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April 1, 2019

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

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

RE: 2018 Demand Side Management Financial Incentive Project
Docket No. E017/M-19-

Annual Filing to Update the Conservation Improvement Project Rider
Docket No. E017/M-19-

2018 Conservation Improvement Project Status Report
Docket No. E017/CIP-16-116.02

Dear Mr. Wolf and Deputy Commissioner Sullivan:

Enclosed please find Otter Tail Power Company's filing in the above referenced matter which includes:

- Executive Summary
- Summary of Filing
- Petition of Otter Tail Power Company
- Financial Incentive
- Status Report
- Conservation Cost Recovery Adjustment
- Appendix A – Tables
- Appendix B – Third Party Evaluations
- Appendix C – Project Information Sheets

A Certificate of Service is also enclosed. Otter Tail Power Company has served a copy of this filing on all parties listed on the enclosed Service List. If you or Commission Staff have any questions, please contact me at (218) 739-8639 or JGrenier@otpco.com.

Very truly yours,

/s/ JASON GRENIER
Jason Grenier, Manager
Market Planning

jch
Enclosures
By electronic filing
c: Service List

2018 DSM INCENTIVE, FILING TO UPDATE THE RIDER, AND STATUS REPORT EXECUTIVE SUMMARY

On April 1, 2019, Otter Tail Power Company (Otter Tail or the Company) files with the Minnesota Public Utilities Commission (Commission or MPUC) and the Minnesota Department of Commerce, Division of Energy Resources (DER) its annual report detailing the Company's previous year's Conservation Improvement Program (CIP) activities.

On April 1, 2019, Otter Tail Power Company files its 2018 Status Report.

On April 1, 2019, Otter Tail also files its annual filing to update the CIP Rider.

Otter Tail would like to emphasize the following points concerning the 2018 Conservation Improvement Program:

- The Company achieved 4.21[1] percent energy savings as a percent of retail energy sales, above our approved goal of 2.44 percent.
- The Company achieved energy savings of 73,255,915 kWh, exceeding goal by 142 percent. Demand savings were 114 percent of goal.
- The cost per kWh for *first year* savings is $0.12 (12 cents) compared to a budgeted cost of $0.17 (17 cents). Costs are in line with historical averages of $0.13 (13 cents).
- Expenditures were over budget (106 percent) at $9,027,762 based on an approved budget of $8,513,303.
- Net benefits of $35,167,238 were achieved excluding the negative net benefits from assessments.

Requests for Approval

- The inclusion of the Company's LED Street Light project expenses, less any rate of return for the project, within the financial incentive mechanism.
- The Company is requesting approval for $3,004,3113 in performance incentives for 2018 CIP activities, a small share of the total net benefits delivered to customers from investments in CIP.
- The Company is requesting the Conservation Cost Recovery Adjustment (CCRA) factor of $0.00710 per kWh be reflected on customers' bills through the Resource Adjustment starting with bills rendered (dated) on and after October 1, 2019.
- As in prior years, Otter Tail is requesting a variance to Minnesota Rule 7820.3500 (E & K), which require the Fuel Clause Adjustment (FCA) be stated as a separate line item on customer bills. The requested variance would allow the Company to continue to combine the FCA with the CCRA on customer bills.

[1] Adjusted for one-third energy savings from behavioral change programs.

- The Company is requesting approval of the 2018 CIP Tracker, resulting in a year-end balance of $5,994,017.

Otter Tail has committed resources and developed new, creative approaches in pursuit of higher conservation goals. This pursuit includes an appropriate balance of direct and indirect impact programs. New technologies, delivery mechanisms, and segmentation strategies emphasize Otter Tail's commitment to energy efficiency. Recent accomplishments are particularly noteworthy in the face of new building codes and equipment efficiencies and saturated markets. A consistent regulatory environment is critical to overcoming these challenges as utilities continue to pursue Minnesota's Next Generation Act energy goals. Otter Tail appreciates the support from Minnesota's regulatory agencies as we work together to sustain Minnesota's energy future.

Please note that this filing is available through the eDockets system maintained by the Minnesota Department of Commerce and the Minnesota Public Utilities Commission. Access this document by going to eDockets through the websites of the Department of Commerce or the Public Utilities Commission or going to the eDockets homepage at:

https://www.edockets.state.mn.us/EFiling/home.jsp

Once on the eDockets homepage, this document can be accessed through the Search Documents link and entering in docket number: 16-116.02.

Please contact Otter Tail at 800-493-3299 to request a complete copy of this filing.

