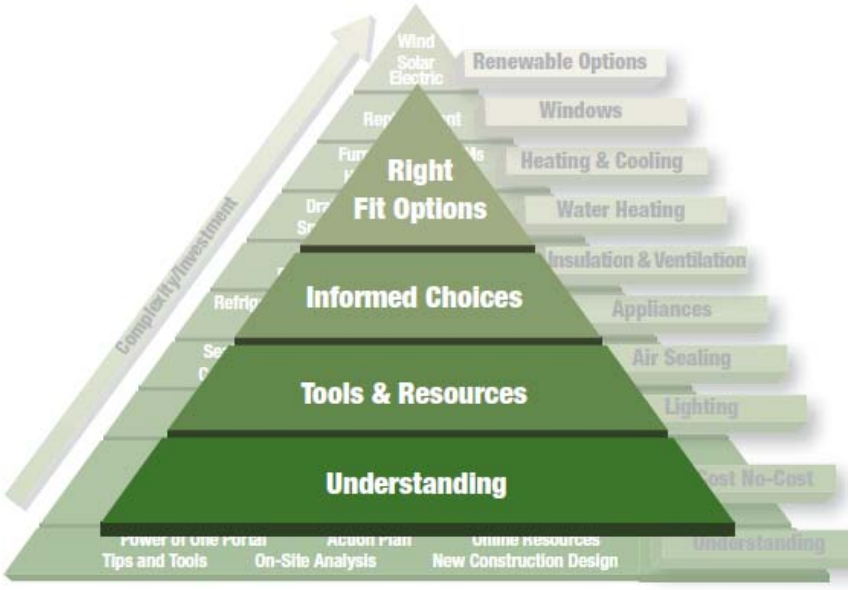
Power of One® Home, Power of One® Business, and Energy Partners remain the foundational programs that consistently deliver energy savings within the Power of One® portfolio—typically through more established methods like rebates, incentives, and/or direct installations. See Figure 5 for a breakdown of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

Figure 5: Approved Savings Goals & Achievements



The Power of One® 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® 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® 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® 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 and that sustaining historical savings levels will be challenging. As stated previously, Minnesota Power has in recent years achieved a significant portion of savings from large-scale projects; Minnesota Power's 2017 results support the fact that large projects have now become less available. Savings opportunities in general are lessening due to market saturation and changing baselines, and the source of savings in terms of customers and technologies are changing as programs continue to mature and technologies evolve. 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. Major changes to these policies may significantly impact the Company's capacity to invest in new and improved programs and its ability to sustain current levels of success. As utilities strive to meet the aggressive goals set forth in statute, adaptive strategies will need to be deployed and more customers will need to be reached on a larger scale. Minnesota Power plans to adapt to the changing conditions by introducing more flexibility and efficiency into its CIP programs, streamline for consistency across programs in end-use technologies, delivery strategies, rebates, analyses and promotions, and promote to segments of customers that have previously been harder to reach. Insights regarding customer preferences and energy consumption choices will continue to be an integral part of future program design and delivery. Minnesota Power remains committed to providing sustainable energy-efficiency programs, with ongoing program development and increased efforts to raise program awareness and participation.

Minnestota Power's 2017 Cip Expenditures & Achievements

2017	*Expenditures*				*Energy Savings (kWh @ Busbar)*				*Demand Savings (kW @ Busbar)*				*Participation*			
Direct Impact Programs	***Filed Budget***	***Approved Budget (1)***	***Actual***	***Percent of Approved***	***Filed Goal***	***Approved Goal***	***Achieved***	***Percent to Goal***	***Filed Goal***	***Approved Goal***	***Achieved***	***Percent to Goal***	***Filed Goal***	***Approved Goal***	***Achieved***	***Percent to Goal***
One Home	$ 2,357,912	$ 2,357,912	$ 1,488,380	63%	10,590,448	10,590,448	9,614,443	91%	1,126	1,126	1,199	107%	151,053	122,841	168,322	137%
Energy Partners	$ 393,320	$ 393,320	$ 366,971	93%	936,080	936,080	1,458,538	156%	105	105	157	149%	7,229	7,229	18,137	251%
One Business	$ 4,278,193	$ 4,278,193	$ 3,691,784	86%	45,863,694	45,863,694	61,299,182	134%	7,881	7,881	7,238	92%	3,366	3,366	905	27%
Direct Impact Programs Total	**$ 7,029,425**	**$ 7,029,425**	**$ 5,547,135**	**79%**	**57,390,222**	**57,390,222**	**72,372,163**	**126%**	**9,112**	**9,112**	**8,594**	**94%**	**161,648**	**133,436**	**187,364**	**140%**
Indirect Impact Programs																
Customer Engagement	$ 1,115,000	$ 990,000	$ 536,634	54%												
Energy Analysis	$ 961,000	$ 961,000	$ 734,331	76%												
Renewable Energy (2)	$ 274,100	$ -	$ -	-			94,856									
Research & Development	$ 274,100	$ 243,800	$ 210,660	86%												
Evaluation & Program Development	$ 719,000	$ 719,000	$ 796,973	111%												
Regulatory Charges	$ 200,000	$ 321,900	$ 303,604	94%												
Indirect Impact Programs Total	**$ 3,543,200**	**$ 3,235,700**	**$ 2,582,201**	**80%**	**-**	**-**	**94,856**		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total	**$ 10,572,625**	**$ 10,265,125**	**$ 8,129,337**	**79%**	**57,390,222**	**57,390,222**	**72,467,019**	**126%**	**9,112**	**9,112**	**8,594**	**94%**	**161,648**	**133,436**	**187,364**	**140%**

(1) As modified and 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.

(2) 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.

EXHIBIT 4

"We were going to put in a new furnace anyway, but the features and rebates made it easier to choose a higher end system."

Frank Milder
Homeowner

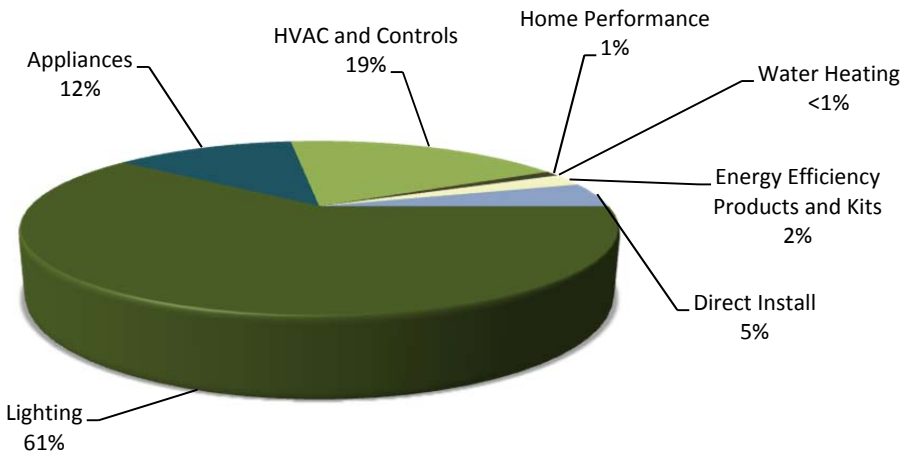
PROGRAM TITLE: POWER OF ONE® HOME

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 19% of the savings while appliances represent 12% of savings. Direct installations, home performance and energy-efficient kits represent about 8% of reported savings.

Figure 7: Power of One® Home Program—2017 Savings by Technology (kWh)



RESULTS

The table below details the Power of One® Home 2017 approved goals versus actual results.

	Approved Goals		***Actual Results***		***% of Approved Goal***
Total Project Expenditures	$2,357,912		$1,488,380		63%
Total Project Energy Savings (at busbar)	10,590,448	kWh	9,614,443	kWh	91%
Total Project Demand Savings (at busbar)	1,125.5	kW	1,198.9	kW	107%
Participation (measures)	122,841		168,322		137%

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. They 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 2017, Minnesota Power continued its successful 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. Minnesota Power 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 2017.

ENERGY STAR® Lighting and Appliances—In 2017, the lighting area of the program experienced the impact of ENERGY STAR 2.0 requirements. CFL (compact fluorescent light) numbers were the lowest in years as product became less available to consumers through participating retail channels. However, Minnesota Power experienced considerable success in the demand for LEDs (light emitting diodes) and, because of this, lighting again far surpassed its filed goal for 2017. Many factors have contributed to the success of LEDs throughout the residential market. LED bulbs continue to grow in popularity and availability, even at small independent hardware stores, and many manufacturers have expanded their product lines beyond the typical 60W equivalent bulb. The variety of bulbs available, coupled with incentives, has helped customers make the switch to long-lasting LED bulbs. Additionally, LED PAR (parabolic aluminized reflector) lamps have quickly gained popularity among consumers who are bypassing comparable CFL alternatives due to longer life expectancy and excellent performance. LED retrofit kits have seen impressive sales in remodeling and new construction projects. These offer great alternatives to traditional can lighting in new construction and fit well within home performance from both a lighting efficiency standpoint and air leakage, as they do not penetrate into attic space. This success is also due in part to leveraging strong relationships within the retailer network. These relationships include a broad retailer mix of mass merchants, home improvement, warehouse club, independent hardware, drug stores and specialty stores. Minnesota Power also promoted program offerings in a variety of ways, such as bill inserts, social media, online advertising, on the Power of One® section of Minnesota Power's website

and at various events such as the Energy Design Conference and the Arrowhead Home and Builders Show. Minnesota Power anticipates that CFL bulb and CFL fixture numbers will be low in the next two program years as a result of ENERGY STAR 2.0. The Company anticipates that the growing number of LED products will fill that void.

In 2017, Minnesota Power offered rebates on ENERGY STAR refrigerators, freezers, and dehumidifiers. Dehumidifier program participation was higher than the previous year, in large part due to the placement of on-package rebate stickers as well as a mid-year promotion on appliances. The Refrigerator and Freezer Recycling program had another successful year, taking 842 inefficient refrigerators and 203 freezers off the secondary market in 2017. In an effort to boost retailer participation, updates are underway to streamline the process that local retailers must follow in order to participate in the Refrigerator and Freezer Recycling program.

New in 2017, Minnesota Power introduced a lighting and appliance field representative to visit lighting and appliance retailers throughout our entire service territory. This consisted of 787 store visits to over 100 participating stores. The purpose of these visits was to educate sales staff on qualifying ENERGY STAR products and their benefits, provide point-of-purchase materials to clearly identify rebated products, and provide stores with rebate forms.

Minnesota Power began making all rebate applications available for download from Minnesota Power's website in 2017. In the past, customers were only able to get hard copy rebate applications from the retail store they purchased the product from. The Company recognized this as a barrier and possible inconvenience for customers.

Water Heating—Water heating is 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. 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 2017, DWHR will continue to be a promoted technology to customers. For 2018, Minnesota Power plans to market the SmartPak kits more aggressively with our retailer network to help boost participation. Minnesota Power rebated three heat pump water heaters in 2017, and the Company will look for additional methods to promote this technology in 2018. 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.[24] In 2017, the

[24] Minnesota Power's 2011-2013 Triennial CIP, Docket No. E015/CIP-10-526.

program experienced lower participation, 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.

New in 2017, Minnesota Power offered plan reviews for all homes being built in our service territory. The intent of this effort was 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. As Minnesota Power did not widely promote this added service in 2017, only two non-electrically heated home plan reviews were completed. However, with more aggressive messaging, Minnesota Power expects a stronger response 2018.

Builders—Minnesota Power 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 will continue to evaluate this offering and work to ensure available products are meeting customer needs. 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.[25] 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 Starter Kits and SmartPaks through various methods such as its website, bill inserts and social media. In 2017, the Company had the opportunity to work with a property manager to provide 167 Starter Kits to a townhome community as a first step towards energy conservation. Minnesota Power will continue to work with this property on additional energy-efficiency opportunities.

Heating, Cooling and Air Conditioning—The HVAC component of the Power of One® Home program is an integral part of the overall portfolio. Less than desired performance with Ground Source Heat Pump installations was experienced in 2017, due in large part to the tax credit expiring on December 31, 2016. According to contractors in the field, this had an enormous impact on the adoption of any new systems, resulting in poor performance of this measure for the 2017 program year. To respond to this decrease, Minnesota Power began exploring other technologies in the heat pump realm, focusing on the potential of cold climate air source heat pumps in becoming an important advanced technology for customers in our area. Further research and exploration into this technology will be ongoing in 2018.

[25] Minnesota Power's 2011-2013 Triennial CIP, Docket No. E015/CIP-10-526.

New in 2017, Minnesota Power added an HVAC field representative to visit participating contractors. The purpose of these visits was to educate contractors on program changes, provide rebate forms, educate on cooperative advertising opportunities and to gain feedback on the program**.** The HVAC field representative visited Minnesota Power's participating contractors four times in 2017. The field representative also made an effort to expand the contractor network by making cold calls to contractors not currently participating in Minnesota Power's programs.

Joint ECM Furnace Program with the City of Duluth/ComfortSystems—Beginning in October 2016, Minnesota Power teamed up with ComfortSystems, the city of Duluth gas utility, on a joint program offering incentives for high efficiency furnaces with ECMs (electronically commutated motors). As Duluth is served by both ComfortSystems and Minnesota Power, a joint program such as this is a great opportunity to serve our shared customers. ComfortSystems offered a $200 incentive on high efficiency furnaces and Minnesota Power offered its standard $200 incentive on ECM motors. Starting in 2017, Minnesota Power added ECM circulator pumps to this joint program for customers who installed efficient boilers. By combining the gas and electric rebates on the high efficiency furnaces and boilers with ECMs, the process becomes easier and more seamless for both the customers and the contractors working on these upgrades through a reduction in paperwork and a single, combined rebate check. All equipment is inspected upon completion of installation through the city of Duluth, ensuring that 100% of the furnaces and boilers installed through this joint effort are installed correctly. In 2017, this program jointly rebated over 250 projects to mutual ComfortSystems and Minnesota Power customers.

Contractor Network—Minnesota Power's contractor network has gotten smaller over the years, primarily as a result of the more stringent Ground Source Heat Pump pre-application process. However, Minnesota Power continues to build its HVAC program through relationships with the existing contractor network. This includes working closely with them and recognizing high performing contractors that are committed to "right fit applications" for the customer. Minnesota Power surveys customers who participate in the HVAC program about their experience with the installation process. By asking for feedback on the customer's experience with the equipment selection, the installation process, performance of the equipment and their overall satisfaction with their contractor experience in terms of expertise and quality of service, insights are gained on program offerings. In 2017, Minnesota Power held a contractor breakfast during the Energy Design Conference & Expo to recognize participating contractors and to thank them for their efforts in the program. This has proven to be an excellent venue to get the contractors together to share program results and seek their input. The addition of the HVAC field representative will help build these relationships and increase participation in the program into the future.

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 continually strives to encourage retailers to promote energy-efficient products to customers and provides point-of-purchase and informational materials to use for promotional purposes. The addition 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.

Plug Load Initiative—In 2017, Minnesota Power continued to build on the Pyramid of Conservation concept, using the Plug Load Pyramid to illustrate steps for reducing plug load (plug load is the electric usage from plugged-in devices even when they're turned off). In addition, focus is put on plug load during a home energy analysis. The auditor reviews a detailed action plan for addressing plug load issues in the customer's home, as well as provides an advanced power strip to the customer if there is an appropriate application for it. Auditors reported items installed and tasks completed for each customer.

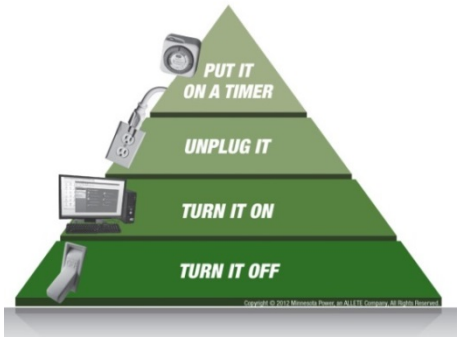


Figure 8: Plug Load Pyramid

SUMMARY

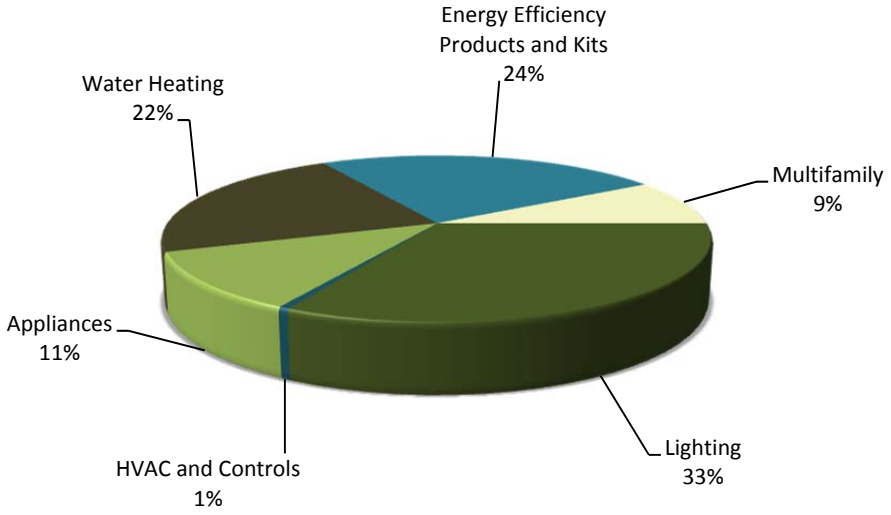
The Power of One® Home program had a strong performance in 2017. The bulk of energy savings was achieved again this year by a successful lighting program. This, combined with a balanced portfolio of energy-efficient products and services tailored to customers' specific needs, resulted in a successful 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 2018, especially with the continuation of field representatives working with trade allies in the field to further promote our conservation programs to our customers.

PROGRAM TITLE: ENERGY PARTNERS LOW INCOME

PROGRAM DESCRIPTION

The Energy Partners Low Income program is designed to provide income-eligible customers educational resources, energy analysis, and direct installation of energy-efficient products that will 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 Home Energy Analysis (HEA) is accomplished primarily through local community agencies throughout Minnesota Power's service territory and 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 Program—2017 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.

	Approved Goals	*Actual Results*	*% of Approved Goal*
Total Project Expenditures	$393,320	$366,971	93%
Total Project Energy Savings (at busbar)	936,080 kWh	1,458,538 kWh	156%
Total Project Demand Savings (at busbar)	105.2 kW	156.7 kW	149%
Participants (measures)	7,229	18,137	251%

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 was again successful in 2017, achieving both savings and spending goals. This was largely due to available staffing from agencies to deliver single family home energy analyses, stronger marketing of the HEA offering to our customers, and increased communication with agencies in the outer regions of our territory. Bill inserts, online ads, and various other promotional activities helped promote HEAs to all Minnesota Power customers throughout 2017, targeting times in the winter and fall when customers tend to see higher usage on their bills. In-person visits were made to the three agencies with highest populations of Minnesota Power customers in 2017; these agencies are the Arrowhead Economic Opportunity Agency (AEOA), Tri-County Community Action (TCC), and Lakes and Pines Community Action Council. The one-on-one visits were meant as a way to share program updates while keeping the communication channel open to allow useful discussions and idea sharing on an individual basis, continuously building on the relationships with the agencies.

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, engine block timers, programmable thermostats, microwaves, refrigerator thermometers and plug load kits. In the area of lighting, 2017 was a year of transition for the Energy Partners program. CFL technology, which has been a large part of the direct installation measure mix in the past, has become a dated technology with the advancement of LED bulbs. As the CIP programs work to keep on top of trends, technologies, and customer expectations, adjustments were implemented and LED bulbs were added to the Energy Partners program in 2017. CFL table and desk lamps, along with CFL torchieres, have been phased out, opening the door for LED torchieres and specialty LED bulbs such as 3-way to take their place. Higher customer satisfaction and energy savings have been a result of this changeover.

In 2017, Minnesota Power formed an internal Low Income Customer Task Force, which was established to improve services to assist low income customers company-wide. This cross-functional team is working to better communicate with customers the importance of applying to the Low Income Home Energy Assistance Program (LIHEAP), which is used to confirm eligibility to various Minnesota Power offerings and regulatory requirements including the Energy Partners program. Targeted postcards were sent to approximately 12,000 customers in 2017 to encourage them to apply for LIHEAP, or to refer others they think may be eligible. The Energy Partners program was highlighted in this communication as an available service for LIHEAP-qualified customers. Also in 2017, Minnesota Power became a member of the National Energy and Utility Affordability Coalition (NEUAC), which is a national nonprofit organization made of up a diverse group of organizations and individuals who are committed to recognizing the energy needs of low income energy consumers and partnering to address those needs. Two Minnesota Power Low Income Customer Task Force members attended the 2017 NEUAC conference, one with a focus on general engagement strategies and involvement with the low

income sector, and one focused on learning best practices in regards to energy conservation and CIP.

The 14th annual Energy Awareness Expo was held in October 2017 at the Duluth Salvation Army. Minnesota Power collaborated with the City of Duluth, ComfortSystems, AEOA, United Way, Community Action Duluth 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. In addition, Minnesota Power staff was on hand to answer questions about Minnesota Power's Customer Affordability of Residential Electricity (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. The event was well attended, with over 750 people walking through the Expo and almost 500 energy-saving kits going 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.

In an effort to expand community involvement throughout Minnesota Power's service territory, the Energy Partners program partnered with TCC in Little Falls at a Ruby's Pantry event in September 2017. Ruby's Pantry is an organization that provides generous food shares to people for a small fee. Minnesota Power was present to share information about the Energy Partners Low Income program, the CARE discount program, Cold Weather Rule, and general conservation information, while TCC provided attendees information on weatherization and how to apply for energy assistance. Over 200 people attended this event. This was the first time partnering with an organization like Ruby's Pantry, and Minnesota Power looks forward to future collaboration on these events.