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Otter Tail Power Company's Annual Filing of the Demand Side Management Financial Incentive Project	Docket No. E017/M-19-
In the Matter of Otter Tail Power Company's Annual Filing to Update the Conservation Improvement Project Rider	Docket No. E017/M-19-
Status Report – 2018 CIP Activities	Docket No. E017/CIP-16-116.02

SUMMARY OF FILING

Otter Tail Power Company (Otter Tail or the Company) is pleased to report its 2018 DSM achievements. CIP program results for 2018 proved to be another successful year for Otter Tail and our customers exceeding the approved 2.41 percent energy savings goal and achieving 4.21 percent energy savings while delivering nearly $35 million in customer net benefits.

Otter Tail is requesting approval to include the Company's LED Street Light project expenses, less any rate of return for the project, within the financial incentive mechanism.

Otter Tail is requesting approval of a financial incentive of $3,004,311 to be approved and recovered through its Conservation Improvement Project (CIP) Tracker Account.

Otter Tail is requesting the Conservation Cost Recovery Adjustment (CCRA) factor of $0.00710 per kWh be reflected on customers' bills through the Resource Adjustment starting with bills rendered (dated) on and after October 1, 2019.

As in prior years, Otter Tail is requesting a variance to Minnesota Rule 7820.3500 K and Minnesota Rules part 7825.2600, which require the Fuel Clause Adjustment (FCA) be stated as a separate line item on customer bills. The requested variance would allow the Company to continue to combine the FCA with the CCRA on customer bills.

Lastly, Otter Tail is requesting approval of the 2017 CIP Tracker, resulting in a year-end 2018 balance of $5,994,017.

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Otter Tail Power Company's Annual Filing of the Demand Side Management Financial Incentive Project	Docket No. E017/M-19-
In the Matter of Otter Tail Power Company's Annual Filing to Update the Conservation Improvement Project Rider	Docket No. E017/M-19-
Status Report – 2018 CIP Activities	Docket No. E017/CIP-16-116.02

PETITION OF OTTER TAIL POWER COMPANY

I. INTRODUCTION AND BACKGROUND

Otter Tail Power Company (Otter Tail or the Company) is requesting approval of a financial incentive of $3,004,311 to be approved and recovered through its Conservation Improvement Project (CIP) Tracker Account.

Otter Tail is requesting approval to include the Company's LED Street Light project expenses, less any rate of return for the project, within the financial incentive mechanism.

Otter Tail is requesting the Conservation Cost Recovery Adjustment (CCRA) factor of $0.00710 per kWh be reflected on customers' bills through the Resource Adjustment starting with bills rendered (dated) on and after October 1, 2019.

As in prior years, Otter Tail is requesting a variance to Minnesota Rule 7820.3500 K and Minnesota Rules part 7825.2600, which require that the Fuel Clause Adjustment (FCA) be stated as a separate line item on customer bills. The requested variance would allow the Company to continue to combine the FCA with the CCRA on customer bills.

Lastly, Otter Tail is requesting approval of the 2018 CIP Tracker, resulting in a year-end 2018 balance of $5,994,017.

On June 15, 1994, Otter Tail filed a petition for a CIP Adjustment to recover costs associated with CIP. On October 18, 1994, the Company filed a Motion to File Amended Petition and Accept Settlement Agreement. On December 23, 1994, the Minnesota Public Utilities Commission (Commission or MPUC) issued an Order Approving Settlement and Proposed CIP Adjustment for Otter Tail.[2] In this Order, the Commission approved a CIP adjustment mechanism to be applied to customers' bills on or after July 1, 1995, which the Company began implementing on July 1, 1995.

On January 27, 2010, the MPUC approved a new shared savings model[3] for 2010 and indicated the new shared savings Demand Side Management (DSM) incentive shall be in operation for the length of each utility's triennial CIP plan.

On August 5, 2016 the MPUC revised the Shared Savings Model with the modifications specific to Otter Tail set forth below:

- Authorize financial incentives for a utility that achieves energy savings of at least 1.0 percent of the utility's retail sales. For a utility that achieves energy savings equal to 1.0 percent of retail sales, award the utility a share of the net benefits.
    - 8.25 percent in 2017,
    - 6.75 percent in 2018, and
    - 4.75 percent in 2019.
- 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.
- For savings levels of 1.7 percent and higher, award the utility a share of the net benefits equal to the following Net Benefits Cap.
    - 13.5 percent in 2017,
    - 12.0 percent in 2018, and
    - 10.0 percent in 2019.
- For all utilities, set the following Conservation Improvement Plan (CIP) Expenditure Caps:
    - 40 percent in 2017,
    - 35 percent in 2018, and
    - 30 percent in 2019.
- The costs of any mandated, non-third-party projects (e.g., the 2007 Next Generation Energy Act assessments, University of Minnesota Initiative for Renewable Energy and the Environment costs) shall be excluded from the calculation of net benefits and energy savings achieved and incentive awarded.

[2] Docket No. E017/M-94-539.

[3] Docket No. E,G999/CI-08-133.

- Costs, energy savings, and energy production related to Electric Utility Infrastructure Costs, solar installation, and biomethane purchases shall not be included in energy savings for DSM financial incentive purposes.

II. REQUEST FOR APPROVAL

Financial Incentive Filing

Otter Tail respectfully requests the approval to include the Company's LED Street Light project expenses, less any rate of return for the project, within the financial incentive mechanism.

Otter Tail respectfully requests that a financial incentive of $3,004,311 be approved and recovered through its CIP Tracker Account.

Details of the incentive calculation and corresponding evaluations of direct impact projects are included in the attached report under the Section entitled "FINANCIAL INCENTIVE."

Conservation Improvement Project Rider

The Company is requesting the Conservation Cost Recovery Adjustment factor of $0.00710 be reflected on customers' bills through the Resource Adjustment starting with bills rendered (dated) on and after October 1, 2019.

III. LEGAL AUTHORITY

The Petition for approval of Otter Tail's Financial Incentive Filing is submitted in accordance with Minn. Stat. § 216B.16, subd. 6c. The Conservation Improvement Project Rider is submitted in accordance with the Miscellaneous Tariff rules.

IV. REQUEST FOR VARIANCE TO MINNESOTA RULES

Otter Tail requests a variance to Minnesota Rules 7820.3500 K and Minnesota Rules part 7825.2600, which require that the FCA be stated as a separate line item on customers' bills. The requested variance would allow the Company to continue to combine the FCA with the Conservation Improvement Adjustment on customer bills.

Minnesota Rules 7829.3200 authorizes the Commission to grant a variance to its rules when (1) enforcement of the rule would impose an excessive burden on the applicant, (2) the variance would not adversely affect the public interest, and (3) the variance would not conflict with standards imposed by law. Otter Tail believes the criteria for granting variances are met since the

Company has been using the combined Resource Adjustment since July 1995, and customers have become familiar with the single-line item on their bill.

The continuation of the variance would not adversely affect the public interest and may avoid customer confusion if the bill presentment was altered at this time.

And finally, there are no statutory provisions that would prohibit the variance; therefore, the requirement may be varied pursuant to Minnesota rules 7829.3200.

Once approved by the Commission, the Company will be notifying its Minnesota customers of the new CIP surcharge directly on its customers' bills. A surcharge notification will be printed on the back of each bill on the billing date following closest to October 1, 2019. In general, the notification will state "Beginning October 1, the Resource Adjustment includes a CCRA factor of $0.00710/kWh that has been applied based on the Commission's (date) order."

V. MISCELLANEOUS FILING AND REGULATORY REQUIREMENTS

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

Jason Grenier
Otter Tail Power Company
215 South Cascade Street
P.O. Box 496
Fergus Falls, MN 56538-0496
(218) 739-8639 Phone
(218) 739-8941 FAX

B. The effective date of the CIP Rider is October 1, 2019. The effective date of the other filings is the date of Commission approval.

C. Otter Tail Power Company agrees that the notice and comment periods set forth in the Miscellaneous Tariff Filing rules control the time frame for processing this type of filing.

D. The reason for the filing and its impacts is explained above and in the attached report.

E. Minn. Rules Ch. 7690 contains the requirements and procedures for CIP filings. Minn. Stat. §§ 216B.2401, 216B.241, and 216B.2411 contain provisions utilities must meet in CIP. All compliance points are addressed in this section.

Statutory Requirements

2018 Minimum Spending Requirement

Minn. Stat. § 216B.241, requires that 1.5 percent of the Company's electric gross operating revenues be spent on CIP. Otter Tail's spending in relation to approved minimum spending is as follows:

Minimum Spending Requirement	$ 2,297,210
Approved Budget	$ 8,513,303
2018 Actual Spending	$ 9,027,762

2018 Minimum Energy Savings Goal

The Company has complied with Minn. Stat. § 216B.241 which sets the minimum energy savings goal of 1.5 percent of MWh sales, determined as a percent of 2013-2015 weather normalized sales.