Minnesota Power continued to explore ways to serve the low income multifamily sector in 2017. Six low income multifamily projects were completed in 2017 that included an in-unit walk-through analysis and installation of energy-saving measures. Minnesota Power is exploring different delivery strategies to determine the best fit for multifamily customers and, as a result, a variety of delivery processes were tested. All projects involved direct installation of energy-efficient LED lighting. Through this customized approach, it was discovered that several units required additional measures such as advanced power strips. Depending on the unique customer situation, multiple units had refrigerators metered to determine their efficiency status and replacement was an option if it was found that the appliance was running inefficiently. For some buildings, it was discovered that the common area lighting was inadequate, and direct installation of energy-efficient LED lighting for common area hallways was accomplished through the One Business program. Minnesota Power is evaluating the results of these projects to help guide program development for the low income multifamily sector.

For the past several years, Minnesota Power has held "Listening Sessions" with all of its low income providers to gather feedback and give program updates on the Energy Partners program, as well as company-wide updates. This event was held in January 2018 to review the 2017 program year and as a kickoff to 2018 to share new program information. Efforts were made to streamline the documentation that agencies must fill out for this program, making it easier for them to participate and help deliver these services to our joint customers. A strong push was made to get more agencies involved in this important session, as the Energy Partners program is planning to re-engage less active agencies in 2018.

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.

“We tried to incorporate the best available technology that we could afford to save energy, while creating school environments that were conducive to learning.”

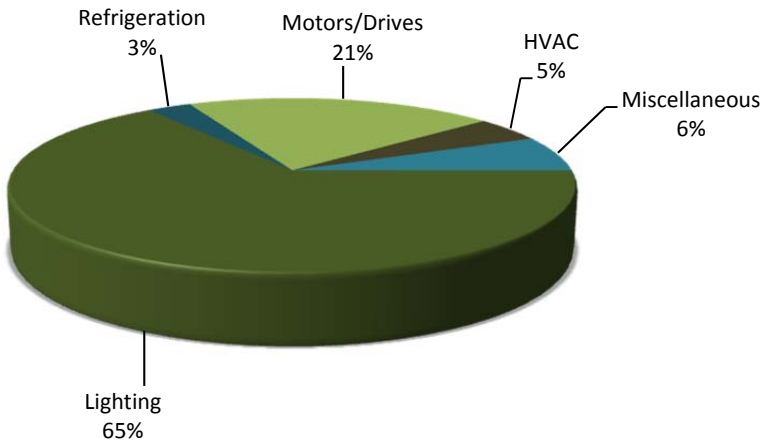
David Spooner
Manager of Facilities for Duluth Public Schools

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—2017 Savings by Technology (kWh)



RESULTS

The table below details Power of One® Business 2017 goal accomplishments.

	Approved Goals	*Actual Results*	*% of Approved Goal*
Total Project Expenditures	$4,278,193	$3,691,784	86%
Total Project Energy Savings (at busbar)	45,863,694 kWh	61,299,182 kWh	134%
Total Project Demand Savings (at busbar)	7,881.0 kW	7,238.4 kW	92%
Participation (measures)	3,366	905	27%

2017 Power of One® Business Projects Overview by Customer Class

	Total $ Rebated	*Number of Measures*	*Total Estimated kWh Saved (meter)*
Agricultural	$10,190	14	300,764
Commercial	$1,906,006	720	41,038,799
Industrial	$559,258	171	14,137,672

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 2017, 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; however, Minnesota Power had no large M&V projects in 2017.

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 our attention to "systems thinking" with regard to our customers' process pertaining to energy usage is important in getting to the root of the customer's energy challenges and, ultimately, solutions.

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. We also work with manufacturers, distributers 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.

Minnesota Power'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 preapplication 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® 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 speed drives (VSD) 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 2017, Minnesota Power did not complete or claim any EUI projects.[26]

However, CIP worked closely with Minnesota Power's facility managers to identify energy-savings opportunities within its facilities. As a result, 11 energy-conservation projects at Minnesota Power facilities were completed in 2017. These projects are filed under the One Business Program and included lighting, energy-efficient HVAC, EMS controls and shell measures. These 11 projects resulted in a reduction of 95 kW and 475,454 kWh savings.[27]

SUMMARY

In 2017, Minnesota Power implemented the following less conventional strategies as part of the One Business program.

Community Business Blitz—In 2017, Minnesota Power representatives visited two communities (Walker and Eveleth, Minn.) and provided on-site analyses at local businesses with the direct installation of energy-saving products. By providing these products, customers gained an increased awareness of products available and 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. These visits

[26] In the Matter of Claiming Energy Savings through Electric Utility Infrastructure Improvements and the Energy Savings Carry Forward Provision, Docket No. EG999/CIP-17-856, February 20, 2018.
[27] 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.

provided insights into an opportunity for businesses to save energy by switching from T12 lighting to more efficient LED fixtures.

High Bay Lighting Program—In 2017, 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.

Midstream Strategy—Minnesota Power utilizes midstream strategies to increase the efficiency of programs and channels and to utilize and strengthen trade ally networks. In 2017, the Company implemented a midstream buy-down for LED troffers and strips as part of its One Business program. The cost per fixture was reduced at the distributor level so the contractor and/or customer received an instant discount and were not required to submit a rebate form. Focus was put on the distributor to help market this offer. While this specific tactic did not produce a significant amount of kWh savings this year, it has had success in the past when marketing was more heavily focused on the contractor.

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® 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 2017, Minnesota Power far exceeded its energy-savings goal for the Power of One® Business program, achieving 134%. 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® 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 often 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® in 2017.

"It is very honorable when a corporation like Minnesota Power values what we do and thinks philanthropically. I want Minnesota Power (and its partners) to know how much we value them."

Amanda Lamppa
Itasca County Habitat for Humanity

PROGRAM TITLE: CUSTOMER ENGAGEMENT

PROGRAM DESCRIPTION

The Customer Engagement program focuses on 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 2017 Customer Engagement program with goals established in the Triennial Filing.

	Approved Goals	***Actual Results***	***% of Approved Goal***
Total Project Expenditures	$990,000	$536,634	54%
Utilization of the online energy tools and materials (visitors)	100,000	98,363	98%
Participation in community energy events	8,000	7,765	97%
Number of seminars, demonstrations, and conferences	35	32	91%
Customer profiles or newsletters completed	15	21	140%

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®) 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 relationships with the HVAC contractor network in 2017. This included holding a contractor breakfast during the Energy Design Conference and Expo to share program results, program changes, and ideas on ways to maintain the success of the program and strengthen it into the future. The gathering also was an opportunity to notify contractors of combined ECM rebates with ComfortSystems, the local gas utility.

In 2017, Minnesota Power added a dedicated HVAC field representative who conducted site visits with almost 100 contractors throughout the service territory. 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 our HVAC contractor network.

Lighting and Appliance Retailers—Minnesota Power works closely with lighting and appliance retailers. Similar to the direction taken with the HVAC contractor network, a dedicated field representative was added in 2017 to increase outreach to appliance and lighting retailers. The representative completed 787 visits to over 100 different ENERGY STAR® retailers. During the visits, the representative ensured that retailers had proper point-of-purchase materials, educated staff on the benefits of ENERGY STAR 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 increase communication with agencies, in-person visits were conducted with the three agencies that had the highest population of Minnesota Power customers. These agencies included Arrowhead Economic Opportunity Agency (AEOA), Tri-County Community Action (TCC), and Lakes and Pines Community Action Council. The in-person visits gave Minnesota Power an opportunity to strengthen lines of communication and gather insights regarding the unique needs of these different agencies and areas of the service territory. The annual listening session was also held with agencies to provide program updates and gather insights for continuing the success of this program.

Veteran Outreach—In 2016, Minnesota Power was the first Duluth company to receive the State of Minnesota's Yellow Ribbon Company certification, which recognizes employers that support military-connected individuals within the company and the community. Minnesota Power built on this certification to tie in veteran outreach with conservation programs. In 2017, Minnesota Power collaborated with the Minnesota Assistance Council for Veterans (MACV) in Duluth. MACV's mission is to provide assistance throughout Minnesota to positively motivate veterans and their families who are homeless or experiencing other crisis situations. Minnesota Power worked with ComfortSystems (Duluth's gas utility) to perform an energy analysis of two

MACV facilities which included the direct installation of energy-saving measures and a follow-up report with recommendations for further projects.

Commercial Energy Teams—Minnesota Power continued to develop and expand its Energy Team strategy in 2017 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. In addition, Minnesota Power held Business Energy Consortium meetings with facility and operation managers involved with the Energy Teams. These meetings gave key energy players the opportunity to share information, lessons learned, and the successes and challenges that result from building energy efficiency into their businesses. The Consortium is continually expanding its membership to include staff from manufacturing, service, government, education, health care, and Minnesota Power facility management. The benefits of this Consortium extend far beyond energy savings by providing a platform for broader facility operations and management considerations.

Building Operator Certification Training—In 2017, Minnesota Power again sponsored and promoted 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 realized energy savings by providing tuition reimbursement to attendees for completing the course and identifying a CIP-eligible project.

Community Business Blitz—Minnesota Power expanded its small business "blitz" initiatives in 2017. This delivery strategy for reaching businesses in rural communities shows promising results for both energy education awareness and energy savings. In 2017, Minnesota Power representatives visited communities including Walker, Eveleth, and downtown Duluth. The representatives provided an on-site analysis at local businesses with the direct installation of energy-saving products. 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. These visits provided insights into an opportunity for businesses to save energy by switching from T12 lighting to more efficient LED fixtures. These assessments resulted in 906 recommendations for future projects and 760 direct installations.

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 our joint 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 formulation of a new joint rebate program for new furnaces and boilers with ECM technology began in 2016 with ComfortSystems, furthering the partnership. Minnesota Power partnered with CenterPoint Energy in 2017 as part of a multifamily project, and will continue to look for ways to collaborate with other utilities who share the same customer base to streamline the customer experience.

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 in the Energy Tent 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 2017, conservation team members staffed energy conservation booths at the spring and fall sustainability fairs. 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 27th 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.

14th 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 2017 Arrowhead Home and Builders Show. The booth display featured the Pyramid of Conservation, residential and commercial energy conservation programs, an interactive website station, and the opportunity to win an energy-saving kit. Two 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® Business program. By featuring a wide variety of businesses ranging from Paws and Claws animal shelter to Essentia health services, customers are exposed to the wide scope of business conservation opportunities. Profiles are distributed at community events and posted on the Power of One® 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.

Power of One® Internal Communications—In an ongoing effort to increase internal understanding and awareness of Power of One® 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® 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.

Building Up Newsletters—The *Building Up* newsletters covered a variety of energy-related topics in 2017. *Building Up* is published and distributed to builders, contractors and other building professionals. It is also posted on the Power of One® section of Minnesota Power's website at www.mnpower.com/buildingup.

Energy Conservation Newsletter—Minnesota Power features an external-facing online newsletter for customers based on its internal energy conservation newsletter, *Conservation Counts.* This publication is produced to keep customers informed on program offerings, special promotions, and customer success stories.

Power of One® 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® 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® Business preapplication (available online) and area businesses who have participated in the Power of One® Business program and made energy-efficient changes within their businesses and facilities.

Power of One® Section of Minnesota Power's Website—The Power of One® 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 personnel when answering customer questions about energy conservation programs. Power of One® 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. In 2016, Minnesota Power switched from the online Power of One® Portal to the MyMeter tool to streamline energy-saving tools and best serve customers. This dynamic tool helps 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 and actions that may affect customer usage. Customers are also able to set up customized notifications for reaching energy thresholds. In 2017, MyMeter was expanded and rebranded as MyAccount and rolled out to all customers. The new MyAccount features include online bill payments and bill history.

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® Home program, community expos and events, and the Power of One® Business program. Programs were also promoted via social media and through email blasts to opt-in members of the Power of One® energy team. Facebook posts prove to be an effective method of communicating with our customers, with a large amount of interaction through Likes, Shares and Comments. Twitter and Instagram were also utilized in 2017 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® 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 2017, Minnesota Power also collaborated with ComfortSystems to cross promote its ECM program to both residential and small commercial customers. In 2018, Minnesota Power plans to expand on this outreach with additional promotion of residential programs to employees of business customers.

Midstream Strategy—Minnesota Power evaluated 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® 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® Home, Power of One® 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.

	Approved Goals	*Actual Results*	*% of Approved Goal*
Total Project Expenditures	$961,000	$734,331	76%
Home Energy Analysis	565	419	74%
Home Performance *(1)*	616	251	41%
Energy Analysis – Low Income Multifamily (renters)	185	253	137%
Energy Analysis – Low Income Single Family Homes	350	879	251%
Business Energy Analysis *(2)*	3,211	3,711	116%
Business Facility Performance *(3)*	465	294	63%
Total Participants	5,392	5,807	108%

(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 2017, there was an increase in HEAs as an intentional effort was made to market this service more clearly through bill inserts, social media and online ads. A portion of the increase may also be attributed to a simplified online signup process for the customer. Minnesota Power and ComfortSystems, the city of Duluth gas utility, each promote this offering, as both utilities work together with the auditors to provide customers in Duluth electric and gas audits jointly.

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. Minnesota Power saw an uptick in HEA w/BD for 2017, likely due to the overall increase in marketing which heightened awareness of this offering. 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 2018.

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 2017 included the Arrowhead Economic Opportunity Agency (AEOA), Lakes and Pines Community Action Council, and Tri-County Community Action. In 2017, Single Family Energy Analysis saw an increase from the previous year. This increase may be due to increased staffing at the agencies who deliver the audits combined with increased communication with the agencies and this sector of customers at large. Minnesota Power also tested different strategies to reach multifamily renters in 2017 to begin building an action plan for future multifamily projects. Evaluation of these strategies will be done and we will move forward with the best plan for our customers. Minnesota Power was able to reach hundreds of customers in 2017 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 2017, 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 2018.

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 2017, Minnesota Power performed over 190 design assistance projects.

Certification Evaluations

In 2017, Minnesota Power was involved with over 103 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 2017, Minnesota Power focused on exploring various multifamily delivery options. In an effort to build an all-encompassing residential/commercial hybrid approach to multifamily buildings, various strategies were tried and are being evaluated to make a determination as to which one is the best approach for our customers. This will help better define the efforts being made by Minnesota Power to address the multifamily sector. Below is a sampling of the different delivery approaches taken in 2017 for multifamily projects.

Townhome complex in Hermantown, Minn.

Minnesota Power was approached by the property manager of a townhome complex in 2017, looking for general conservation options as they were planning to undergo a soft remodel of their complex over the next several months. Based on the needs of the property manager to create a more energy-conscious environment for the tenants, Minnesota Power offered the customer a menu of options they could choose from that would meet their particular requirements. This project took a very customized approach, and was driven by customer needs. Minnesota Power supplied each unit with an energy-saving kit and is working with the property manager to upgrade and recycle refrigerators throughout the complex. Work will continue into 2018, where Minnesota Power has plans to test the value of offering Tier 2 Advanced Power Strips with the tenants at the facility.

Joint Projects with CenterPoint Energy—Two 60-unit complexes in Little Falls and Long Prairie, Minn.

Minnesota Power began exploring the option of partnering with CenterPoint Energy in early 2017 to conduct a joint project with multifamily customers where our service territories overlap. Two customer sites were identified; one in Long Prairie, Minn., and another in Little Falls, Minn. Each customer was provided a general overview of the initiative in which a joint implementation contractor would provide the on-site inspection, install energy conservation measures, and then deliver a comprehensive report including recommendations for electric and gas measures. The final version of the assessment was a mix of programs from both CenterPoint Energy and Minnesota Power. Minnesota Power provided direct installation of lighting measures in-unit, as well as in common areas. Both complexes qualified as low income facilities.

100-unit building in Duluth, Minn.

Minnesota Power worked with an affordable senior living facility in Duluth, Minn. A partnership with Community Action Duluth resulted in interest from the facility for energy conservation services for their tenants and direct installation of energy-efficient measures for the units. Refrigerators were metered and replaced if found to be inefficient, and recycling of the old appliances was part of the process. This project included a "tenant event," where all tenants were invited to the common area of the facility on a set day and Minnesota Power representatives explained the process to the tenants, explained the measures that could be/would be installed in their units, and answered questions from the group. This meet-and-greet approach gives a more personal aspect to the service and creates an opportunity for those living in the units to be involved with the process.

19-unit complex in Duluth, Minn.

Minnesota Power and ComfortSystems partnered to benchmark a number of facilities managed by a property management firm. This firm was looking to find ways to prioritize resources based on the needs of their different facilities. Through the use of ENERGY STAR® Portfolio Manager and the output of EUI, a clear front-runner was identified as having a poor energy performance score. In cooperation with ComfortSystems, Minnesota Power conducted a site visit, identified multiple energy-efficient opportunities, and then further assisted the customer in obtaining bids for implementation. Gas and electric direct installations were completed in-unit where applicable. The property management firm is now working with ComfortSystems to upgrade the heating system with the assistance of rebates and loans.

152-unit complex in Duluth, Minn.

Minnesota Power explored a new strategy with a third-party contractor to test a multifamily pilot program at a project-based Section 8 community where the residents must be 62+ or disabled. A walkthrough analysis of both the common areas and a sampling of apartment units was done. The main purpose of the walkthrough analysis was to help the customer identify energy-savings opportunities in the building. For this specific multifamily building, direct installations for each unit were also considered. This was done with the plan to present a summary report of recommendations to the property management firm, and also include a list of energy-efficient measures which would be installed in each unit during a future site visit. Minnesota Power is currently working with the third-party contractor to decide which direct installation measures would be the most beneficial to install in the apartment units, considering both the cost and energy awareness perspectives. This project will be completed in 2018.

Minnesota Assistance Council for Veterans (MACV)—13-units plus business office in Duluth, Minn.

MACV is a nonprofit organization dedicated to ending veteran homelessness by providing employment, legal services and housing to at-risk veterans across the state of Minnesota. Minnesota Power, through its status as a certified Yellow Ribbon Company, learned of an opportunity to help the local chapter with energy efficiency. Working again in partnership with ComfortSystems, a site visit was conducted and an inventory taken for potential direct installation measures. Later, a team returned to install these measures in both residential units as well as common areas, such as hallways. A second round of direct installations will be completed in 2018 as specialized lighting was needed. A final report will be delivered to the customer upon completion. Minnesota Power and ComfortSystems plan to continue working with this organization by recommissioning its HVAC systems and looking into the possibility of

installing air source heat pumps in the units. Minnesota Power is working with this location on a solar project as well.

New Construction and Complete Remodels

Minnesota Power encouraged property owners and managers who were building new multifamily facilities or performing complete remodels in 2017 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.

As an additional step towards exploring options in the multifamily sector, Minnesota Power also became a member of the 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.

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.

"We knew there were a lot of potential energy savings. The money Minnesota Power put up for that engineering study was very helpful in steering us toward decisions that made sense for the project."

John Rice
Essentia Health

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 Power of One® 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

	Approved Goals	***Actual Results***	***% of Approved Goal***
Total Project Expenditures	$719,000	$796,973	111%

SUMMARY

Minnesota Power included in its 2017–2019 triennial plan an increased Evaluation and Planning program budget, and in 2017 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 2017 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. In addition to the typical recurring compliance filings the Minnesota Power CIP team coordinates each year, in 2017 the team also spent a significant amount of time engaging in an avoided cost study focused on standardizing transmission and distribution avoided cost methodologies. Also in 2017, the Minnesota Statewide Potential Study kicked off and Minnesota Power is engaged through participation in both an advisory committee and technical input capacity. The Company also views the 2017–2019 triennial years as a period of transition and, just as the state has been focusing efforts through the statewide study on better understanding Minnesota's potential over the next decade in the rapidly evolving energy efficiency arena, Minnesota Power focused a great deal of effort in 2017 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 will become a critical part of upcoming triennial planning and continuing to meet customer needs and energy efficiency goals. 2017 was also a significant year in terms of program strategy development for Minnesota Power and, as evidenced throughout the other program sections, many new initiatives were and continue to be explored and evaluated. The Company anticipates similar activities to continue throughout the current triennial as the stage is set for the next planning period.

Given the importance of evaluation and program design, Minnesota Power believes this program continues to serve a significant role now and for the ongoing success of its Power of One® programs.

BENEFIT/COST EVALUATIONS

METHODOLOGY

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

- Power of One® Home
- Energy Partners–Low Income
- Power of One® 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 2017, the year of plan implementation.

Evaluations of non-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 non-impact projects were added to evaluations of the entire plan for the other tests to illustrate the small impact that these non-impact projects would have on overall cost-effectiveness. The Regulatory Charges, including Made in Minnesota assessment costs, were not included in the non-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:

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

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Results of Project Benefit/Cost Evaluations

Project	Participant Test		Utility Test		RIM Test		Societal 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	$19,011,847	9.31	$3,512,405	3.36	($8,146,357)	0.38	$7,863,477	3.70
Energy Partners	$1,986,055	8.66	$143,700	1.39	($1,115,615)	0.31	$667,398	2.97
Power of One® Business	$37,671,716	3.25	$21,014,762	6.69	($30,928,024)	0.44	$16,935,451	1.94
Total Plan (w/o non-impact projects)	$58,669,618	4.04	$24,670,867	5.45	($40,189,996)	0.43	$25,466,325	2.20
Total Plan (with non-impact projects)	$58,669,618	4.04	$22,392,268	3.86	($42,468,594)	0.42	$23,187,727	1.99

** 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 were excluded for the purpose of the financial incentive calculation. Utility Test Net Benefits for Total Plan and Power of One Business used in the financial incentive calculation were ($22,184,003) and ($20,806,497)*

*** 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 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 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 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.

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.

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

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Plan Summary					
	2017 Annual Energy Savings				
	Meter			Busbar	
	(KWh)	(KW)		(KWh)	(KW)
Total Power of One Home	8,701,302	1,085.1		9,614,443	1,198.9
Total Energy Partners	1,320,012	141.8		1,458,538	156.7
Total Power of One Business	55,477,235	6,551.0		61,299,182	7,238.4
Total Plan	**65,498,549**	**7,777.8**		**72,372,163**	**8,594.0**
One Business less MP Facilities Projects	55,046,938	6,464.8		60,823,729	7,143.2
Total Plan less MP Facilities Projects*	**65,068,252**	**7,691.6**		**71,896,709**	**8,498.8**
Made in MN Solar Savings	85,847	0.0		94,856	0.0
Total Plan with Solar**	**65,584,396**	**7,777.8**		**72,467,019**	**8,594.0**

* In compliance with Order Points 1 & 2 from 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 were excluded for the purpose of the financial incentive calculation.