Energy savings goal @ 1.5%	26,128,129 kWh
Approved Energy Savings Goal	51,528,624 kWh
2018 Actual Energy Savings	73,255,915 kWh

2018 Low-Income Spending Requirement

The Company has complied with Minn. Stat. § 216B.241, subd. 7 requiring utilities to spend 0.2 percent of residential electric gross operating revenues on low-income programs.

Low-income minimum spend @ 0.2%	$ 110,165
Low-income approved budget	$ 150,000
Low-income actual spend	$ 182,044

2018 Research and Development 10 Percent spending cap

The Company has complied with Minn. Stat. § 216B.241, subd. 2c that limits spending on Research and Development to 10 percent of the minimum spending requirement.

Minimum Spending Requirement	$ 2,297,210
10 percent R&D Spending Cap	$ 289,129
2018 Actual R&D Spending	$ 171,066

Distributed Energy Resource Five Percent Spending Cap

The Company has complied with Minn. Stat. § 216B.2411, subd. 1(a) that allows utilities to spend up to five percent of the utility's minimum spending requirement on distributed generation project.

Lighting Use and Recycling Programs

The Company has complied with Minn. Stat. § 216B.241 that requires utilities to invest in projects that encourage the use of energy efficient lighting and reclamation and recycling of spent fluorescent and high intensity discharge lamps. Otter Tail met this requirement through its commercial and residential lighting programs.

Sustainable Buildings Certification

The Company has complied with Minn. Stat. § 216B.241, subd. 1f(c) that requires utilities to include in their CIP plans projects that facilitate professional engineering verification to qualify a building as ENERGY STAR labeled, Leadership in Energy and Environmental Design (LEED) certified, or Green Globes certified. The Company's Integrated Building Design Plus project facilitates sustainable building labeling and certification.

Sustainable Building 2030 Standards

The Company has complied with Minn. Stat. § 216B.241, subd. 9(e) that requires utilities to develop conservation improvement projects to support attaining energy efficiency goals consistent with Sustainable Buildings 2030 (SB 2030) standards. The Company's Integrated Building Design Plus project supports the SB 2030 standards.

Triennial Decision Requirements

The Company has complied with any additional requirements established in the DER Deputy Commissioner's Decision on November 3, 2016.

Budget Modifications

On October 10, 2013, the Deputy Commissioner of the DER issued an Order giving utilities budget flexibility criteria by segment rather than individual program budgets. Under this requirement, utilities are required to provide a letter for permission to exceed the overall budget for a segment by 25 percent or more.

Otter Tail requested a budget modification on July 6, 2018. The Deputy Commissioner approved this request on October 11, 2018.

Measurement and Verification (M&V) Protocols for Large Custom CIP Projects.

On July 23, 2008, the Deputy Commissioner approved M&V Protocols for Large Custom CIP Projects. The protocols apply to custom projects that have savings greater than one GWh and are initiated after April 1, 2008.

Otter Tail had no custom projects requiring M&V in 2018.

CIP Employee Related Expenses

In its November 5, 2010 Order in Docket No. E017/M-10-220, the Commission agreed with and adopted the recommendations of the DER regarding reporting of employee expenses in utility status reports. The DER's recommendation included guidelines for public utilities to report employee related expenses that have been charged as Conservation Improvement Program (CIP) expenses. Public utilities must clearly identify all expenses in the four sections below:

- Travel expenses
- Employee meals
- Entertainment expenses, and
- Employee awards.

The DER further recommended, *"to limit the impacts on ratepayers, that these types of expenses remain a minor part of the overall annual budget or expenses, with a cap of 0.5 percent of total annual budgets or expenses."*

Otter Tail Power summarizes the Company's 2018 employee expenses as follows:

Section	Amount	Description
Travel Expense	$18,424	Travel expenses include mileage, rental vehicles, taxi services, and air fare for offsite meetings, customer site visits, and travel to training and conferences. All travel expenses are directly related to CIP program design, training, delivery, and promotion.
Lodging Expenses	$10,147	Lodging expenses include any lodging used for customer site offsite meetings, customer site visits, and lodging for training and conferences. All lodging expenses are directly related to CIP program design, training, delivery, and promotion.
Meal and Entertainment Expenses	$5,414	Meal and entertainment expenses include employee meals while attending offsite meetings, and meals while attending

		training and conferences. All meal and entertainment expenses are directly related to CIP program design, training, delivery, promotion, and review.
Conferences / Seminars / Trainings	$2,262	Conferences / Seminars / Training expenses consist of registration fees.
Miscellaneous Expenses	$55	The expense consists of recognition of one employee for exceptional performance in working with customers and helping the Company achieve high energy savings.
TOTAL	$36,301	

Total 2018 employee expenses that were included in Otter Tail's CIP Tracker were $36,301. The total employee expense is 0.40 percent of the total 2018 CIP Tracker expenses of $9,027,762. This is below the DER's recommended employee expense of 0.5 percent of total CIP expenses.