**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, Division of Energy Resources. There are no related demand savings.

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Plan Summary				
	Utility Test			
	Benefits ($)	**Costs ($)**	**Net Benefits ($)**	**B/C Ratio**
Total Power of One Home	5,000,786	1,488,380	3,512,405	3.36
Total Energy Partners	510,671	366,971	143,700	1.39
Total Power of One Business	24,706,546	3,691,784	21,014,762	6.69
Total Plan	**30,218,002**	**5,547,135**	**24,670,867**	**5.45**
Total Plan with Non-impact $	**30,218,002**	**7,825,734**	**22,392,268**	**3.86**
Minnesota Power Facilities Projects	**227,319**	**19,054**	**208,265**	**11.93**
Total Plan with Non-impact $ less MP Facility Projects*	**29,990,683**	**7,806,680**	**22,184,003**	**3.84**

All values are discounted to 2017

* In compliance with Order Points 1 & 2 from 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 were excluded for the purpose of the financial incentive calculation. Utility Test Net Benefits for Total Plan used in the financial incentive calculation were $22,184,003.

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Plan Summary				
	Societal Test			
	Benefits ($)	**Costs ($)**	**Net Benefits ($)**	**B/C Ratio**
Total Power of One Home	10,776,575	2,913,098	7,863,477	3.70
Total Energy Partners	1,006,741	339,343	667,398	2.97
Total Power of One Business	34,898,305	17,962,854	16,935,451	1.94
Total Plan	**46,681,621**	**21,215,296**	**25,466,325**	**2.20**
Total Plan with Non-impact $	**46,681,621**	**23,493,894**	**23,187,727**	**1.99**

All values are discounted to 2017

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Plan Summary				
	Ratepayer Impact Test			
	Benefits ($)	**Costs ($)**	**Net Benefits ($)**	**B/C Ratio**
Total Power of One Home	5,000,786	13,147,142	(8,146,357)	0.38
Total Energy Partners	510,671	1,626,286	(1,115,615)	0.31
Total Power of One Business	24,706,546	55,634,570	(30,928,024)	0.44
Total Plan	**30,218,002**	**70,407,998**	**(40,189,996)**	**0.43**
Total Plan with Non-impact $	**30,218,002**	**72,686,597**	**(42,468,594)**	**0.42**

All values are discounted to 2017

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Plan Summary				
	Participant Test			
	Benefits ($)	**Costs ($)**	**Net Benefits ($)**	**B/C Ratio**
Total Power of One Home	21,300,676	2,288,829	19,011,847	9.31
Total Energy Partners	2,245,268	259,212	1,986,055	8.66
Total Power of One Business	54,418,240	16,746,525	37,671,716	3.25
Total Plan	**77,964,184**	**19,294,566**	**58,669,618**	**4.04**
Total Plan with Non-impact $	**77,964,184**	**19,294,566**	**58,669,618**	**4.04**

All values are discounted to 2017

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Power of One Home Project					
	2017 Annual Energy Savings				
	Meter			Busbar	
	(KWh)	(KW)		(KWh)	(KW)
Lighting	**5,276,125**	**591.7**		**5,829,817**	**653.7**
CFL Bulbs	36,712	4.1		40,565	4.6
LED Bulbs	5,048,241	568.3		5,578,019	627.9
LED Fixtures	171,152	19.3		189,113	21.3
LED Outdoor Fixtures	2,178	0.0		2,407	0.0
LED Holiday Lights (carryover from 2016)	17,842	0.0		19,714	0.0
Bulb Recycling	0	0.0		0	0.0
Appliances	**1,078,743**	**122.8**		**1,191,950**	**135.7**
Refrigerators	56,199	6.3		62,097	7.0
Freezers	4,128	0.5		4,561	0.5
Refrigerator Turn-ins	770,430	86.7		851,281	95.8
Freezer Turn-ins	230,202	25.9		254,360	28.6
Clothes Washers (carryover from 2016)	15,996	1.3		17,675	1.5
Window AC Turn-ins (carryover from 2016)	1,788	2.0		1,976	2.2
HVAC and Controls	**1,669,292**	**310.7**		**1,844,473**	**343.3**
CAC - Proper Installation	28,220	32.0		31,181	35.4
ASHP - Proper Installation	37,380	3.0		41,303	3.3
GSHP - Open Loop	35,018	0.7		38,693	0.7
GSHP - Closed Loop	103,077	1.7		113,894	1.9
GSHP - Replacement Heat Pump	8,720	0.1		9,635	0.2
ASHP - Ducted	22,266	1.9		24,603	2.1
ASHP - Ductless	921,816	15.9		1,018,554	17.5
Dehumidifiers	77,490	87.9		85,622	97.2
ECM - New Furnace	426,300	166.1		471,037	183.6
ECM - Replacement Motor	1,400	0.5		1,547	0.6
Thermostats with Electric Heating	7,605	0.8		8,403	0.8
Home Performance	**79,507**	**3.2**		**87,851**	**3.6**
Triple E - Level 2 Projects	79,507	3.2		87,851	3.6
Water Heating	**4,584**	**0.4**		**5,065**	**0.4**
Heat Pump Water Heater	4,584	0.4		5,065	0.4
Energy Efficiency Products and Kits	**193,474**	**18.1**		**213,778**	**20.0**
Smart Paks	98,384	8.2		108,709	9.0
Starter Kits	95,090	9.9		105,069	11.0
Direct Install	**399,577**	**38.3**		**441,510**	**42.3**
Pipe Insulation	38,456	3.2		42,492	3.5
Showerheads	90,850	7.5		100,384	8.3
Thermostatic Restriction Showerheads	15,232	1.3		16,830	1.4
Aerators	30,536	2.5		33,741	2.8
Water Heater Temperature Set-backs	8,840	0.7		9,768	0.8
LED Bulbs	77,220	8.7		85,324	9.6
Shower Timers	45,120	3.7		49,855	4.1
Refrigerator Thermometers	42,465	4.8		46,921	5.3
Enable Power Management	24,600	2.8		27,182	3.1
Tier 1 Power Strips	24,486	2.8		27,056	3.1
CFL Bulbs (carryover from 2016)	962	0.1		1,063	0.1
Timers (carryover from 2016)	810	0.1		895	0.1
Administrative Costs	**0**	**0.0**		**0**	**0.0**
Total Power of One Home	**8,701,302**	**1,085.1**		**9,614,443**	**1,198.9**

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Power of One Home Project				
	Utility Test			
	Benefits ($)	Costs ($)	Net Benefits ($)	B/C Ratio
Lighting	**3,234,197**	**408,257**	**2,825,940**	**7.92**
CFL Bulbs	13,251	1,588	11,663	8.34
LED Bulbs	3,109,762	376,548	2,733,214	8.26
LED Fixtures	105,431	19,184	86,247	5.50
LED Outdoor Fixtures	1,085	355	730	3.06
LED Holiday Lights (carryover from 2016)	4,668	1,620	3,048	2.88
Bulb Recycling	0	8,962	(8,962)	0.00
Appliances	**364,865**	**185,990**	**178,875**	**1.96**
Refrigerators	28,355	15,725	12,630	1.80
Freezers	1,743	1,790	(47)	0.97
Refrigerator Turn-ins	252,232	131,127	121,105	1.92
Freezer Turn-ins	75,366	31,678	43,688	2.38
Clothes Washers (carryover from 2016)	6,503	5,340	1,163	1.22
Window AC Turn-ins (carryover from 2016)	666	330	336	2.02
HVAC and Controls	**1,151,959**	**212,495**	**939,464**	**5.42**
CAC - Proper Installation	37,521	8,300	29,221	4.52
ASHP - Proper Installation	23,276	700	22,576	33.25
GSHP - Open Loop	21,658	500	21,158	43.32
GSHP - Closed Loop	63,586	5,450	58,136	11.67
GSHP - Replacement Heat Pump	5,379	650	4,729	8.28
ASHP - Ducted	13,941	1,800	12,141	7.75
ASHP - Ductless	534,553	32,000	502,553	16.70
Dehumidifiers	77,294	10,705	66,589	7.22
ECM - New Furnace	370,894	151,750	219,144	2.44
ECM - Replacement Motor	685	250	435	2.74
Thermostats with Electric Heating	3,171	390	2,781	8.13
Home Performance	**49,172**	**12,900**	**36,272**	**3.81**
Triple E - Level 2 Projects	49,172	12,900	36,272	3.81
Water Heating	**2,112**	**150**	**1,962**	**14.08**
Heat Pump Water Heater	2,112	150	1,962	14.08
Energy Efficiency Products and Kits	**58,093**	**14,368**	**43,726**	**4.04**
Smart Paks	27,821	3,847	23,974	7.23
Starter Kits	30,272	10,520	19,752	2.88
Direct Install	**140,388**	**30,251**	**110,137**	**4.64**
Pipe Insulation	17,717	579	17,138	30.60
Showerheads	34,332	3,825	30,507	8.98
Thermostatic Restriction Showerheads	5,756	989	4,767	5.82
Aerators	11,539	1,266	10,273	9.11
Water Heater Temperature Set-backs	770	624	146	1.23
LED Bulbs	47,568	13,572	33,996	3.50
Shower Timers	5,926	880	5,046	6.73
Refrigerator Thermometers	5,715	1,418	4,298	4.03
Enable Power Management	3,104	1,454	1,650	2.13
Tier 1 Power Strips	7,447	5,153	2,294	1.45
CFL Bulbs (carryover from 2016)	347	151	196	2.29
Timers (carryover from 2016)	166	340	(174)	0.49
Administrative Costs	**0**	**623,970**	**(623,970)**	**0.00**
Total Power of One Home	**5,000,786**	**1,488,380**	**3,512,405**	**3.36**

All values are discounted to 2017

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Power of One Home Project				
	Societal Test			
	Benefits ($)	Costs ($)	Net Benefits ($)	B/C Ratio
Lighting	**8,080,633**	**1,431,187**	**6,649,446**	**5.65**
CFL Bulbs	29,784	1,864	27,921	15.98
LED Bulbs	7,777,532	1,330,900	6,446,632	5.84
LED Fixtures	258,476	90,080	168,396	2.87
LED Outdoor Fixtures	2,471	720	1,751	3.43
LED Holiday Lights (carryover from 2016)	12,370	7,623	4,747	1.62
Bulb Recycling	0	0	0	inf
Appliances	**464,681**	**130,535**	**334,146**	**3.56**
Refrigerators	40,940	17,160	23,780	2.39
Freezers	2,349	1,720	629	1.37
Refrigerator Turn-ins	317,127	84,450	232,677	3.76
Freezer Turn-ins	94,757	20,425	74,332	4.64
Clothes Washers (carryover from 2016)	8,767	6,450	2,317	1.36
Window AC Turn-ins (carryover from 2016)	742	330	412	2.25
HVAC and Controls	**1,833,050**	**617,612**	**1,215,438**	**2.97**
CAC - Proper Installation	58,760	41,500	17,260	1.42
ASHP - Proper Installation	36,775	3,500	33,275	10.51
GSHP - Open Loop	35,776	4,950	30,826	7.23
GSHP - Closed Loop	105,040	15,420	89,620	6.81
GSHP - Replacement Heat Pump	8,886	2,552	6,334	3.48
ASHP - Ducted	22,024	5,940	16,084	3.71
ASHP - Ductless	845,585	378,000	467,585	2.24
Dehumidifiers	105,217	11,480	93,737	9.17
ECM - New Furnace	609,941	152,250	457,691	4.01
ECM - Replacement Motor	875	370	505	2.37
Thermostats with Electric Heating	4,171	1,650	2,521	2.53
Home Performance	**81,225**	**55,890**	**25,335**	**1.45**
Triple E - Level 2 Projects	81,225	55,890	25,335	1.45
Water Heating	**2,981**	**2,352**	**629**	**1.27**
Heat Pump Water Heater	2,981	2,352	629	1.27
Energy Efficiency Products and Kits	**72,227**	**13,143**	**59,084**	**5.50**
Smart Paks	34,141	3,120	31,021	10.94
Starter Kits	38,086	10,023	28,063	3.80
Direct Install	**241,777**	**38,409**	**203,368**	**6.29**
Pipe Insulation	25,011	8,761	16,249	2.85
Showerheads	45,232	3,825	41,407	11.83
Thermostatic Restriction Showerheads	7,584	989	6,595	7.67
Aerators	15,203	1,249	13,954	12.17
Water Heater Temperature Set-backs	829	624	205	1.33
LED Bulbs	121,309	13,572	107,737	8.94
Shower Timers	6,529	881	5,649	7.41
Refrigerator Thermometers	6,293	1,417	4,876	4.44
Enable Power Management	3,426	1,454	1,972	2.36
Tier 1 Power Strips	9,387	5,154	4,234	1.82
CFL Bulbs (carryover from 2016)	780	151	629	5.16
Timers (carryover from 2016)	194	333	(139)	0.58
Administrative Costs	**0**	**623,970**	**(623,970)**	**0.00**
Total Power of One Home	**10,776,575**	**2,913,098**	**7,863,477**	**3.70**

All values are discounted to 2017

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Power of One Home Project				
	Ratepayer Impact Test			
	Benefits ($)	Costs ($)	Net Benefits ($)	B/C Ratio
Lighting	**3,234,197**	**8,138,789**	**(4,904,592)**	**0.40**
CFL Bulbs	13,251	34,153	(20,902)	0.39
LED Bulbs	3,109,762	7,805,014	(4,695,252)	0.40
LED Fixtures	105,431	271,034	(165,603)	0.39
LED Outdoor Fixtures	1,085	3,560	(2,475)	0.30
LED Holiday Lights (carryover from 2016)	4,668	16,067	(11,399)	0.29
Bulb Recycling	0	8,962	(8,962)	0.00
Appliances	**364,865**	**1,086,188**	**(721,323)**	**0.34**
Refrigerators	28,355	84,160	(55,805)	0.34
Freezers	1,743	6,041	(4,298)	0.29
Refrigerator Turn-ins	252,232	754,951	(502,719)	0.33
Freezer Turn-ins	75,366	218,075	(142,709)	0.35
Clothes Washers (carryover from 2016)	6,503	21,814	(15,311)	0.30
Window AC Turn-ins (carryover from 2016)	666	1,146	(480)	0.58
HVAC and Controls	**1,151,959**	**2,613,816**	**(1,461,857)**	**0.44**
CAC - Proper Installation	37,521	48,541	(11,020)	0.77
ASHP - Proper Installation	23,276	54,003	(30,727)	0.43
GSHP - Open Loop	21,658	53,541	(31,883)	0.40
GSHP - Closed Loop	63,586	161,578	(97,992)	0.39
GSHP - Replacement Heat Pump	5,379	13,858	(8,479)	0.39
ASHP - Ducted	13,941	33,551	(19,610)	0.42
ASHP - Ductless	534,553	1,346,482	(811,929)	0.40
Dehumidifiers	77,294	95,622	(18,328)	0.81
ECM - New Furnace	370,894	797,455	(426,561)	0.47
ECM - Replacement Motor	685	1,492	(807)	0.46
Thermostats with Electric Heating	3,171	7,693	(4,523)	0.41
Home Performance	**49,172**	**133,327**	**(84,156)**	**0.37**
Triple E - Level 2 Projects	49,172	133,327	(84,156)	0.37
Water Heating	**2,112**	**5,460**	**(3,348)**	**0.39**
Heat Pump Water Heater	2,112	5,460	(3,348)	0.39
Energy Efficiency Products and Kits	**58,093**	**163,113**	**(105,020)**	**0.36**
Smart Paks	27,821	75,598	(47,777)	0.37
Starter Kits	30,272	87,515	(57,243)	0.35
Direct Install	**140,388**	**382,479**	**(242,091)**	**0.37**
Pipe Insulation	17,717	45,126	(27,409)	0.39
Showerheads	34,332	91,072	(56,741)	0.38
Thermostatic Restriction Showerheads	5,756	15,617	(9,861)	0.37
Aerators	11,539	30,592	(19,052)	0.38
Water Heater Temperature Set-backs	770	2,761	(1,991)	0.28
LED Bulbs	47,568	127,201	(79,633)	0.37
Shower Timers	5,926	16,802	(10,876)	0.35
Refrigerator Thermometers	5,715	16,402	(10,687)	0.35
Enable Power Management	3,104	10,135	(7,031)	0.31
Tier 1 Power Strips	7,447	24,979	(17,532)	0.30
CFL Bulbs (carryover from 2016)	347	1,005	(657)	0.35
Timers (carryover from 2016)	166	788	(622)	0.21
Administrative Costs	**0**	**623,970**	**(623,970)**	**0.00**
Total Power of One Home	**5,000,786**	**13,147,142**	**(8,146,357)**	**0.38**

All values are discounted to 2017

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Power of One Home Project				
	Participant Test			
	Benefits ($)	Costs ($)	Net Benefits ($)	B/C Ratio
Lighting	**15,200,240**	**1,431,187**	**13,769,053**	**10.62**
CFL Bulbs	54,145	1,864	52,281	29.05
LED Bulbs	14,609,272	1,330,900	13,278,372	10.98
LED Fixtures	496,513	90,080	406,433	5.51
LED Outdoor Fixtures	6,012	720	5,292	8.35
LED Holiday Lights (carryover from 2016)	25,337	7,623	17,713	3.32
Bulb Recycling	8,962	0	8,962	inf
Appliances	**1,274,732**	**130,535**	**1,144,197**	**9.77**
Refrigerators	110,057	17,160	92,897	6.41
Freezers	7,248	1,720	5,528	4.21
Refrigerator Turn-ins	875,600	84,450	791,150	10.37
Freezer Turn-ins	254,125	20,425	233,700	12.44
Clothes Washers (carryover from 2016)	26,489	6,450	20,039	4.11
Window AC Turn-ins (carryover from 2016)	1,213	330	883	3.67
HVAC and Controls	**3,881,286**	**617,312**	**3,263,974**	**6.29**
CAC - Proper Installation	69,101	41,500	27,601	1.67
ASHP - Proper Installation	81,236	3,500	77,736	23.21
GSHP - Open Loop	84,293	4,950	79,343	17.03
GSHP - Closed Loop	251,799	15,120	236,679	16.65
GSHP - Replacement Heat Pump	21,516	2,552	18,964	8.43
ASHP - Ducted	49,773	5,940	43,833	8.38
ASHP - Ductless	2,018,072	378,000	1,640,072	5.34
Dehumidifiers	122,360	11,480	110,880	10.66
ECM - New Furnace	1,171,826	152,250	1,019,576	7.70
ECM - Replacement Motor	1,769	370	1,399	4.78
Thermostats with Electric Heating	9,543	1,650	7,893	5.78
Home Performance	**203,149**	**55,890**	**147,259**	**3.63**
Triple E - Level 2 Projects	203,149	55,890	147,259	3.63
Water Heating	**7,300**	**2,352**	**4,948**	**3.10**
Heat Pump Water Heater	7,300	2,352	4,948	3.10
Energy Efficiency Products and Kits	**189,821**	**13,143**	**176,678**	**14.44**
Smart Paks	87,415	3,120	84,295	28.02
Starter Kits	102,407	10,023	92,384	10.22
Direct Install	**544,148**	**38,409**	**505,738**	**14.17**
Pipe Insulation	60,559	8,761	51,797	6.91
Showerheads	113,162	3,825	109,337	29.59
Thermostatic Restriction Showerheads	19,320	989	18,332	19.54
Aerators	38,016	1,249	36,767	30.43
Water Heater Temperature Set-backs	2,818	624	2,194	4.52
LED Bulbs	233,623	13,572	220,051	17.21
Shower Timers	17,659	881	16,779	20.05
Refrigerator Thermometers	17,210	1,417	15,793	12.15
Enable Power Management	10,602	1,454	9,148	7.29
Tier 1 Power Strips	28,814	5,154	23,660	5.59
CFL Bulbs (carryover from 2016)	1,529	151	1,377	10.10
Timers (carryover from 2016)	837	333	504	2.52
Administrative Costs	**0**	**0**	**0**	**inf**
Total Power of One Home	**21,300,676**	**2,288,829**	**19,011,847**	**9.31**

All values are discounted to 2017

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Minnesota Power 2017 CIP Status Energy Partners Project					
	2017 Annual Energy Savings				
	Meter			Busbar	
	(KWh)	(KW)		(KWh)	(KW)
Lighting	**430,319**	**48.4**		**475,478**	**53.5**
CFL Bulbs	188,356	21.2		208,123	23.4
LED Bulbs	169,029	19.0		186,767	21.0
Torchieres - CFL	48,863	5.5		53,991	6.1
Torchieres - LED	13,880	1.6		15,337	1.7
LED Desk and Table Lamps	10,191	1.1		11,260	1.3
HVAC and Controls	**7,022**	**4.7**		**7,759**	**5.1**
Dehumidifiers	4,107	4.7		4,538	5.1
Tier 1 Programmable Thermostats	2,915	0.0		3,221	0.0
Appliances	**150,911**	**16.9**		**166,748**	**18.6**
21 cu ft Refrigerator Replacements	427	0.0		472	0.1
18 cu ft Refrigerator Replacements	32,508	3.7		35,919	4.0
15 cu ft Refrigerator Replacements	8,800	1.0		9,723	1.1
15 cu ft Freezer Replacements	3,324	0.4		3,673	0.4
5-9 cu ft Freezer Replacements	1,881	0.2		2,078	0.2
Refrigerator Turn-ins	85,095	9.6		94,025	10.6
Freezer Turn-ins	15,876	1.8		17,542	2.0
Refrigerators Metered	0	0.0		0	0.0
Microwave Ovens	3,000	0.2		3,315	0.2
Water Heating	**293,851**	**24.4**		**324,689**	**26.9**
Showerheads	144,965	12.0		160,178	13.3
Aerators	68,464	5.7		75,649	6.3
Pipe Wrap Insulation Installed (Feet)	9,108	0.8		10,064	0.8
Shower Timers	70,124	5.8		77,483	6.4
Temperature Set-back	1,190	0.1		1,315	0.1
Energy Efficiency Products and Kits	**320,390**	**34.2**		**354,013**	**37.8**
Energy Expo Kits	124,002	12.0		137,015	13.2
Refrigerator Thermometers	82,175	9.3		90,799	10.2
Indoor Timers (Carryover from 2016)	23,265	2.7		25,706	2.9
Tier 1 Power Strips	90,948	10.4		100,492	11.5
Multifamily	**117,519**	**13.2**		**129,852**	**14.6**
CFL Bulbs	5,910	0.7		6,530	0.7
LED Bulbs	31,907	3.6		35,255	4.0
Torchieres - CFL	10,611	1.2		11,725	1.3
Refrigerator Turn-ins	64,050	7.2		70,772	8.0
Refrigerator Thermometers	1,805	0.2		1,994	0.2
LED Desk and Table Lamps	2,494	0.3		2,756	0.3
Tier 1 Power Strips	742	0.1		820	0.1
Administrative Costs	**0**	**0.0**		**0**	**0.0**
Total Energy Partners	**1,320,012**	**141.8**		**1,458,538**	**156.7**

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Minnesota Power 2017 CIP Status Energy Partners Project				
	Utility Test			
	Benefits ($)	**Costs ($)**	**Net Benefits ($)**	**B/C Ratio**
Lighting	**201,974**	**100,831**	**101,143**	**2.00**
CFL Bulbs	67,985	22,481	45,504	3.02
LED Bulbs	104,123	27,168	76,955	3.83
Torchieres - CFL	17,637	19,396	(1,759)	0.91
Torchieres - LED	8,550	20,647	(12,096)	0.41
LED Desk and Table Lamps	3,678	11,139	(7,461)	0.33
HVAC and Controls	**5,187**	**9,275**	**(4,088)**	**0.56**
Dehumidifiers	4,097	9,075	(4,978)	0.45
Tier 1 Programmable Thermostats	1,091	200	891	5.45
Appliances	**57,620**	**106,496**	**(48,876)**	**0.54**
21 cu ft Refrigerator Replacements	215	908	(693)	0.24
18 cu ft Refrigerator Replacements	16,402	66,023	(49,621)	0.25
15 cu ft Refrigerator Replacements	4,440	16,883	(12,443)	0.26
15 cu ft Freezer Replacements	1,404	6,231	(4,827)	0.23
5-9 cu ft Freezer Replacements	794	2,204	(1,410)	0.36
Refrigerator Turn-ins	27,859	8,370	19,489	3.33
Freezer Turn-ins	5,198	1,260	3,938	4.13
Refrigerators Metered	0	4,200	(4,200)	0.00
Microwave Ovens	1,308	417	891	3.14
Water Heating	**94,163**	**10,578**	**83,585**	**8.90**
Showerheads	54,781	6,004	48,777	9.12
Aerators	25,872	2,995	22,877	8.64
Pipe Wrap Insulation Installed (Feet)	4,196	115	4,081	36.54
Shower Timers	9,210	1,380	7,830	6.67
Temperature Set-back	104	84	20	1.23
Energy Efficiency Products and Kits	**103,770**	**43,676**	**60,095**	**2.38**
Energy Expo Kits	57,975	12,373	45,602	4.69
Refrigerator Thermometers	11,060	2,621	8,439	4.22
Indoor Timers (Carryover from 2016)	7,076	8,965	(1,889)	0.79
Tier 1 Power Strips	27,660	19,717	7,943	1.40
Multifamily	**47,956**	**20,185**	**27,772**	**2.38**
CFL Bulbs	2,133	433	1,700	4.92
LED Bulbs	19,655	6,845	12,810	2.87
Torchieres - CFL	3,830	3,807	23	1.01
Refrigerator Turn-ins	20,969	6,300	14,669	3.33
Refrigerator Thermometers	243	58	185	4.22
LED Desk and Table Lamps	900	2,581	(1,681)	0.35
Tier 1 Power Strips	226	161	65	1.40
Administrative Costs	**0**	**75,931**	**(75,931)**	**0.00**
Total Energy Partners	**510,671**	**366,971**	**143,700**	**1.39**

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Minnesota Power 2017 CIP Status Energy Partners Project				
	Societal Test			
	Benefits ($)	**Costs ($)**	**Net Benefits ($)**	**B/C Ratio**
Lighting	**461,755**	**81,581**	**380,174**	**5.66**
CFL Bulbs	145,322	22,481	122,841	6.46
LED Bulbs	263,160	27,168	235,991	9.69
Torchieres - CFL	27,877	11,190	16,687	2.49
Torchieres - LED	18,202	13,394	4,808	1.36
LED Desk and Table Lamps	7,193	7,347	(154)	0.98
HVAC and Controls	**7,015**	**880**	**6,135**	**7.97**
Dehumidifiers	5,577	680	4,897	8.20
Tier 1 Programmable Thermostats	1,439	200	1,239	7.19
Appliances	**153,766**	**109,336**	**44,430**	**1.41**
21 cu ft Refrigerator Replacements	908	928	(20)	0.98
18 cu ft Refrigerator Replacements	75,056	67,720	7,336	1.11
15 cu ft Refrigerator Replacements	21,345	17,376	3,969	1.23
15 cu ft Freezer Replacements	7,729	6,591	1,138	1.17
5-9 cu ft Freezer Replacements	5,449	2,474	2,975	2.20
Refrigerator Turn-ins	35,027	8,370	26,657	4.18
Freezer Turn-ins	6,535	1,260	5,275	5.19
Refrigerators Metered	0	4,200	(4,200)	0.00
Microwave Ovens	1,716	417	1,299	4.12
Water Heating	**122,444**	**10,464**	**111,981**	**11.70**
Showerheads	72,175	6,004	66,170	12.02
Aerators	34,087	2,995	31,091	11.38
Pipe Wrap Insulation Installed (Feet)	5,924	0	5,924	#DIV/0!
Shower Timers	10,148	1,380	8,768	7.35
Temperature Set-back	112	84	28	1.33
Energy Efficiency Products and Kits	**178,221**	**43,678**	**134,543**	**4.08**
Energy Expo Kits	122,256	12,375	109,881	9.88
Refrigerator Thermometers	12,178	2,621	9,557	4.65
Indoor Timers (Carryover from 2016)	8,919	8,965	(46)	0.99
Tier 1 Power Strips	34,867	19,717	15,150	1.77
Multifamily	**83,539**	**17,475**	**66,065**	**4.78**
CFL Bulbs	4,620	433	4,187	10.66
LED Bulbs	44,189	6,845	37,344	6.46
Torchieres - CFL	6,054	2,025	4,029	2.99
Refrigerator Turn-ins	26,364	6,300	20,064	4.18
Refrigerator Thermometers	267	58	210	4.65
LED Desk and Table Lamps	1,760	1,653	107	1.06
Tier 1 Power Strips	284	161	124	1.77
Administrative Costs	**0**	**75,931**	**(75,931)**	**0.00**
Total Energy Partners	**1,006,741**	**339,343**	**667,398**	**2.97**

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Minnesota Power 2017 CIP Status Energy Partners Project				
	Ratepayer Impact Test			
	Benefits ($)	**Costs ($)**	**Net Benefits ($)**	**B/C Ratio**
Lighting	**201,974**	**589,439**	**(387,465)**	**0.34**
CFL Bulbs	67,985	189,557	(121,572)	0.36
LED Bulbs	104,123	275,894	(171,770)	0.38
Torchieres - CFL	17,637	62,739	(45,102)	0.28
Torchieres - LED	8,550	41,071	(32,521)	0.21
LED Desk and Table Lamps	3,678	20,179	(16,500)	0.18
HVAC and Controls	**5,187**	**16,575**	**(11,388)**	**0.31**
Dehumidifiers	4,097	13,576	(9,479)	0.30
Tier 1 Programmable Thermostats	1,091	2,999	(1,909)	0.36
Appliances	**57,620**	**247,317**	**(189,697)**	**0.23**
21 cu ft Refrigerator Replacements	215	1,428	(1,213)	0.15
18 cu ft Refrigerator Replacements	16,402	105,609	(89,207)	0.16
15 cu ft Refrigerator Replacements	4,440	27,599	(23,159)	0.16
15 cu ft Freezer Replacements	1,404	9,654	(8,251)	0.15
5-9 cu ft Freezer Replacements	794	4,141	(3,347)	0.19
Refrigerator Turn-ins	27,859	77,272	(49,413)	0.36
Freezer Turn-ins	5,198	14,115	(8,917)	0.37
Refrigerators Metered	0	4,200	(4,200)	0.00
Microwave Ovens	1,308	3,298	(1,990)	0.40
Water Heating	**94,163**	**251,127**	**(156,964)**	**0.37**
Showerheads	54,781	145,221	(90,439)	0.38
Aerators	25,872	68,745	(42,872)	0.38
Pipe Wrap Insulation Installed (Feet)	4,196	10,666	(6,469)	0.39
Shower Timers	9,210	26,125	(16,915)	0.35
Temperature Set-back	104	372	(268)	0.28
Energy Efficiency Products and Kits	**103,770**	**308,796**	**(205,025)**	**0.34**
Energy Expo Kits	57,975	156,017	(98,042)	0.37
Refrigerator Thermometers	11,060	31,618	(20,558)	0.35
Indoor Timers (Carryover from 2016)	7,076	27,803	(20,727)	0.25
Tier 1 Power Strips	27,660	93,358	(65,698)	0.30
Multifamily	**47,956**	**137,102**	**(89,146)**	**0.35**
CFL Bulbs	2,133	5,676	(3,543)	0.38
LED Bulbs	19,655	53,796	(34,141)	0.37
Torchieres - CFL	3,830	13,219	(9,389)	0.29
Refrigerator Turn-ins	20,969	58,162	(37,192)	0.36
Refrigerator Thermometers	243	694	(452)	0.35
LED Desk and Table Lamps	900	4,793	(3,893)	0.19
Tier 1 Power Strips	226	762	(536)	0.30
Administrative Costs	**0**	**75,931**	**(75,931)**	**0.00**
Total Energy Partners	**510,671**	**1,626,286**	**(1,115,615)**	**0.31**

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Minnesota Power 2017 CIP Status Energy Partners Project				
	Participant Test			
	Benefits ($)	Costs ($)	Net Benefits ($)	B/C Ratio
Lighting	**949,942**	**81,581**	**868,361**	**11.64**
CFL Bulbs	284,642	22,481	262,161	12.66
LED Bulbs	506,466	27,168	479,297	18.64
Torchieres - CFL	77,583	11,190	66,393	6.93
Torchieres - LED	56,597	13,394	43,203	4.23
LED Desk and Table Lamps	24,654	7,347	17,307	3.36
HVAC and Controls	**18,701**	**880**	**17,821**	**21.25**
Dehumidifiers	14,993	680	14,313	22.05
Tier 1 Programmable Thermostats	3,708	200	3,508	18.54
Appliances	**357,534**	**105,136**	**252,398**	**3.40**
21 cu ft Refrigerator Replacements	2,222	928	1,294	2.39
18 cu ft Refrigerator Replacements	171,964	67,720	104,244	2.54
15 cu ft Refrigerator Replacements	46,588	17,376	29,212	2.68
15 cu ft Freezer Replacements	16,464	6,591	9,873	2.50
5-9 cu ft Freezer Replacements	9,069	2,474	6,595	3.67
Refrigerator Turn-ins	90,598	8,370	82,228	10.82
Freezer Turn-ins	16,601	1,260	15,341	13.18
Refrigerators Metered	0	0	0	inf
Microwave Ovens	4,027	417	3,610	9.66
Water Heating	**308,016**	**10,464**	**297,553**	**29.44**
Showerheads	180,468	6,004	174,464	30.06
Aerators	85,391	2,995	82,396	28.51
Pipe Wrap Insulation Installed (Feet)	14,321	0	14,321	#DIV/0!
Shower Timers	27,458	1,380	26,078	19.90
Temperature Set-back	379	84	295	4.52
Energy Efficiency Products and Kits	**418,392**	**43,678**	**374,714**	**9.58**
Energy Expo Kits	246,165	12,375	233,790	19.89
Refrigerator Thermometers	33,180	2,621	30,559	12.66
Indoor Timers (Carryover from 2016)	31,446	8,965	22,481	3.51
Tier 1 Power Strips	107,601	19,717	87,884	5.46
Multifamily	**192,683**	**17,475**	**175,208**	**11.03**
CFL Bulbs	8,720	433	8,286	20.12
LED Bulbs	91,833	6,845	84,988	13.42
Torchieres - CFL	16,443	2,025	14,418	8.12
Refrigerator Turn-ins	68,192	6,300	61,892	10.82
Refrigerator Thermometers	729	58	671	12.66
LED Desk and Table Lamps	5,888	1,653	4,235	3.56
Tier 1 Power Strips	878	161	717	5.46
Administrative Costs	**0**	**0**	**0**	**inf**
Total Energy Partners	**2,245,268**	**259,212**	**1,986,055**	**8.66**

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Minnesota Power 2017 CIP Status Power of One Business Project					
	2017 Annual Energy Savings				
	Meter			Busbar	
	(KWh)	(KW)		(KWh)	(KW)
Lighting	**35,827,044**	**5,050.2**		**39,586,841**	**5,580.2**
Energy Efficient Fluorescent	413,332	60.3		456,708	66.6
LED	8,465,114	1,353.7		9,353,468	1,495.8
LED Outdoor	214,758	0.0		237,295	0.0
Mixed Energy Efficient Lighting	26,577,268	3,636.2		29,366,366	4,017.8
Lighting Controls	156,572	0.0		173,003	0.0
Refrigeration	**1,608,473**	**123.7**		**1,777,271**	**136.6**
Refrigeration Improvement	1,068,078	76.2		1,180,165	84.2
Refrigeration Controls	540,395	47.4		597,106	52.4
Motors / Pumps	**11,424,990**	**373.1**		**12,623,963**	**412.3**
Standard to Eff Motor	1,652,129	339.7		1,825,508	375.3
Standard to VSD Motor	9,014,504	0.9		9,960,513	1.0
Motor Controls	758,357	32.6		837,941	36.0
HVAC	**2,555,438**	**517.4**		**2,823,613**	**571.7**
AC Improvements	1,631,023	428.9		1,802,187	473.9
Miscellaneous HVAC	152,958	24.7		169,010	27.3
Heat Pump - Cooling and Heating	107,256	39.8		118,512	44.0
AC/HVAC/EMS Controls	664,201	24.0		733,904	26.5
Miscellaneous	**3,630,993**	**400.4**		**4,012,040**	**442.5**
Compressed Air	1,120,422	64.7		1,238,002	71.5
Process Improvements	628,604	35.3		694,572	39.1
Appliances	455,428	55.3		503,222	61.1
Shell Measures	352,173	125.8		389,131	139.0
Heat Recovery	6,722	0.0		7,427	0.0
Miscellaneous Controls	1,067,644	119.3		1,179,686	131.8
Minnesota Power Projects*	**430,297**	**86.2**		**475,454**	**95.3**
Administrative Costs	**0**	**0.0**		**0**	**0.0**
Total Power of One Business	**55,477,235**	**6,551.0**		**61,299,182**	**7,238.4**

* In compliance with Order Points 1 & 2 from 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 were excluded for the purpose of the financial incentive calculation.

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Minnesota Power 2017 CIP Status Power of One Business Project				
	Utility Test			
	Benefits ($)	**Costs ($)**	**Net Benefits ($)**	**B/C Ratio**
Lighting	**16,125,053**	**1,600,712**	**14,524,341**	**10.07**
Energy Efficient Fluorescent	193,730	15,796	177,934	12.26
LED	4,077,073	414,328	3,662,746	9.84
LED Outdoor	64,421	12,934	51,487	4.98
Mixed Energy Efficient Lighting	11,752,141	1,150,329	10,601,813	10.22
Lighting Controls	37,688	7,325	30,363	5.14
Refrigeration	**726,489**	**57,226**	**669,263**	**12.70**
Refrigeration Improvement	475,606	38,313	437,294	12.41
Refrigeration Controls	250,883	18,914	231,969	13.26
Motors / Pumps	**4,561,106**	**468,210**	**4,092,896**	**9.74**
Standard to Eff Motor	977,562	111,517	866,045	8.77
Standard to VSD Motor	3,270,710	326,730	2,943,980	10.01
Motor Controls	312,834	29,963	282,871	10.44
HVAC	**1,363,396**	**165,539**	**1,197,856**	**8.24**
AC Improvements	917,676	124,098	793,578	7.39
Miscellaneous HVAC	75,804	8,840	66,964	8.58
Heat Pump - Cooling and Heating	83,843	7,874	75,969	10.65
AC/HVAC/EMS Controls	286,073	24,727	261,346	11.57
Miscellaneous	**1,703,182**	**164,712**	**1,538,470**	**10.34**
Compressed Air Upgrades	477,845	32,574	445,271	14.67
Process Improvements	200,471	20,782	179,689	9.65
Appliances	229,247	50,480	178,767	4.54
Shell Measures	248,328	12,326	236,002	20.15
Heat Recovery	2,417	235	2,182	10.27
Miscellaneous Controls	544,875	48,315	496,560	11.28
Minnesota Power Projects*	**227,319**	**19,054**	**208,265**	**11.93**
Administrative Costs	**0**	**1,216,330**	**(1,216,330)**	**0.00**
Total Power of One Business	**24,706,546**	**3,691,784**	**21,014,762**	**6.69**

All values are discounted to 2017

* In compliance with Order Points 1 & 2 from 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 were excluded for the purpose of the financial incentive calculation. Utility Test Net Benefits for Total Plan used in the financial incentive calculation were $20,806,497.

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Power of One Business Project				
	Societal Test			
	Benefits ($)	**Costs ($)**	**Net Benefits ($)**	**B/C Ratio**
Lighting	**22,230,813**	**10,521,198**	**11,709,615**	**2.11**
Energy Efficient Fluorescent	266,839	116,191	150,648	2.30
LED	5,608,642	2,377,154	3,231,488	2.36
LED Outdoor	90,132	69,481	20,651	1.30
Mixed Energy Efficient Lighting	16,217,383	7,918,278	8,299,105	2.05
Lighting Controls	47,817	40,093	7,724	1.19
Refrigeration	**1,076,450**	**850,823**	**225,626**	**1.27**
Refrigeration Improvement	704,883	754,280	(49,397)	0.93
Refrigeration Controls	371,566	96,543	275,023	3.85
Motors / Pumps	**6,773,072**	**2,610,851**	**4,162,221**	**2.59**
Standard to Eff Motor	1,442,584	663,724	778,860	2.17
Standard to VSD Motor	4,866,221	1,714,051	3,152,170	2.84
Motor Controls	464,267	233,076	231,191	1.99
HVAC	**2,010,877**	**1,224,944**	**785,933**	**1.64**
AC Improvements	1,352,310	724,131	628,179	1.87
Miscellaneous HVAC	111,918	77,276	34,642	1.45
Heat Pump - Cooling and Heating	123,184	66,328	56,856	1.86
AC/HVAC/EMS Controls	423,465	357,209	66,256	1.19
Miscellaneous	**2,486,897**	**1,349,565**	**1,137,332**	**1.84**
Compressed Air Upgrades	708,708	173,400	535,308	4.09
Process Improvements	265,482	404,425	(138,943)	0.66
Appliances	339,089	322,107	16,982	1.05
Shell Measures	365,087	103,382	261,704	3.53
Heat Recovery	3,598	1,618	1,980	2.22
Miscellaneous Controls	804,934	344,632	460,301	2.34
Minnesota Power Projects	**320,197**	**189,144**	**131,053**	**1.69**
Administrative Costs	**0**	**1,216,330**	**(1,216,330)**	**0.00**
Total Power of One Business	**34,898,305**	**17,962,854**	**16,935,451**	**1.94**

All values are discounted to 2017

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Power of One Business Project				
	Ratepayer Impact Test			
	Benefits ($)	**Costs ($)**	**Net Benefits ($)**	**B/C Ratio**
Lighting	**16,125,053**	**33,521,610**	**(17,396,557)**	**0.48**
Energy Efficient Fluorescent	193,730	429,190	(235,460)	0.45
LED	4,077,073	8,178,077	(4,101,004)	0.50
LED Outdoor	64,421	208,648	(144,227)	0.31
Mixed Energy Efficient Lighting	11,752,141	24,600,632	(12,848,491)	0.48
Lighting Controls	37,688	105,063	(67,374)	0.36
Refrigeration	**726,489**	**1,868,802**	**(1,142,313)**	**0.39**
Refrigeration Improvement	475,606	1,213,533	(737,926)	0.39
Refrigeration Controls	250,883	655,269	(404,386)	0.38
Motors / Pumps	**4,561,106**	**11,967,249**	**(7,406,142)**	**0.38**
Standard to Eff Motor	977,562	1,813,411	(835,849)	0.54
Standard to VSD Motor	3,270,710	9,333,552	(6,062,842)	0.35
Motor Controls	312,834	820,285	(507,451)	0.38
HVAC	**1,363,396**	**2,868,449**	**(1,505,054)**	**0.48**
AC Improvements	917,676	1,898,294	(980,618)	0.48
Miscellaneous HVAC	75,804	156,930	(81,126)	0.48
Heat Pump - Cooling and Heating	83,843	123,267	(39,424)	0.68
AC/HVAC/EMS Controls	286,073	689,958	(403,885)	0.41
Miscellaneous	**1,703,182**	**3,711,066**	**(2,007,884)**	**0.46**
Compressed Air Upgrades	477,845	1,070,625	(592,780)	0.45
Process Improvements	200,471	588,186	(387,716)	0.34
Appliances	229,247	566,068	(336,821)	0.40
Shell Measures	248,328	350,748	(102,420)	0.71
Heat Recovery	2,417	8,284	(5,868)	0.29
Miscellaneous Controls	544,875	1,127,155	(582,280)	0.48
Minnesota Power Projects	**227,319**	**481,064**	**(253,745)**	**0.47**
Administrative Costs	**0**	**1,216,330**	**(1,216,330)**	**0.00**
Total Power of One Business	**24,706,546**	**55,634,570**	**(30,928,024)**	**0.44**

All values are discounted to 2017

Final Results
March 19, 2018

Minnesota Power 2017 CIP Status Power of One Business Project				
	Participant Test			
	Benefits ($)	**Costs ($)**	**Net Benefits ($)**	**B/C Ratio**
Lighting	**33,521,610**	**10,521,198**	**23,000,413**	**3.19**
Energy Efficient Fluorescent	429,190	116,191	312,999	3.69
LED	8,178,077	2,377,154	5,800,923	3.44
LED Outdoor	208,648	69,481	139,167	3.00
Mixed Energy Efficient Lighting	24,600,632	7,918,278	16,682,354	3.11
Lighting Controls	105,063	40,093	64,969	2.62
Refrigeration	**1,868,802**	**850,823**	**1,017,979**	**2.20**
Refrigeration Improvement	1,213,533	754,280	459,253	1.61
Refrigeration Controls	655,269	96,543	558,726	6.79
Motors / Pumps	**11,967,249**	**2,610,851**	**9,356,397**	**4.58**
Standard to Eff Motor	1,813,411	663,724	1,149,687	2.73
Standard to VSD Motor	9,333,552	1,714,051	7,619,501	5.45
Motor Controls	820,285	233,076	587,209	3.52
HVAC	**2,868,449**	**1,224,944**	**1,643,505**	**2.34**
AC Improvements	1,898,294	724,131	1,174,163	2.62
Miscellaneous HVAC	156,930	77,276	79,654	2.03
Heat Pump - Cooling and Heating	123,267	66,328	56,939	1.86
AC/HVAC/EMS Controls	689,958	357,209	332,749	1.93
Miscellaneous	**3,711,066**	**1,349,565**	**2,361,501**	**2.75**
Compressed Air Upgrades	1,070,625	173,400	897,225	6.17
Process Improvements	588,186	404,425	183,761	1.45
Appliances	566,068	322,107	243,961	1.76
Shell Measures	350,748	103,382	247,366	3.39
Heat Recovery	8,284	1,618	6,666	5.12
Miscellaneous Controls	1,127,155	344,632	782,522	3.27
Minnesota Power Projects	**481,064**	**189,144**	**291,921**	**2.54**
Administrative Costs	**0**	**0**	**0**	**inf**
Total Power of One Business	**54,418,240**	**16,746,525**	**37,671,716**	**3.25**

All values are discounted to 2017

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	Tina S. Koecher
Contact Title	Manager - Customer Solutions
Telephone	(218) 355-3805
Fax	(218) 723-3984
Email Address	tkoecher@mnpower.com

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 & 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	
Annual Energy Savings - (Gen kWh)	
Annual Demand Savings - (Gen kW)	

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

	Project Name	Status (indicate with "X" below) 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 Proposed	2017 Approved	2017 Actual	2018 Proposed	2018 Approved	2018 Actual	2019 Proposed	2019 Approved	2019 Actual
Project Type -- Enter "X"									
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		
Cost Components -- Enter Dollars									
Project Delivery	970,000	970,000	548,712	977,650			985,530		
Utility Administration	62,500	62,500	63,685	64,375			66,310		
Evaluation Labor									
Advertising & Promotion	61,000	61,000	11,873	61,000			61,000		
Participant Incentives	1,264,412	1,264,412	864,111	1,264,412			1,264,412		
R&D									
Other									
Total Costs	$2,357,912	$2,357,912	$1,488,380	$2,367,437	$0	$0	$2,377,252	$0	$0
Project Participants									
Total Participants (Measures)	151,053	122,841	168,322	151,053			151,053		
% of Spending by Customer Segment									
Residential	100%	100%	100%	100%			100%		
Commercial									
Industrial									
Farm									
Other									
Total % of Spending (must equal 100%)	100%	100%	100%	100%	0%	0%	100%	0%	0%
Low-Income & Renter Participation									
Participants % (% of Row 31)			5%						
Budget % (% of Row 29)			6%						
End-Use Target -- Enter "X" or %									
Building Efficiency	X	X	X	X			X		
Compressed Air									
Energy Star Appliances	X	X	X	X			X		
Lighting	X	X	X	X			X		
Motors (including ASD, Fans, Pumps)	X	X	X	X			X		
Manufacturing Process									
Refrigeration	X	X	X	X			X		
Space Cooling	X	X	X	X			X		
Space Heating	X	X	X	X			X		
Water Heating	X	X	8	X			X		
Weatherization	X	X	X	X			X		
General/Other	X	X	X	X			X		
Energy and Demand Savings - Generator									
Average Annual kWh Savings per Participant	70	86	57	70	0	0	70	0	0
Annual kWh Saved - Generator	10,590,448	10,590,448	9,614,443	10,590,448			10,590,448		
Cost per Annual kWh Saved	$0.2226	$0.2226	$0.1548	$0.2235	$0.0000	$0.0000	$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	0.00	0.00	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		
Cost per KW Saved	$2,094.99	$2,094.99	$1,241.42	$2,103.45	$0.00	$0.00	$2,112.17	$0.00	$0.00
Cost/Benefit Results	3 Years	3 Years	1 Year	3 Years	3 Years	1 Year	3 Years	3 Years	1 Year
Societal									
Net present value	21,545,366	21,574,277	7,863,477	21,545,366			21,545,366		
B/C ratio	2.92	2.92	3.70	2.92			2.92		
Participant									
Net present value	59,223,016	59,223,016	19,011,847	59,223,016			59,223,016		
B/C ratio	8.42	8.42	9.31	8.42			8.42		
Rate Payer									
Net present value	(26,765,669)	(26,737,257)	(8,146,357)	(26,765,669)			(26,765,669)		
B/C ratio	0.37	0.37	0.38	0.37			0.37		
Utility									
Net present value	8,858,496	8,886,909	3,512,405	8,858,496			8,858,496		
B/C ratio	2.34	2.35	3.36	2.34			2.34		

Electric Conservation Project Information Sheet

2017/2018/2019 Cons1 BudgtSavgs

Utility Name: Minnesota Power
Project Name: Energy Partners - Low Income
Project Description: 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.
Type Conservation
Status: Existing

	2017 Proposed	2017 Approved	2017 Actual	2018 Proposed	2018 Approved	2018 Actual	2019 Proposed	2019 Approved	2019 Actual
Project Type -- Enter "X"									
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		
Cost Components -- Enter Dollars									
Project Delivery	67,030	67,030	63,560	68,245			69,495		
Utility Administration	20,430	20,430	15,676	21,045			21,675		
Evaluation Labor									
Advertising & Promotion									
Participant Incentives	305,860	305,860	287,735	305,860			305,860		
R&D									
Other									
Total Costs	$393,320	$393,320	$366,971	$395,150	$0	$0	$397,030	$0	$0
Project Participants									
Total Participants (Measures)	7,229	7,229	18,137	7,229			7,229		
% of Spending by Customer Segment									
Residential	100%	100%	100%	100%			100%		
Commercial									
Industrial									
Farm									
Other									
Total % of Spending (must equal 100%)	100%	100%	100%	100%	0%	0%	100%	0%	0%
Low-Income & Renter Participation									
Participants % (% of Row 31)	100%	100%	100%	100%			100%		
Budget % (% of Row 29)	100%	100%	100%	100%			100%		
End-Use Target -- Enter "X" or %									
Building Efficiency	X	X	X	X			X		
Compressed Air									
Energy Star Appliances	X	X	X	X			X		
Lighting	X	X	X	X			X		
Motors (including ASD, Fans, Pumps)									
Manufacturing Process									
Refrigeration	X	X	X	X			X		
Space Cooling	X	X	X	X			X		
Space Heating	X	X	X	X			X		
Water Heating	X	X	8	X			X		
Weatherization	X	X	X	X			X		
General/Other	X	X	X	X			X		
Energy and Demand Savings - Generator									
Average Annual kWh Savings per Participant	129	129	80	129	0	0	129	0	0
Annual kWh Saved - Generator	936,080	936,080	1,458,538	936,080			936,080		
Cost per Annual kWh Saved	$0.4202	$0.4202	$0.2516	$0.4221	$0.0000	$0.0000	$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	0.00	0.00	0.01	0.00	0.00
Annual kW Savings - Generator	105.2	105.2	156.7	105.2			105.2		
Cost per KW Saved	$3,738.78	$3,738.78	$2,342.35	$3,756.18	$0.00	$0.00	$3,774.05	$0.00	$0.00
Cost/Benefit Results	3 Years	3 Years	1 Year	3 Years	3 Years	1 Year	3 Years	3 Years	1 Year
Societal									
Net present value	823,722	829,266	667,398	823,722			823,722		
B/C ratio	1.78	1.79	2.97	1.78			1.78		
Participant									
Net present value	3,660,482	3,660,482	1,986,055	3,660,482			3,660,482		
B/C ratio	5.65	5.65	8.66	5.65			5.65		
Rate Payer									
Net present value	(2,389,981)	(2,384,533)	(1,115,615)	(2,389,981)			(2,389,981)		
B/C ratio	0.28	0.28	0.31	0.28			0.28		
Utility									
Net present value	(183,583)	(178,135)	143,700	(183,583)			(183,583)		
B/C ratio	0.83	0.84	1.39	0.83			0.83		

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 Proposed	2017 Approved	2017 Actual	2018 Proposed	2018 Approved	2018 Actual	2019 Proposed	2019 Approved	2019 Actual
Project Type -- Enter "X"									
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		
Cost Components -- Enter Dollars									
Project Delivery	1,305,655	1,305,655	981,371	1,360,100			1,417,055		
Utility Administration	100,000	100,000	100,137	103,000			106,095		
Evaluation Labor									
Advertising & Promotion	246,170	246,170	128,802	329,965			416,090		
Participant Incentives	2,626,368	2,626,368	2,475,454	2,626,368			2,626,368		
R&D									
Other (Edu)			6,020	0			0		
Total Costs	$4,278,193	$4,278,193	$3,691,784	$4,419,433	$0	$0	$4,565,608	$0	$0
Project Participants									
Total Participants (Projects)	3,366	3,366	905	3,366			3,366		
% of Spending by Customer Segment									
Residential									
Commercial	100%	100%	77%	100%			100%		
Industrial			23%						
Farm			0%						
Other									
Total % of Spending (must equal 100%)	100%	100%	100%	100%	0%	0%	100%	0%	0%
Low-Income & Renter Participation									
Participants % (% of Row 31)	0%	0%	0%	0%			0%		
Budget % (% of Row 29)	0%	0%	0%	0%			0%		
End-Use Target -- Enter "X" or %									
Building Efficiency	X	X	X	X			X		
Compressed Air	X	X	X	X			X		
Energy Star Appliances	X	X	X	X			X		
Lighting	X	X	X	X			X		
Motors (including ASD, Fans, Pumps)	X	X	X	X			X		
Manufacturing Process	X	X	X	X			X		
Refrigeration	X	X	X	X			X		
Space Cooling	X	X	X	X			X		
Space Heating	X	X	X	X			X		
Water Heating	X	X	8	X			X		
Weatherization	X	X	X	X			X		
General/Other	X	X	X	X			X		
Energy and Demand Savings - Generator									
Average Annual kWh Savings per Participant	13626	13626	67734	13626	0	0	13626	0	0
Annual kWh Saved - Generator	45,863,694	45,863,694	61,299,182	45,863,694			45,863,694		
Cost per Annual kWh Saved	$0.0933	$0.0933	$0.0602	$0.0964	$0.0000	$0.0000	$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	0.00	0.00	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		
Cost per KW Saved	$542.85	$542.85	$510.03	$560.77	$0.00	$0.00	$579.32	$0.00	$0.00
Cost/Benefit Results	3 Years	3 Years	1 Year	3 Years	3 Years	1 Year	3 Years	3 Years	1 Year
Societal									
Net present value	40,115,573	40,545,528	16,935,451	40,115,573			40,115,573		
B/C ratio	1.80	1.82	1.94	1.80			1.80		
Participant									
Net present value	80,548,320	80,548,320	37,671,716	80,548,320			80,548,320		
B/C ratio	2.91	2.91	3.25	2.91			2.91		
Rate Payer									
Net present value	(67,298,834)	(66,876,297)	(30,928,024)	(67,298,834)			(67,298,834)		
B/C ratio	0.47	0.48	0.44	0.47			0.47		
Utility									
Net present value	48,170,393	48,592,930	21,014,762	48,170,393			48,170,393		
B/C ratio	4.80	4.96	6.69	4.80			4.80		

Electric Conservation Project Information Sheet

2017/2018/2019 Cons1 BudgtSavgs

Utility Name: Minnesota Power
Project Name: Customer Engagement
Project Description: This Project is focused on educational outreach and communications via multi-modal marketing channels to increase awareness of Power of One® programs.
Type Conservation
Status: Existing

	2017 Proposed	2017 Approved	2017 Actual	2018 Proposed	2018 Approved	2018 Actual	2019 Proposed	2019 Approved	2019 Actual
Project Type -- Enter "X"									
Indirect (No kWh or kW Savings)									
Audit/Info	X	X	X	X			X		
Education	X	X	X	X			X		
Classroom Training/Instructional	X	X	X	X			X		
R&D									
Renewable									
Other									
Direct (kWh or kW Savings)									
Cost Components -- Enter Dollars									
Project Delivery	451,250	451,250	171,942	462,840			474,775		
Utility Administration	128,750	128,750	9,916	132,615			136,595		
Evaluation Labor									
Advertising & Promotion	65,000	65,000	80,332	65,000			65,000		
Participant Incentives									
R&D							0		
Other (Education)	470,000	345,000	274,445	471,800			473,655		
Total Costs	$1,115,000	$990,000	$536,634	$1,132,255	$0	$0	$1,150,025	$0	$0
Project Participants									
Total Participants	108,000	108,000	106,128	108,000			108,000		
% of Spending by Customer Segment									
Residential									
Commercial									
Industrial									
Farm									
Other	100%	100%	100%	100%			100%		
Total % of Spending (must equal 100%)	100%	100%	100%	100%	0%	0%	100%	0%	0%
Low-Income & Renter Participation									
Participants % (% of Row 31)									
Budget % (% of Row 29)									
End-Use Target -- Enter "X" or %									
Building Efficiency									
Compressed Air									
Energy Star Appliances									
Lighting									
Motors (including ASD, Fans, Pumps)									
Manufacturing Process									
Refrigeration									
Space Cooling									
Space Heating									
Water Heating			8						
Weatherization									
General/Other									
Energy and Demand Savings - Generator									
Average Annual kWh Savings per Participant	0	0	0	0	0	0	0	0	0
Annual kWh Saved - Generator									
Cost per Annual kWh Saved	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual kW Savings - Generator									
Cost per KW Saved	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Cost/Benefit Results									
Societal									
Net present value									
B/C ratio									
Participant									
Net present value									
B/C ratio									
Rate Payer									
Net present value									
B/C ratio									
Utility									
Net present value									
B/C ratio									

Electric Conservation Project Information Sheet

2017/2018/2019 Cons1 BudgtSavgs

Utility Name: Minnesota Power
Project Name: Energy Analysis
Project Description: This Project delivers site and technology-specific information needed to help a cross section of customers choose energy-saving products and services for their homes and businesses.
Type Conservation
Status: Existing

	2017 Proposed	2017 Approved	2017 Actual	2018 Proposed	2018 Approved	2018 Actual	2019 Proposed	2019 Approved	2019 Actual
Project Type -- Enter "X"									
Indirect (No kWh or kW Savings)									
Audit/Info	X	X	X	X			X		
Education									
Classroom Training/Instructional									
R&D									
Renewable									
Other									
Direct (kWh or kW Savings)									
Cost Components -- Enter Dollars									
Project Delivery	923,560	923,560	728,459	923,560			923,560		
Utility Administration	37,440	37,440	5,872	38,565			39,720		
Evaluation Labor									
Advertising & Promotion									
Participant Incentives									
R&D									
Other (Education & Training)									
Total Costs	$961,000	$961,000	$734,331	$962,125	$0	$0	$963,280	$0	$0
Project Participants									
Total Participants	5,392	5,392	5,807	5,392			5,392		
% of Spending by Customer Segment									
Residential	20%	20%	18%	20%			20%		
Commercial, Industrial & Ag Combined	80%	80%	82%	80%			80%		
Industrial									
Farm									
Other									
Total % of Spending (must equal 100%)	100%	100%	100%	100%	0%	0%	100%	0%	0%
Low-Income & Renter Participation									
Participants % (% of Row 32)	10%	10%	19%	10%			10%		
Budget % (% of Row 30)	2%	2%	6%	2%			2%		
End-Use Target -- Enter "X" or %									
Building Efficiency									
Compressed Air									
Energy Star Appliances									
Lighting									
Motors (including ASD, Fans, Pumps)									
Manufacturing Process									
Refrigeration									
Space Cooling									
Space Heating									
Water Heating			8						
Weatherization									
General/Other									
Energy and Demand Savings - Generator									
Average Annual kWh Savings per Participant	0	0	0	0	0	0	0	0	0
Annual kWh Saved - Generator									
Cost per Annual kWh Saved	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual kW Savings - Generator									
Cost per KW Saved	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Cost/Benefit Results									
Societal									
Net present value									
B/C ratio									
Participant									
Net present value									
B/C ratio									
Rate Payer									
Net present value									
B/C ratio									
Utility									
Net present value									
B/C ratio									

Electric Conservation Project Information Sheet

2017/2018/2019 Cons1 BudgtSavgs

Utility Name: Minnesota Power
Project Name: Research & Development
Project Description: This Project is designed to take advantage of a broad base of technologies across customer classes - residential and low income, commercial, public and agricultural and industrial (non-opt-out) to ensure that each customer class benefits from participation in technology development, application and market-based research.
Type Conservation
Status: Existing

	2017 Proposed	2017 Approved	2017 Actual	2018 Proposed	2018 Approved	2018 Actual	2019 Proposed	2019 Approved	2019 Actual
Project Type -- Enter "X"									
Indirect (No kWh or kW Savings)									
Audit/Info									
Education									
Classroom Training/Instructional									
R&D	X	X	X	X			X		
Renewable									
Other									
Direct (kWh or kW Savings)									
Cost Components -- Enter Dollars									
Project Delivery	30,000	26,680	26,257	30,000			30,000		
Utility Administration	9,360	8,330	808	9,640			9,930		
Evaluation Labor									
Advertising & Promotion									
Participant Incentives									
R&D	234,740	208,790	183,596	234,460			234,170		
Other									
Total Costs	$274,100	$243,800	$210,660	$274,100	$0	$0	$274,100	$0	$0
Project Participants									
Total Participants									
% of Spending by Customer Segment									
Residential									
Commercial									
Industrial									
Farm									
Other	100%	100%	100%	100%			100%		
Total % of Spending (must equal 100%)	100%	100%	100%	100%	0%	0%	100%	0%	0%
Low-Income & Renter Participation									
Participants % (% of Row 31)									
Budget % (% of Row 29)									
End-Use Target -- Enter "X" or %									
Building Efficiency									
Compressed Air									
Energy Star Appliances									
Lighting									
Motors (including ASD, Fans, Pumps)									
Manufacturing Process									
Refrigeration									
Space Cooling									
Space Heating									
Water Heating			8						
Weatherization									
General/Other									
Energy and Demand Savings - Generator									
Average Annual kWh Savings per Participant	0	0	0	0	0	0	0	0	0
Annual kWh Saved - Generator									
Cost per Annual kWh Saved	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual kW Savings - Generator									
Cost per KW Saved	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Cost/Benefit Results									
Societal									
Net present value									
B/C ratio									
Participant									
Net present value									
B/C ratio									
Rate Payer									
Net present value									
B/C ratio									
Utility									
Net present value									
B/C ratio									

Electric Conservation Project Information Sheet

2017/2018/2019 Cons1 BudgtSavgs

Utility Name: Minnesota Power
Project Name: CIP Evaluation & Planning
Project Description: This Project provides the resources for Minnesota Power to plan and evaluate the triennial CIP filing, complete the evaluation of current CIP projects, prepare the CIP tracker and DSM incentive reports for the Annual Consolidated filing, respond to data requests and evaluate the benefit/cost of proposed modifications to existing Projects or for the development of new Projects.
Type Conservation
Status: Existing

	2017 Proposed	2017 Approved	2017 Actual	2018 Proposed	2018 Approved	2018 Actual	2019 Proposed	2019 Approved	2019 Actual
Project Type -- Enter "X"									
Indirect (No kWh or kW Savings)									
Audit/Info									
Education									
Classroom Training/Instructional									
R&D									
Renewable									
Other	X	X	X	X			X		
Direct (kWh or kW Savings)									
Cost Components -- Enter Dollars									
Project Delivery	266,000	266,000	466,017	271,430			277,025		
Utility Administration	125,000	125,000	102,568	128,750			132,615		
Evaluation Labor	318,000	318,000	217,037	322,500			327,135		
Advertising & Promotion									
Participant Incentives									
R&D									
Other (Edu)	10,000	10,000	11,350	10,000			10,000		
Total Costs	$719,000	$719,000	$796,973	$732,680	$0	$0	$746,775	$0	$0
Project Participants									
Total Participants									
% of Spending by Customer Segment									
Residential									
Commercial									
Industrial									
Farm									
Other	100%	100%	100%	100%			100%		
Total % of Spending (must equal 100%)	100%	100%	100%	100%	0%	0%	100%	0%	0%
Low-Income & Renter Participation									
Participants % (% of Row 31)									
Budget % (% of Row 29)									
End-Use Target -- Enter "X" or %									
Building Efficiency									
Compressed Air									
Energy Star Appliances									
Lighting									
Motors (including ASD, Fans, Pumps)									
Manufacturing Process									
Refrigeration									
Space Cooling									
Space Heating									
Water Heating			8						
Weatherization									
General/Other									
Energy and Demand Savings - Generator									
Average Annual kWh Savings per Participant	0	0	0	0	0	0	0	0	0
Annual kWh Saved - Generator									
Cost per Annual kWh Saved	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual kW Savings - Generator									
Cost per KW Saved	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Cost/Benefit Results									
Societal									
Net present value									
B/C ratio									
Participant									
Net present value									
B/C ratio									
Rate Payer									
Net present value									
B/C ratio									
Utility									
Net present value									
B/C ratio									

Electric Conservation Project Information Sheet

2017/2018/2019 Cons1 BudgtSavgs

Utility Name: Minnesota Power
Project Name: Regulatory Charges
Project Description: This Project recovers charges billed to Minnesota Power by the Department of Commerce regarding CIP, with the exception of the Made in Minnesota assessment for solar.
Type Conservation
Status: Existing

	2017 Proposed	2017 Approved	2017 Actual	2018 Proposed	2018 Approved	2018 Actual	2019 Proposed	2019 Approved	2019 Actual
Project Type -- Enter "X"									
Indirect (No kWh or kW Savings)									
Audit/Info									
Education									
Classroom Training/Instructional									
R&D									
Renewable									
Other	X	X	X	X			X		
Direct (kWh or kW Savings)									
Cost Components -- Enter Dollars									
Project Delivery	200,000	321,900	303,604	200,000			200,000		
Utility Administration									
Evaluation Labor									
Advertising & Promotion									
Participant Incentives									
R&D									
Other									
Total Costs	$200,000	$321,900	$303,604	$200,000	$0	$0	$200,000	$0	$0
Project Participants									
Total Participants									
% of Spending by Customer Segment									
Residential									
Commercial									
Industrial									
Farm									
Other	100%	100%	100%	100%			100%		
Total % of Spending (must equal 100%)	100%	100%	100%	100%	0%	0%	100%	0%	0%
Low-Income & Renter Participation									
Participants % (% of Row 31)									
Budget % (% of Row 29)									
End-Use Target -- Enter "X" or %									
Building Efficiency									
Compressed Air									
Energy Star Appliances									
Lighting									
Motors (including ASD, Fans, Pumps)									
Manufacturing Process									
Refrigeration									
Space Cooling									
Space Heating									
Water Heating			8						
Weatherization									
General/Other									
Energy and Demand Savings - Generator									
Average Annual kWh Savings per Participant	0	0	0	0	0	0	0	0	0
Annual kWh Saved - Generator									
Cost per Annual kWh Saved	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual kW Savings - Generator									
Cost per KW Saved	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Cost/Benefit Results									
Societal									
Net present value									
B/C ratio									
Participant									
Net present value									
B/C ratio									
Rate Payer									
Net present value									
B/C ratio									
Utility									
Net present value									
B/C ratio									

"A lot of very knowledgeable speakers and exhibitors are here, and there are so many things to learn. I'm interested in new trends in LED lighting, daylight harvesting, solar energy, wind generation and building automation. I enjoy it."

Luke Meints
Master Electrician for the City of Duluth, attendant at the Energy Design Conference and Expo

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

	Approved Goals	***Actual Results***	***% of Approved Goal***
Total Project Expenditures	$243,800 *(1)*	$210,660	86%

(1) As modified and approved in 2017.

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 2017 R&D projects are detailed below.

Cold Climate Air Source Heat Pump (ccASHP) ($314)

Project Description

Air source heat pump (ASHP) technology continues to evolve, with manufacturers claiming their systems provide sufficient heat down to -15°F. Heating, ventilation, and air conditioning (HVAC) contractors and customers are turning to Minnesota Power for potential rebates for these systems and information on the validity of the heating claims. Minnesota Power will install data loggers at a single site on two single head cold weather heat pumps to determine the energy consumption profile operating throughout the course of a year.

Current Status

In 2016, Minnesota Power identified a site that had two Mitsubishi one-ton systems installed. The Minnesota Power ASHP research study became part of the broader CARD Heat Pump Study[28] by CEE, who installed robust data logging equipment that monitor: outdoor and indoor temperatures; actual energy usage from the compressor, condenser and evaporator; and the heat output from the ASHP. This study was completed in 2017. Monitoring will continue throughout the 2017–2018 winter season as part of Minnesota Power's internal ccASHP study.

Commissioning
($608)

Project Description

Minnesota Power is researching and implementing the systematic approach of commissioning facilities to evaluate the energy and cost savings associated with implementing energy design and assistance in the planning and construction of new facilities. Incorporating energy-efficient design into new facilities is vitally important, as the decisions made during the design phase will impact the operational costs of the facility throughout its life cycle. Different design scenarios can be analyzed through plan review, computer modeling and whole building energy simulation. This provides information to stakeholders and decision-makers and allows them to weigh the costs and benefits of each design scenario.

Current Status

In 2017, Minnesota Power did not fund any large-scale commissioning projects. Rather than participating with full-scale commissioning studies, Minnesota Power worked directly with the building owner, architect and design engineers to identify energy-savings opportunities at every level and step of the design process. Through this process, Minnesota Power provided the owner opportunities to evaluate the individual energy-efficient technologies with the energy savings and payback information, as well as the overall benefit of incorporating the recommendations. For 2017, this process was moved to Energy Analysis.

Compressed Air Pilot
($31,083)

Project Description

This was the revitalization of a Compressed Air program aimed at attracting more industrial customers to participate in conservation projects which offer cost-effective savings opportunities for industrial and small commercial workshop environments. Work included routine customer contact; collecting inventory and specification data of all compressed air equipment in participant facilities; creating a diagram of compressed air systems, associated equipment, and major primary and secondary piping; managing data loggers to monitor energy consumption and PSI; completing detailed compressed air leak evaluation; calculating compressed air end-use; defining inappropriate uses of equipment; proposing other technologies to replace existing equipment; researching other utility compressed air programs; aiding in leak repair; and identifying energy savings and cost effectiveness from repairs or system changes made.

[28] https://www.mncee.org/resources/projects/cold-climate-air-source-heat-pump-field-assessment/

Minnesota Power has a Compressed Air program that has been in place in its same form for approximately ten years. The program will be updated to attract more of its industrial customers for participation.

Current Status

A new delivery and marketing framework was created and trials were completed with five selected industrial customers with greater than 150 HP of connected compressed air load. During this research study, Minnesota Power developed a compressed air leak study pilot program.

The focus of this pilot program is to deliver a low-cost compressed air program with the primary focus on compressed air leaks and a high-level look at the compressed air system.

Some of the items included are:

1. Complete inventory of all compressed air equipment, including items such as compressors, filters, air dryers, storage, and drain valves.
2. Diagram of the compressed air system and all its associated equipment.
3. Diagram of all major primary and secondary piping.
4. Data log air compressor energy consumption (kWh, peak kW), CFM and PSI within facility.
5. Complete detailed compressed air leak evaluation.
6. Develop an end-use of all compressed air uses.
7. Define inappropriate uses of compressed air and propose replacement technologies.
8. Schedule follow-up leak studies to determine the most beneficial study timeframe (3, 6, 9 or 12 months).
9. Evaluate whether Minnesota Power could assist customers in fixing leaks and/or identifying resources to complete repairs.

In addition to all the above, Minnesota Power will evaluate the cost effectiveness of this delivery method and how often a customer could participate with an actual study and compressed air leak evaluation. If it is determined that this is a viable program offering to roll out to all its customers, the program will move to Energy Analysis in 2018.

Delivery Strategies
($7,183)

Project Description

Minnesota Power explored the benefit of utilizing a cloud-based aggregation tool for pulling data from multiple sources. This tool will be used to demonstrate some of the deliverables that will be asked of a future CIP program database vendor. Prior to the implementation of a central database or tracking system, this tool can take information already collected and stored in spreadsheets and other databases and pull it together into one central Cloud location. The delivery tool being explored has multiple dashboard options to deliver program metrics such as percent of energy savings to goal, percent of spending to goal, number of contacts, and multiple other metrics to help manage the various implementation needs of the program and deliver key information to Minnesota Power employees.

Minnesota Power also tested an electronic tool (previously used for small business analysis) for residential home energy analysis. Volunteers were sought out via a Minnesota Power internal article asking for 20–40 Minnesota Power employees who were both Minnesota Power and ComfortSystems (city of Duluth gas utility) customers. If they met those guidelines and wanted a

free home energy analysis using this electronic tool, they could sign up to participate in this project. As part of this R&D project, homeowners were asked to fill out a survey rating their experience and provide feedback on the efficiency of the tool and the report the tool generated.

Current Status

In relation to the data aggregation tool, ten customized dashboards were developed with the most utilized metrics for evaluating the effectiveness the Minnesota Power CIP results. The CIP team will evaluate these dashboards to determine if this tool would provide a simple mechanism to track the ongoing metrics needed to continuously monitor the conservation program status on a near real-time basis.

The testing of the residential home energy analysis electronic tool was completed at the end of January 2017, with 22 homes taking part in the testing. Surveys were distributed, with 14 of the 22 homeowners (64% response rate) completing the survey and sharing feedback on their experience with Minnesota Power. The overall attitude of customers was positive, with customers liking the efficiency of the tool and the quickness of reporting. Some areas of improvement were identified when it came to rating homes based on energy consumption data and providing graphs and charts to further the homeowner's understanding of the overall energy usage of the home. Minnesota Power is using this feedback and plans to pursue a larger roll-out of this tool in 2018 in targeted communities.

Embedded Engineering Intern
($21,035)

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 would help 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

In 2017, 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. To date, over 30,000 kWh of low cost/no cost savings projects have been implemented and over 300,000 kWh of capital project savings have been identified. This project will be expanded in 2018 to include embedded interns with other facilities as opportunities develop.

Innovative Lighting
($17,011)

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 2017 included LED A/B 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.

Innovative Lighting Design
($10,412)

Project Description

Minnesota Power is involved with numerous energy-efficient customer lighting projects as part of CIP. By incorporating new lighting technologies through innovative lighting research, Minnesota Power is not only encouraging the use of energy-efficient lighting but also energy-efficient lighting design. With the expansion of LED technology offerings, lighting design often requires the need for services by an experienced lighting designer to assist in finding improved ways of lighting a space for the greatest impact with the least amount of energy needed.

Current Status

Independent consulting services from a number of lighting designers are utilized for providing independent advice, information, recommendations, and knowledge to assist with simple to complex customer lighting projects. As part of becoming an energy partner of Minnesota Power, these lighting designers provide specific consultation using a design services framework. In 2017, these services continued to be utilized for lighting design for both retrofit and new construction projects. Through modeling lighting design for customers, cost savings and rebate estimates are calculated for each specific lighting scenario. This program will move to One Business program delivery and Energy Analysis in 2018.

Micro-Aerial Rooftop Thermal Inspection
($13,046)

Project Description

According to the U.S. Department of Energy, 42% of energy loss occurs through the building envelope. A comprehensive thermal scan using aerial imaging can provide a complete picture of this phenomenon and help managers best spend resources allocated to improving energy efficiency. While some organizations have started using unmanned aerial vehicles (UAV) equipped with thermal sensors to conduct roof and sidewall inspections of buildings, and have

demonstrated the ability to collect usable data in a time-saving manner, there is a lack of quantifiable data when it comes to energy savings and return on investment (ROI) for UAV thermal infrared data collection.

The advancement of UAV technology has provided a cheaper, safer, more effective method for aerial data collection. The use of thermography to analyze a structure's energy efficiency is an emerging industry standard. Advancements in technology have allowed for the development of thermal sensors able to provide rich data in a small lightweight body, allowing them to be flown with small affordable UAVs.

Minnesota Power is utilizing UAV technology to collect thermal information that could be used by building managers to better identify thermal loss, moisture intrusion and equipment failure. Accurate determination of these issues can reduce costs through a reduction in energy use, early detection of maintenance issues, and by providing a complete picture of the entire extent of an issue.

Current Status

Minnesota Power continued to utilize UAVs in 2017 to collect information. UAVs were flown over four commercial grocery buildings and two substations using a DJI Phantom and FLIR VUE Pro radiometric camera (forward-looking infrared imaging system) thermal sensor. Data collection took place over four days and consisted of twenty separate flights. The focus of 2017 research was to determine if UAV delivered infrared technology could be used to identify CIP opportunities with retail grocers through aerial thermography inspection of the roof top insulation and refrigeration piping, HVAC equipment, freezers/coolers and other energy intensive equipment.

Once the data is compiled, Minnesota Power will meet with the customer to review the flight information. The Company is working to determine the best format for clear and effective communications with the customer, as it can be overwhelming with the breadth of information the flights collect.

A full report is available upon request.

Multifamily and Low Income Outreach
($2,736)

Project Description

Early in 2017, Minnesota Power started exploring the option of partnering with CenterPoint Energy in conducting a joint project with a few multifamily customers where service territories overlap. Two multifamily customer sites were identified—one in Long Prairie, Minn., and another in Little Falls, Minn. Each customer was provided a general overview of the initiative in which a joint implementation contractor would provide the on-site inspection and direct installation of energy conservation measures, and deliver the report at a future date. Both utilities were able to use existing filed programs (CenterPoint Energy–Natural Gas Energy Analysis and Minnesota Power–C&I Energy Analysis) in delivering this pilot project, which made moving this forward very smooth from the customer's perspective.

Current Status

Minnesota Power is in the process of identifying other sites as well as other utilities where similar joint efforts might make for good opportunities in providing conservation services to its customers. The information from this initiative will be used in future efforts with Minnesota Power's multifamily customers and to determine how best to reach them.

Net Zero Housing
($5,264)

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. After reviewing all proposals, Wagner Zaun was chosen to develop the final design to be presented to the NetZero team in the first quarter of 2018.

Recommissioning
($66,966)

Project Description

Recommissioning is a systematic approach for discovering and solving chronic problems for an existing building's HVAC, controls, and electrical systems. As building systems become dated, building equipment system operation and maintenance can be examined through the recommissioning process and used to develop improved energy management procedures or redesign. Information gained and lessons learned from this research may be valuable when evaluating and working with other existing buildings with aging energy systems and also for educating Minnesota Power customers about the benefits and overall recommissioning process.

Current Status

Minnesota Power participated in a recommissioning study with one of the local school districts. The district had just completed a major update to their buildings and was evaluating the benefit of regularly scheduled recommissioning of their buildings. A recommissioning evaluation team, Minnesota Power included, was formed with the purpose of getting the district's building fleet on a five-year recommissioning cycle. Three different recommissioning agents were chosen to perform studies on five separate buildings. The studies are completed and final reports are being

evaluated. A decision as to which recommissioning contractor will move forward is expected in 2018, although district budget woes may shelve the project. Minnesota Power also participated in a medical/hospital recommissioning study in 2017. Through that participation, most commercial facility types have been through the recommissioning study process. These studies will be evaluated to determine appropriate funding levels that would apply towards recommissioning studies and will move into One Business program delivery beginning in 2018.

Smart Data Loggers
($6,671)

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

Minnesota Power is researching the capabilities of Smart Data Loggers that provide real time and recordable information on the status of the equipment being monitored. This provides the customer with immediate feedback as to the true impact on their operation of a particular piece of equipment or process. In addition to energy consumption, data loggers also provide power factor information to allow the customer to see the whole energy picture. These data loggers were deployed at three sites in 2017 and customer meetings have been held to review the data. The feedback has been positive. This R&D project will continue through 2018.

SUMMARY

In 2017, Minnesota Power funded several 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 prepare 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.

“Minnesota Power has very cost-effective programs that deliver on multiple strategic fronts—solutions that help customers get the most for their energy dollars.”

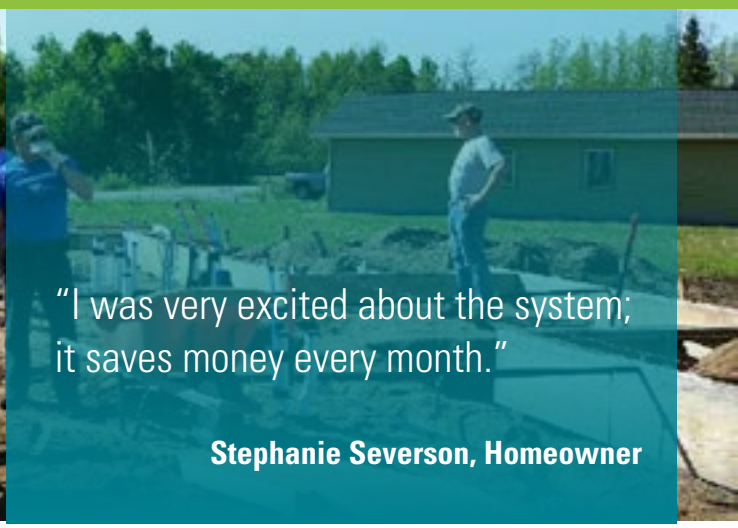
Deb Knoll
Supervisor of Program Evaluation and Compliance for Minnesota Power

"The CIP team works hard to connect with customers and help them find ways to save energy that are right for them. As the world changes, we're challenged to find new ways to reach customers and help them make effective choices about their energy resources."

Tim Gallagher
Supervisor of Program Implementation for Minnesota Power

2017 Success Stories

Minnesota Power Helps Habitat for Humanity Build Triple E Home with Cold Climate ASHP



"I was very excited about the system; it saves money every month."

Stephanie Severson, Homeowner

Stephanie Severson and her three young children were all smiles as they moved into their new home in December 2016. It was more than the thrill of home ownership. This particular three-bedroom house in Deer River, Minn., was designed and built by Itasca County Habitat for Humanity to be healthy, durable and energy efficient—making it an affordable place to live for the long term.

Minnesota Power's Power of One® Home conservation improvement program (CIP) was a key partner in achieving that goal. The home was built to Minnesota Power's Triple E standards for thermal integrity and energy performance, qualified for significant utility conservation rebates and features a cold climate air source heat pump (ASHP) that was donated and installed free of charge through a partnership initiated by Minnesota Power.

Itasca County Habitat for Humanity officials regularly follow Triple E guidelines for homes built in Minnesota Power's service area, turning to program consultant Doug Manthey for design reviews, installation inspections and blower door tests to qualify the homes for rebates up to $2,000.

"Habitat for Humanity does a really nice job of building quality, energy-efficient, affordable homes," Manthey said. "A home that meets Triple E standards consumes about half the amount of energy as a house built to code, so when you look at affordability for people with limited incomes trying to reduce their bills, that has a big impact over the life of a home."

The Severson home almost did not qualify for Triple E rebates, even though it was built to program standards for insulation, windows and doors, airtight construction, moisture control, appliances, lighting and ventilation. It was missing one key element—primary electric heat. The home's radiant floor heat system had a gas boiler.

Minnesota Power CIP Energy Analyst Chad Trebilcock immediately saw an opportunity to help the nonprofit and the homeowner, while advancing new technology at the same time. He noted the home would qualify for Triple E if builders installed a cold climate ASHP to meet all or most of the home's heating needs, with the gas boiler system as a secondary heat source.

"I knew this would be a perfect application," Trebilcock said. "ASHPs continue to gain more and

more traction, especially in airtight, well-insulated Triple E homes where you don't need as many BTUs an hour to heat, plus new cold climate units are proving to work well in our region."

Minnesota Power partnered with distributor Gustave A. Larson and manufacturer Mitsubishi to donate and install a Mitsubishi cold climate ASHP with a seasonal energy efficiency ratio (SEER) of 22 and a heating season performance factor (HSPF) of 12. The high performance system produces heat efficiently at outdoor temperatures well below freezing. Partners also donated a base pan heater to protect the unit's condenser from the cold.

"We would not have been able to purchase and install the heat pump without this donation because we could not pass the cost on to the family, and we would have lost the $1,900 Triple E rebate," said Goldie Swalboski, program coordinator, Itasca County Habitat for Humanity. "It is all about affordability."

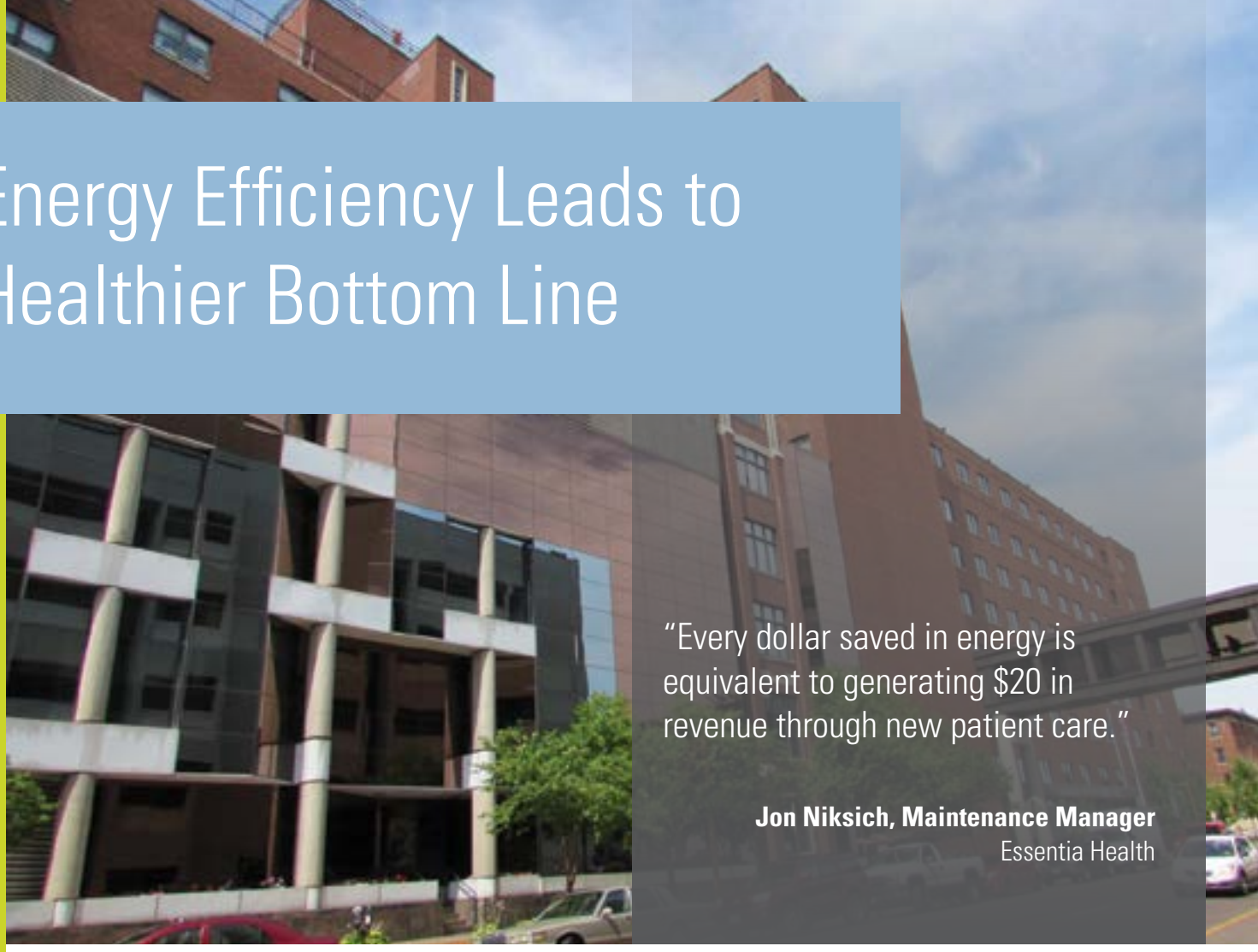
"I was very excited about the system; it saves me money every month," Severson said. "In-floor heat takes days to heat up and cool down, but I can turn on the air source heat pump and the house warms right up—it makes a huge difference."

"It is very honorable when a corporation like Minnesota Power values what we do and thinks philanthropically," said Amanda Lamppa, executive director, Itasca County Habitat for Humanity. "I want Minnesota Power (and its partners) to know how much we value them."

> "A home that meets Triple E standards consumes about half the amount of energy as a house built to code ... that has a big impact over the life of a home."
>
> **Doug Manthey, Program Consultant**

Top left: Homeowner Stephanie Severson with her son and twin daughters. Top right: Completed Triple E home for the Severson family. Bottom right: A crew of volunteers from Minnesota Power helped install foam board and heating tubing during the pre-pour phase of construction.

Energy Efficiency Leads to Healthier Bottom Line



"Every dollar saved in energy is equivalent to generating $20 in revenue through new patient care."

Jon Niksich, Maintenance Manager
Essentia Health

Hospitals, clinics and other healthcare providers face growing pressures to cut costs and operate more efficiently. Essentia Health, based in Duluth, Minn., is using energy conservation as one way to achieve a healthier bottom line, provide quality care at affordable rates for patients and live out its corporate value of stewardship.

Essentia honored for energy efficiency

Minnesota Power recently honored the integrated health system for its commitment to using less energy and reducing its carbon footprint. The utility presented Essentia with a Certificate of Energy Efficiency for saving 1,267,254 kilowatt hours of electricity through conservation improvement projects completed in 2016.

Projects included heating, ventilation and air conditioning (HVAC) upgrades and installation of energy-efficient lighting and lighting controls in multiple facilities. Combined, they qualified for nearly $74,000 in rebates from Minnesota Power and are saving Essentia around $66,000 per year on its electric bills. The annual energy savings equate to avoiding 1,042 tons of carbon—the equivalent of powering 140 homes or taking 202 cars off the road for a year!

Longtime partners work to save energy

These numbers represent just a fraction of the total energy and cost savings Essentia has achieved through energy efficiency over many years. Its success reflects organizational leaders committed to sustainable design and construction, a facilities management team that continually looks for creative ways to save energy, and a longstanding partnership with Minnesota Power's Power of One® Business conservation improvement program (CIP). CIP staff and commercial energy consultants help customers like Essentia meet their energy conservation goals and lower costs by providing education, project design assistance, energy- and cost-savings analyses, conservation rebates and other services.

"We got involved in Minnesota Power's conservation program very early—our relationship goes back at least 20 years," said John Rice, director of maintenance for Essentia. "It started with lighting, but we quickly learned the value of involving Minnesota Power in all

of our facility projects. It has been good for us, not just in rebates, but in ideas."

Grant helped Essentia take the LEED in building

For example, when Essentia (then SMDC) was constructing its 240,000-square-foot 1st Street Building, completed in 2006, Minnesota Power provided a major research grant to have The Weidt Group, an energy design consulting firm, conduct a comparative analysis that simulated and calculated the impacts of proposed energy design decisions.

"We knew there were a lot of potential energy savings," Rice said. "The money Minnesota Power put up for that engineering study was very helpful in steering us toward decisions that made sense for the project."

The integrated design strategies developed through this front-end modeling for the 1st Street Building created a cutting-edge facility that earned Leadership in Energy and Environmental Design (LEED) Gold status from the U.S. Green Building Council.

Essentia has a healthy appetite for energy innovations

"Essentia goes beyond the low-hanging fruit," said Chad Trebilcock, energy analyst-II for Minnesota Power CIP, noting the variety of projects Essentia has accomplished through the years and a few recent examples of sophisticated energy-saving measures adopted with technical support and rebates from Minnesota Power. "They installed low pressure drop filters in air handling systems to reduce loading on fans and added variable frequency drives (VFDs) to fans on rooftop units, boiler pumps, air handlers and chilled water pumps."

Trebilcock also pointed to innovative lighting technology used in stairwells at the Duluth Clinic 3rd Street Building, as well as at a parking ramp and nearby ambulance garage. The LED lights with lighting controls dim when people are not using the spaces, resulting in significant electrical energy savings.

"We were looking for ways to balance the need to have stairwells (and parking lots) well lit for security with the cost of lighting space when it wasn't in use," Rice said. "The fixtures we installed maintain a low light level until they sense movement, then another lighting element comes on to make it brighter."

> "We got involved in Minnesota Power's conservation program very early—our relationship goes back at least 20 years."
>
> **John Rice, Director of Maintenance**
> Essentia Health

A similar system was used in the St. Louis County Government Services Center. Essentia facility personnel learned of it through a peer group convened by Minnesota Power that brings representatives of large, multifacility organizations together to share experiences and insights related to energy efficiency. That group includes Essentia, St. Louis County, the City of Duluth, the University of Minnesota Duluth and the Minnesota Air National Guard.

Front row from left: Steve Rautio, facilities operations manager, Essentia Health; Jon Niksich, maintenance manager, Essentia Health; Tanuj Gulati, commercial energy consultant, Energy Insight Inc. Back row: Chad Trebilcock, energy analyst, Minnesota Power; Kris Spenningsby, supervisor of Retail Accounts, Minnesota Power.

"We are all fighting the same battles," said Steve Rautio, facilities operations manager, Essentia. "And we are looking for solutions to the same problems."

Minnesota Power is a trusted resource

Minnesota Power's experience helping large multifacility customers save energy makes the utility a trusted resource for complex organizations like Essentia with millions of square feet of facilities that include dozens of hospitals, clinics and support buildings.

"We consult with Minnesota Power whenever we are considering a facility project," said Jon Niksich, maintenance manager, Essentia. "It usually equates to energy and dollars saved."

"Essentia's people come to us for ideas, listen to recommendations and evaluate them fairly," said Minnesota Power CIP commercial energy consultant Tanuj Gulati of Energy Insight Inc., who recently coordinated a project that allowed Essentia to test LED fixtures from multiple vendors for a lighting upgrade in a West Duluth warehouse and distribution center. "If an idea is right, they make it happen."

"We do a lot of testing and trials as we look for the right solutions," Rautio said. "In the West Duluth Annex, we decided on multilevel LEDs with controls."

> "We consult with Minnesota Power whenever we are considering a facility project. It usually equates to energy and dollars saved."
>
> **Jon Niksich, Maintenance Manager**
> Essentia Health

Efficiency spreads and savings grow

Many of the ideas incorporated into Duluth facilities are now being used at Essentia sites across the region. From 2012 to 2016, Minnesota Power helped advance energy efficiency upgrades at Essentia facilities in Sandstone, Aurora, Hermantown and Deer River, as well as Duluth.

The five-year totals are staggering. Lighting, HVAC and energy management upgrades implemented during this time period are saving Essentia nearly 5 million kWh of electricity and almost $242,000 per year on electric bills. They qualified for nearly $233,000 in conservation rebates from Minnesota Power. Essentia participates in the utility's Energy Savings Account program. In exchange for higher rebates, the healthcare system agrees to explore additional energy efficiency measures.

"Every dollar saved in energy is equivalent to generating $20 in revenue through new patient care," said Niksich, referencing a U.S. Environmental Protection Agency study on energy conservation in healthcare facilities. "It goes directly to the bottom line."

BOC training keeps buildings operating smoothly

To keep facilities and building systems operating efficiently, Essentia has now begun to enroll interested maintenance personnel in Building Operator Certification (BOC) training, hosted by Minnesota Power. BOC is the leading training and certification program for building engineers and maintenance personnel. Graduates of this course are prepared to make their buildings more comfortable and energy efficient.

"We've had some retirements and a new generation of engineers is moving in that wants to do more and learn more," Rice said. "BOC training opens their eyes to things they might not be exposed to in the field without years of experience."

Relationships are positively powerful

"Minnesota Power believes in the value of long-term partnerships and healthy relationships with customers," said Kris Spenningsby, supervisor-retail accounts, Minnesota Power. "Meeting regularly, talking about things and having a track record of success helps move new projects along—you can see the impact at Essentia."

"Minnesota Power believes in the value of long-term partnerships. Meeting regularly, talking about things and having a track record of success helps move new projects along—you can see the impact at Essentia."

Kris Spenningsby, Supervisor–Retail Accounts
Minnesota Power

Top right: Essentia Health's 1st Street Building is LEED Gold certified.

Middle left: Essentia Health's Urgent care facility.

Middle right: An energy-efficient chiller and pump system is used at Essentia's Miller Dwan building.

Bottom left: LED lighting with lighting controls illuminates the ambulance garage.

New Animal Shelter Adopts Energy Efficiency

"We have found Minnesota Power to be very easy to work with and supportive of what we have planned here."

Betty Thomas, Founder and Board Chair
Paws and Claws Rescue & Resort

Paws and Claws Rescue & Resort in Hackensack, Minn., looks more like a spa than a stereotypical animal shelter. The facility welcomes visitors with a bright, open lobby, tidy exercise areas and gleaming suites where homeless cats and dogs await adoption and beloved pets come for short-term stays.

Nestled in a natural setting that is landscaped to attract bees and other pollinators, the combination animal shelter and boarding facility is a model of sustainability. It features renewable solar energy, energy-efficient LED lighting and a high performance heating, ventilation and air conditioning (HVAC) system that saves energy while keeping the facility healthy and comfortable for people and animals.

Minnesota Power's Power of One® Business conservation improvement program (CIP) helped the nonprofit organization calculate potential energy savings and secure rebates for energy-efficient technologies. The utility's renewable energy program provided technical support for the grid-connected solar array.

Paws and Claws began as a vision of Betty and Jack Thomas. The local entrepreneurs own Mann Lake Ltd., a manufacturer of beekeeping products and supplies that has made numerous energy conservation upgrades over the years with support from Minnesota Power's CIP team. Concerned by a lack of animal shelters in Cass County, the couple launched a major campaign to build one, deciding upfront to develop a modern, energy-efficient facility.

"Animals have always been important in our lives, and, with our business growing, we wanted to provide for the homeless animals in Cass County," said Betty Thomas, founder and board chair of Paws and Claws. "We were fortunate enough to find 22 acres of land right on Highway 371, and that is when planning really got started."

Six years of fundraising, research, design and construction later, the facility opened in summer 2017. Paws and Claws has shelter space for up to 20 dogs and 30 cats in need of adoption, plus boarding capacity for about 33 dogs and 4–8 cats. Boarding revenues help support the nonprofit organization's animal adoption services.

"Relationships are important," said Craig Kedrowski, energy efficiency analyst-lead, Minnesota Power,

noting how long-term connections with the Thomases brought the CIP team to the table early in the design process. "We were informed about this building while it was still conceptual and worked closely with the design team to get Paws and Claws the greatest energy savings and highest rebates possible."

Renewable energy and energy efficiency help keep operating costs in line. The 40 kW onsite solar photovoltaic system meets about 20–25 percent of Paws and Claws' total energy needs. In addition, the building's passive solar design maximizes daylighting and reduces heating and cooling loads. One hundred percent of the facility's interior and exterior lights are energy-efficient LEDs, many equipped with controls for even greater savings. A sophisticated HVAC system divides the building into multiple zones with separate air handling units and includes features that save significant amounts of energy.

"It's a remarkable system," said Jim Ballenthin, a volunteer who has helped the Paws and Claws board assess renewable energy options and energy-efficient technologies. "Sick animals are separated from well animals, shelter animals are separated from boarding animals, and dogs and cats have individual wings—they don't even share the same air."

"The air handling equipment operates based on the needs of animals or people in the zones, so fan motors do not have to run continually, and air conditioners only cool at times when they are needed in specific areas of the facility," said Minnesota Power CIP commercial energy consultant Margit Barot, of Energy Insight Inc. "There also are energy recovery ventilators tied into the units that use energy from the return air to precondition the incoming air, which reduces the electric load on air conditioning units."

"We were informed about this building while it was still conceptual and worked closely with the design team to get Paws and Claws the greatest energy savings and highest rebates possible."

Craig Kedrowski, Energy Efficiency Analyst-Lead
Minnesota Power

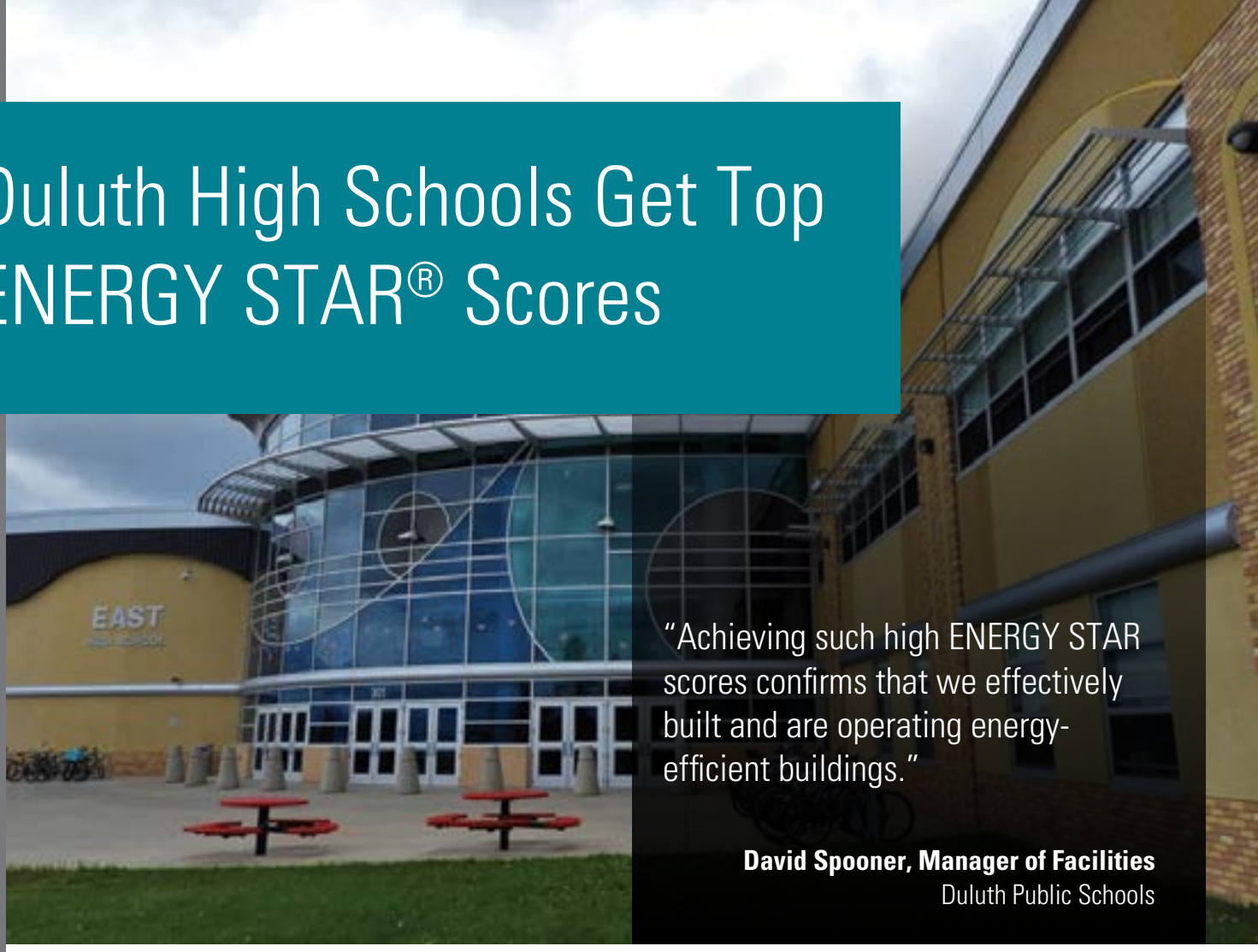
Choosing LED lights and a zoned HVAC system with variable frequency drive motor controls and energy recovery ventilators qualified Paws and Claws for nearly $5,000 in Power of One® rebates from Minnesota Power. These technologies will help the organization avoid approximately 137,370 kWh of electricity per year and 17.51 kW in monthly demand, saving more than $8,000 in annual utility costs.

"We have found Minnesota Power to be very easy to work with and supportive of what we have planned here," said Betty Thomas. "The rebates are great incentives. It is wonderful to be recognized by our utility for wanting to save energy. It is very forward thinking."

"There is a lot of positive energy in this building, and the staff is very proactive about conservation," said Coretta Czycalla, executive director, Paws and Claws, at a recent meeting with Minnesota Power. "It is an exciting time—we are learning as we go."

Top left: Margit Barot, Energy Insight Inc.; Craig Kedrowski, Minnesota Power; Betty Thomas, Paw and Claws; Coretta Czycalla, Paws and Claws; Jessica Michaels, Energy Insight Inc. Middle: The lobby is designed to maximize natural daylight and features energy-efficient LED lighting. Top right: Minnesota Power's renewable energy program provided technical support for an onsite 40 kW solar photovoltaic system that meets 20-25 percent of the facility's energy needs. Bottom right: Cora Czycalla (second from left) and representatives of Minnesota Power's CIP team talk in the mechanical room where high performance air handlers are located.

Duluth High Schools Get Top ENERGY STAR® Scores



"Achieving such high ENERGY STAR scores confirms that we effectively built and are operating energy-efficient buildings."

David Spooner, Manager of Facilities
Duluth Public Schools

Achievement reflects larger focus on saving energy and culture of good stewardship

Report cards are in, and Duluth's two public high schools are among the most energy-efficient learning environments in the country! Both Duluth East High School and Denfeld High School recently earned prestigious ENERGY STAR® certification with scores that place them at the top of their class.

An ENERGY STAR score provides a snapshot of a building's energy performance compared to similar facilities nationwide. It assesses physical assets, operations and occupant behaviors to calculate a percentile number ranging from 1 to 100. Facilities that score 75 or above—meaning they perform better than 75 percent of comparable buildings—may qualify for ENERGY STAR certification. Duluth East and Denfeld scored 99 and 97, respectively.

This accomplishment reflects a longtime commitment to energy efficiency that was designed and built into the Duluth Public School District's Long Range Facilities Plan and continues to this day with a focused facilities management team and support from Minnesota Power's Power of One® Business conservation improvement program (CIP).

Minnesota Power a longtime partner in conservation

Minnesota Power's CIP team has worked with the school district's facilities managers and maintenance personnel for more than 20 years, helping the district achieve its energy conservation goals and lower costs through project design assistance, energy- and cost-savings analyses, conservation rebates and other services.

This relationship made Minnesota Power a trusted resource as Duluth Public Schools developed and implemented projects for the Long Range Facilities Plan, a $315 million multiyear program of new school construction and facility upgrades, largely completed from 2008 to 2013. It impacted all of the district's educational sites, reduced the total number of buildings and led to more energy- and resource-efficient, 21st century school facilities district wide.

"We tried to incorporate the best available technology that we could afford to save energy, while creating school environments that were conducive to learning,"

said David Spooner, manager of facilities for Duluth Public Schools. "Minnesota Power was a partner in that effort."

Rebates and savings make energy-saving choices affordable

Energy-saving measures designed into Duluth East, Denfeld and other school facilities included energy-efficient lighting with lighting controls; high performance heating, ventilation and air conditioning (HVAC) systems; NEMA premium motors; variable air volume boxes; variable frequency drives; economizers; energy recovery units; and energy management systems.

Combined investments in energy efficiency made as part of the Long Range Facilities Plan qualified for more than $394,000 in conservation rebates from Minnesota Power. Choosing these high performance technologies over standard equipment has resulted in annual energy savings of over 8,533,000 kilowatt hours (kWh) and monthly demand savings of 832 kilowatts (kW). They also have helped to significantly lower the district's cost per square foot for total energy consumption, which has gone from 90 cents in 2007 to 78 cents today. These numbers represent charges for electricity, natural gas, steam and oil, plus water, sewer and storm runoff.

Benchmarking tracks performance and calculates ENERGY STAR scores

School district facilities personnel have tracked energy costs for many years, but now monitor energy performance using B3 Benchmarking. This sophisticated online tool, recommended by Minnesota Power's CIP team, uses basic building and meter information to summarize energy consumption, costs and carbon emissions for public buildings in Minnesota.

B3 Benchmarking also calculates ENERGY STAR scores and identified Duluth East and Denfeld among 11 of 13 school buildings that potentially qualify for the prestigious certification. Lincoln Park and Ordean East middle schools narrowly missed the mark due to their indoor pools, which require significant additional energy to heat, light and maintain through the year. All other things being equal, the middle schools are performing at levels similar to other schools built or updated through the Long Range Facilities Plan and would qualify for ENERGY STAR certification were it not for the energy demands of their pool areas.

> "ENERGY STAR® is a national program with checks and balances to validate results, including professional engineer reviews."
>
> **Craig Kedrowski, Energy Efficiency Analyst-Lead**
> Minnesota Power

Minnesota Power funded ENERGY STAR applications for high schools

Certifying ENERGY STAR scores requires an exhaustive review and verification process. Minnesota Power offered to fund and assist with formal applications for the two high schools. Certification of other school facilities may follow as time and district funding allows.

"ENERGY STAR is a national program with checks and balances to validate results, including professional engineer reviews," said Craig Kedrowski, energy efficiency analyst-lead, Minnesota Power, who led the utility's effort to

Left: Katie Kaufman, communications coordinator, Duluth Public Schools; Matt Haley, commercial energy consultant, Energy Insight, Inc.; David Spooner, manager of facilities, Duluth Public Schools; Craig Kedrowski, energy-efficiency analyst-lead, Minnesota Power Right: Duluth Public Schools Building Systems Coordinator Corey Karren checks HVAC equipment.

help the Duluth Public School District certify scores for the two high schools. "People value ENERGY STAR certification because the process can't be manipulated."

"We had to input 12 months of metered utility data, both gas and electric, plus detailed information about square footage and how space is used, down to the number of computers, kitchen facilities, auditoriums, the percentage of space that is heated and cooled, and hours of regular and weekend operation," said Minnesota Power CIP commercial energy consultant Matt Haley, president of Energy Insight Inc. "Weather normalized data puts similar facilities across the country on equal footing—the Department of Energy has spent millions of dollars developing and fine-tuning these standards for use across the country."

"Certification validates the standards set for the district's Long Range Facilities Plan and demonstrates that everyone from the architects and system designers to the contractors and installers did their jobs and did them well," Spooner said. "Achieving such high ENERGY STAR scores confirms that we effectively built and are operating energy-efficient buildings."

Recommissioning and BOC training ensure continual improvement

The school district is recommissioning buildings constructed or revitalized during the Long Range Facilities plan to make sure equipment and systems are operating as designed and meeting expectations for performance and energy efficiency. Five schools have been recommissioned to date, funded, in part, by Minnesota Power. The process is helping to identify where recent advances in lighting and other technologies could improve energy efficiency even more—laying the groundwork for future projects.

Building Operator Certification (BOC) training sponsored by Minnesota Power and hosted by the school district at Lincoln Park Middle School in summer 2016 also is helping to ensure building systems are operated properly.

"Operating all of the new equipment and systems for maximum performance and efficiency requires an understanding of building science," Spooner said. "All of our engineers have completed BOC training, which makes them more knowledgeable about operating equipment and gives them tools to identify projects with potential to save energy."

In the past two years, additional upgrades in lighting and lighting controls, HVAC equipment, and motors at multiple schools have qualified for more than $27,000 in Minnesota Power rebates and brought energy savings of nearly 110 kW per month and 538,000 kWh per year.

School district taps additional resources to save energy

Meanwhile, school district facility managers regularly participate in a peer group convened by Minnesota Power which brings representatives of several large multifacility organizations together on a quarterly basis to share experiences and gain insights about energy conservation. Other members include the City of Duluth, St. Louis County, the University of Minnesota Duluth and the Minnesota Air National Guard.

In summer 2017, Minnesota Power funded an internship through the Minnesota High Tech Association that placed an engineering student from the University of Minnesota Duluth with the Duluth Public School District. That intern, Ryan Jutting, looked at ways to verify scheduling and settings in the district's energy management systems and helped quantify the savings potential in sites by consolidating areas used for summer and evening programs.

"Duluth Public Schools are doing the right thing—they built quality schools and are maintaining those buildings to the highest standards," Kedrowski said. "They use Minnesota Power to identify projects and look for opportunities to improve their energy efficiency. It is always refreshing to work with customers who take that kind of initiative."

"We have limited in-house resources, so we appreciate Minnesota Power's willingness to help us in our conservation efforts," Spooner said. "As a public entity, it is important for us to be good stewards of taxpayer funds by using best practices and installing energy-efficient equipment. Whenever I reach out to Minnesota Power, they are eager to share their expertise and resources to help us accomplish those goals."

"We have limited in-house resources, so we appreciate Minnesota Power's willingness to help us in our conservation efforts."

David Spooner, Manager of Facilities
Duluth Public Schools

Top left: Duluth Public Schools Building Systems Coordinator Corey Karren, MHTA intern Ryan Jutting, and Manager of Facilities David Spooner at Denfeld High School. Top right: The commons area at Denfeld High School features energy-efficient lighting and access to natural daylight. Middle left: David Spooner and Ryan Jutting checking out an energy-efficient rooftop unit at Denfeld High School. Bottom left: Energy-efficient lighting and lighting controls in the Denfeld High School media center. Bottom right: Corey Karren, David Spooner, and Ryan Jutting in furnace room at Denfeld.

Food Distributor Has an Appetite for Energy Efficiency

"If you have multiple projects on the table and one has a rebate associated with it, that comes into play in making the decision."

Wendy Wojtysiak-Erickson, Inside Sales Manager
Upper Lakes Foods

Crisp green lettuce. Ripe red tomatoes. Fresh, wholesome meat and dairy. Food quality is extremely important to consumers, whether they are shopping at their local market or dining at a favorite restaurant. Upper Lakes Foods, headquartered in Cloquet, Minn., is the largest independent food distributor in Minnesota. It deals with thousands of products every day, ranging from fresh meat, poultry and produce to dry goods and frozen foods. Proper lighting and precise temperatures in its wholesale warehouse and distribution facilities help the company deliver quality food products that meet customers' high expectations.

Upper Lakes Foods has invested in a broad range of lighting, refrigeration and heating, ventilation and air conditioning (HVAC) upgrades over the past several years. It works hand in hand with Minnesota Power's Power of One® Business conservation improvement program (CIP) to test, install and verify high performance technologies that save electricity, lower costs and advance Upper Lakes Foods' quality assurance goals—while meeting its commitment to sustainability.

One early initiative was a warehouse lighting upgrade to energy-efficient high bay fluorescents with occupancy sensors, completed in 2009. That successful project led to the installation of energy-efficient garage and freezer lighting and an ongoing transition to light emitting diodes (LEDs). A number of LED lighting projects were completed in 2016, and more are being planned throughout the facility. Minnesota Power provides sample bulbs and fixtures to help the company make informed decisions.

"We tested LEDs in my office, and it is a clear, better light for a work environment," said Brenda Weston, credit manager and member of Upper Lakes Foods' onsite sustainability team. "I love being able to test different products; it really pushes us forward."

"Good lighting helps ensure freshness of the food, but there is also a safety aspect," said Brian Sorensen, warehouse manager. "People move around on heavy equipment in our warehouse, and it is important for them to see what they're doing. The new LED lighting in the freezer, for example, is much brighter and safer."

Lighting is not the only improvement making Upper Lakes Foods' freezers more energy efficient. Fast-acting automatic doors have been installed on coolers and freezers to prevent cold air from escaping into unconditioned space.

"The doors go up and down rapidly to keep cold air where it needs to be and maintain cooler and freezer temperatures," said Matt Haley of Energy Insight,

Inc., a commercial energy consultant for Minnesota Power. "That has brought significant energy savings."

Minnesota Power has contributed more than $20,000 in research and development grants for Upper Lakes Foods to upgrade a rooftop HVAC unit with variable speed controls and for a new Discus™ Digital Compressor and Controller that adjusts energy use to actual demand for refrigeration. In addition, Upper Lakes Foods has reinsulated rooftop refrigeration lines with reflective coatings to ward off heat from the sun. Data logging is helping to measure and verify energy savings from refrigeration upgrades.

"Data logging works very well," said Craig Kedrowski, energy efficiency analyst–lead, Minnesota Power. "New technologies often come with claims of energy savings, but it is important to verify savings for customers and for our own sake."

Energy conservation improvements made at Upper Lakes Foods since 2009 add up to significant savings. They are helping the company save or avoid more than 1.8 million kWh of electricity per year and reduce monthly demand by more than 137 kW. In addition to the research grants, projects completed at Upper Lakes Foods have qualified for more than $61,000 in Minnesota Power commercial conservation rebates.

"Rebates help drive projects," said Wendy Wojtysiak-Erickson, inside sales manager and sustainability team member. "If you have multiple projects on the table and one has a rebate associated with it, that comes into play in making the decision."

"It is great to work with Minnesota Power," said Rob Fitzgerald, maintenance manager, Upper Lakes Foods. "We always look for ways to make Upper Lakes Foods more energy efficient, from compressors to lighting, whatever we can do to save energy and money. Minnesota Power offers suggestions, and they show us costs and benefits."

Some benefits of energy conservation are less tangible than others. Upper Lakes Foods participated in the Sustainable Twin Ports Early Adopter program in 2014–2015 and continues to incorporate environmentally, economically and socially sustainable practices into its operations. The onsite sustainability team was formed as part of that effort to educate and engage the entire staff.

"It makes business sense to be a good corporate citizen and a leader in sustainability," said Craig Ryan, buyer for Upper Lakes Foods and a member of the sustainability team. "Employees want to feel connected to something bigger than selling groceries, and our customers feel the same way. Minnesota Power is a good resource and partner."

> "New technologies often come with claims of energy savings, but it is important to verify savings for customers."
>
> **Craig Kedrowski, Energy Efficiency Analyst–Lead**
> Minnesota Power

"Upper Lakes Foods and Minnesota Power have a long relationship built on trust," said Kedrowski. "We approach them to test new technologies, and they contact us for advice and energy- and cost-saving estimates before beginning any facility improvement projects. It is good for both of our companies and for a more sustainable region."

Top left: High speed automatic doors on coolers and freezers keep cold air from escaping, resulting in significant energy savings.
Top right: Upper Lakes Foods team together with Energy Insight, Inc. and Minnesota Power energy consultants.
Bottom left: Craig Kedrowski visits with Upper Lakes Foods maintenance manager Rob Fitzgerald about recent improvements.
Bottom right: Upper Lakes Foods storefront in Cloquet, Minn.

2017 Energy Design Conference Energizes Builders

A steady stream of contractor pickup trucks and service vans rolled into the Duluth Entertainment Convention Center parking lot Feb. 20–22, 2017, signaling a yearly pilgrimage for many in the region's construction industry. Among the faithful pilgrims was home builder Tim Rose of Rose Construction in Virginia, Minn., who traveled from the Iron Range to attend the 27th annual Energy Design Conference & Expo, hosted by Minnesota Power.

"I've been attending for 22 years or so," said Rose, noting he recently lost his father. The two shared a passion for quality, energy-efficient construction and always traveled to the conference together. He felt compelled to continue that tradition. "It is important to be up-to-date in our industry. Being able to see new products, talk to other builders and learn about technologies that work or don't work is very valuable."

The Energy Design Conference & Expo was founded in 1991 as an educational component of Minnesota Power's Triple E New Construction program. Triple E stands for energy efficiency, education and evaluation and works in partnership with homeowners, builders, architects, suppliers and manufacturers to provide people building new homes with up-to-date energy-efficient building practices. What began 27 years ago as a one-day builders conference with just 45 attendees has grown into the premier energy-efficient and high performance building conference in Minnesota.

More than 600 participants, presenters and exhibitors attended the 2017 event. Its popularity flows from a commitment by Minnesota Power and its conference partners to always deliver a conference experience that is fresh, relevant and packed with tools and techniques that participants can use in the field.

"The planning group works hard to book presenters and attract exhibitors with cutting-edge information and products," said organizer Amanda Oja, Minnesota Power. "This year really hit the mark."

The 2017 conference featured more than 40 educational sessions and dozens of exhibits, from solar displays to unique foundation systems, weatherization materials and building diagnostic equipment. One hot topic was the Internet of Things

(IoT) and how Internet-connected devices embedded with electronics, sensors and software are giving people an unprecedented ability to monitor and control systems in their homes and businesses.

"Equipment is getting smarter, and we can look at diagnostics via the cloud or a customer's network," said Charlie Holt, account manager, Daikin Applied, a presenter in a pre-conference session on effective commercial building design who also staffed an exhibit booth at the expo. "Ways of integrating technology that worked 15 or 20 years ago don't work today."

Another exhibitor eager to discuss and demonstrate emerging technology was Randy Larson of Meteek Supply.

"This year we have LEDs that are not only dimmable but also change color, depending on what you want at different times of day," said Larson, as he showed off a strip of LEDs set in a thin strip of natural wood. "We are looking at what will be LED standard in the future."

Larson was visiting with Todd Johnson, of LaFarge/ Holcim, who heads the Construction Specifications Institute (CSI) Twin Ports Chapter, an educational partner in the conference. Johnson said CSI members, primarily architects and engineers, find the Energy Design Conference & Expo very worthwhile.

"There is a wide spectrum of educational tracks, and the conference does a good job of following industry trends, " Johnson said. "It also is a great value for participants who can meet their annual continuing education requirements in two days."

Luke Meints, a master electrician for the City of Duluth, is a regular conference attendee, with eight years under his belt. The City works closely with Minnesota Power's Power of One® Business conservation improvement program (CIP) to test and install innovative technologies in its facilities—but there is always something new at the conference.

"A lot of very knowledgeable speakers and exhibitors are here, and there are so many things to learn," Meints said. "I'm interested in new trends in LED lighting, daylight harvesting, solar energy, wind generation and building automation. I enjoy it."

> "A lot of very knowledgeable speakers and exhibitors are here, and there are so many things to learn."
>
> **Luke Meints, Master Electrician**
> City of Duluth

Along with tracks on heating, ventilation and air conditioning, building science, high performance systems, tightening the envelope, and other broad topics, the 2017 conference included a solar energy track with sessions on solar energy in cold climates, incorporating solar into new home construction and case studies of solar electric and

Left: Electric vehicles on display enhanced the conference experience. Right: Longtime attendee Matt Boo (far right) of Duluth Stove & Fireplace visits with friends and colleagues.

energy storage. Minnesota Power's exhibit booth featured information about the utility's expanded SolarSense rebate program, a resource that could potentially increase the number of solar energy systems installed at customer homes and businesses by tenfold.

"Interest in solar is high," said Oja. "Attendees also were excited to see electric boats, vehicles and charging stations on display and to test drive some of the newest electric cars."

> "There is a wide spectrum of educational tracks, and the conference does a good job following industry trends."
>
> **Todd Johnson, LaFarge/Holcim**

Minnesota Power's CIP team used the expo as an opportunity to display a cold climate air source heat pump (ASHP) and to share information about this emerging technology that is showing great potential in northern Minnesota.

"Research results for cold climate ASHPs are positive," said Tim Gallagher, program manager, Minnesota Power, who has tested the technology in his own home. "It has worked very well, even on extremely cold days."

Not far away, Matt Boo of Duluth Stove & Fireplace was busy sharing his company's solutions for energy-efficient home heating. He attends the conference and expo nearly every year to promote new energy-efficient products and visit with old friends.

"I like to see the contractors and talk with other vendors," Boo said. "I always learn something, and it is nice to visit with customers when they are comfortable and relaxed, not out pounding nails."

Demand for energy-efficient home and commercial construction continues to grow as consumers look for ways to conserve energy, save money and preserve the environment. Thanks to this conference, building professionals in Minnesota Power's service area are better equipped to serve this growing market.

In a session called Beyond Code Programs That Give You and Your Customer the Edge, presenter Rachel Wagner of Wagner Zaun Architecture walked participants through a variety of building standards used to improve energy efficiency, including LEED and Passive House certification programs. She also stressed that knowledgeable designers and builders can set their own standards to build beyond code when they know building science, set goals and targets, define a path and protocols for achieving success, verify performance and evaluate results.

"The educational value of the Energy Design Conference & Expo is profound," said Tina Koecher, manager-customer solutions, Minnesota Power. "We are proud to advance energy-efficient design and construction by ensuring those who build new homes and businesses in our region have access to the most current energy-efficient building technologies and practices."

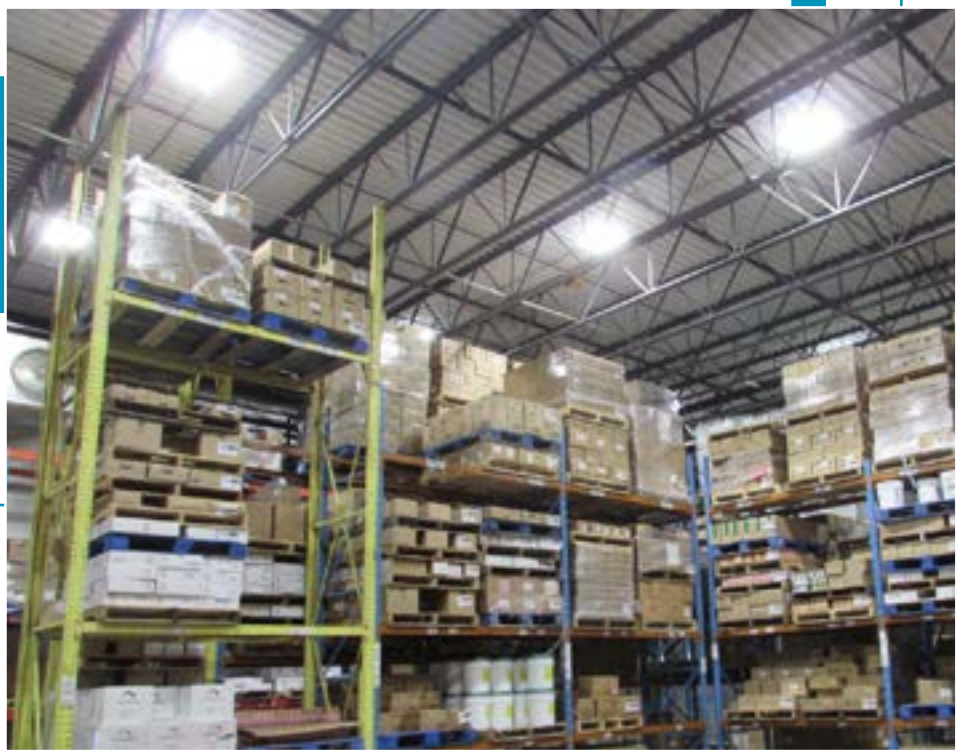
Top: Eric Schlacks of ComfortSystems ready to chat with attendees in the exhibit hall.
Middle left: Andy Vo of ChargePoint attended to share information about electric vehicle charging stations.
Middle center: A vendor explains a wall system to a booth visitor.
Middle right: Randy Larson of Meteek Supply and Todd Johnson of LaFarge/Holcim value the networking and educational opportunities.
Bottom left: Conference attendees in session, Justin Wilson of Construction Instruction, Inc. presenting.
Bottom right: Minnesota Power employees chat with conference attendees at their energy-conservation booth.

"This is fabulous to see so many people. For us, it is a chance to follow up with products and customers. Attendees can talk with exhibitors and ask speakers specific questions. There is always new stuff."

Eric Schlacks, ComfortSystems

"We always look for ways to make Upper Lakes Foods more energy efficient, from compressors to lighting, whatever we can do to save energy and money. Minnesota Power offers suggestions, and they show us costs and benefits."

Rob Fitzgerald
Upper Lakes Foods



Appendix A

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

Tina S. Koecher
Manager – Customer Solutions
218-355-3805
tkoecher@mnpower.com

April 2, 2018

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

Mr. William Grant, Deputy Commissioner
Minnesota Department of Commerce
Division of Energy Resources
85 7th Place East, Suite 500
St. Paul, MN 55101-2198

Re: **2017 Conservation Improvement Program Consolidated Filing**
MPUC Docket No. E015/M-18-116
DOC Docket No. E015/CIP-16-117.01

Dear Mr. Wolf and Deputy Commissioner Grant:

Attached please find via eFiling Minnesota Power's 2017 Conservation Improvement Program (CIP) Consolidated Filing. This submittal includes a CIP Tracker Activity Report, a Financial Incentives Report, a Proposed Conservation Program Adjustment Factor, 2017 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 2017 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) 355-3805 or tkoecher@mnpower.com.

Sincerely,

Tina S. Koecher
Manager – Customer Solutions
Minnesota Power

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

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Minnesota Power's 2017 Conservation Improvement Program Consolidated Filing	Reporting on CIP Tracker Account Activity, Financial Incentives Report, Proposed CPA Factors and 2017 Project Evaluations Docket No. E-015/M-18-116 E-015/CIP-16-117.01

SUMMARY OF FILING

Minnesota Power hereby files with the Minnesota Public Utilities Commission (MPUC or Commission) its annual Conservation Improvement Program Consolidated Filing in compliance with Minn. Stat. § 216B.241. Minnesota Power requests approval of the following:

- **$3,315,558** 2017 CIP Tracker Account activity year-end balance
- **$0.002741/kWh** revised Conservation Program Adjustment (CPA), to be first implemented without proration on July 1, 2018
- 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 (CIP) Consolidated Filing via eFiling with the Department of Commerce, Division of Energy Resources (Department) to comply with annual CIP project evaluation filing requirements. Please note that this filing is available through the eDockets system maintained by the Department and the MPUC. Access this document by going to eDockets at https://www.edockets.state.mn.us/EFiling/home.jsp and selecting "Search documents." For Docket Number, insert "16" for the year and "117.01" for the number and then click on "Search." The MPUC Docket Number is "18" for the year and "116" for the number. A paper copy of this filing is available upon request.

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

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

Susan Romans of the City of Duluth, County of St. Louis, State of Minnesota, says that on the **2nd** day of **April, 2018**, she served Minnesota Power's 2017 Consolidated Filing in **Docket Nos. E015/CIP-16-117.01 and E015/M-18-116** on the Minnesota Public Utilities Commission and the Minnesota Department of Commerce via e-Filing. The persons on E-Dockets Official Service Lists for these two Dockets were served as requested.

Susan Romans

Susan Romans

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