Incorporation of the Average Savings Method (ASM) to account for Behavioral Savings.

On April 26, 2012, in Docket Nos. E,G999/CI-08-133 and E017/CIP-10-356, the Deputy Commissioner of the Department of Commerce made a decision in how to count energy savings from behavioral projects in CIP programs and the Shared Savings Demand-Side Management Financial Incentive calculations. The Commissioner ordered Average Savings Method (ASM) proposed by Staff be used with a three-year minimum lifetime, effective with the 2014 program year.

Otter Tail has implemented the Deputy Commissioner's decision for calculating the energy savings for behavioral projects. The results have been incorporated in the energy savings results counted towards the 1.5 percent energy savings goal.

VI. CONCLUSION

Based on information provided throughout this filing, Otter Tail requests the following:

From the MPUC:

1. The inclusion of the Company's LED Street Light project expenses, less any rate of return for the project, within the financial incentive mechanism.
2. Approval of the 2018 DSM Financial Incentive, totaling $3,004,311.
3. Approval of the 2018 CIP Tracker, resulting in a year-end balance of $5,994,017.
4. Approval to implement the CCRA factor of $0.00710/kWh reflected on customers' bills through the Resource Adjustment starting with bills rendered on and after October 1, 2019.
5. Approval of a variance to Minnesota Rule 7820.3500 to allow Otter Tail to continue to combine the FCA with the Conservation Improvement Adjustment on customer bills.

From the Division of Energy Resources:

1. Approval of the individual 2018 CIP Projects, Evaluations, Energy and Demand Savings.
2. Approval of Otter Tail's response to various DER orders as indicated in the Miscellaneous Filing and Regulatory Compliance section of this filing.

If there are any questions concerning this filing, please contact Jason Grenier at (218) 739-8639 or JGrenier@otpco.com.

Dated: April 1, 2019

Respectfully submitted,
OTTER TAIL POWER COMPANY
By: */s/ JASON GRENIER*

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Manager, Market Planning
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Financial Incentive

FINANCIAL INCENTIVE

Otter Tail Power Company (Company or Otter Tail) hereby submits this filing in compliance with the Minnesota Public Utilities Commission's (Commission or MPUC) January 27, 2010 Order Approving Demand Side Management (DSM) Financial Incentive Plans.[1]

The filing consists of the following items.

- Discussion of 2018 Financial Incentive
- Financial Incentive - Statutory Criteria
- Cost Comparisons / Net Benefits
- Request for Approval

Tables referenced in this Financial Incentive are located in Appendix A and include the following information.

Table 1	Calculation of Carrying Charge – 2018 CIP Tracker
Table 2	2018 Incentive Mechanism
Table 3	2018 Project Costs, Savings, and Benefits
Table 4	2018 Benefit Cost Ratios
Table 5	2018 CIP Program Status Report
Table 6	2018 CIP Program Status Report – Costs per kW & per kWh

[1] Docket No. E,G999/CI-08-133.

I. DISCUSSION OF 2018 FINANCIAL INCENTIVE

The current shared-savings financial incentive plan awards Otter Tail Power Company a small share of the net benefits from investments in energy efficiency. The plan links the incentive to the utilities' performance in achieving cost-effective energy efficiency.

INCENTIVE CALCULATION

On January 27, 2010, the MPUC approved a new shared savings model[2] for 2010 and indicated the new shared savings DSM incentive shall be in operation for the length of each utility's triennial Conservation Improvement Project (CIP) plan. Otter Tail's triennial plan is approved for 2017-2019.

On August 5, 2016, the MPUC issued an order adopting additional modifications to the Shared Savings Model recommended by the DER. The MPUC's order incorporated the modifications set forth below. Included are the modifications that are specific to Otter Tail:

- Authorize financial incentives for a utility that achieves energy savings of at least 1.0 percent of the utility's retail sales.
- 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.
- For savings levels of 1.7 percent and higher, award the utility a share of the net benefits equal to the Net Benefits Cap of:
    - 13.5 percent in 2017,
    - 12.0 percent in 2018, and
    - 10.0 percent in 2019.
- For all utilities, the following Conservation Improvement Plan (CIP) Expenditure Caps are applied:
    - 40 percent in 2017,
    - 35 percent in 2018, and
    - 30 percent in 2019.
- The costs of any mandated, non-third-party projects (e.g., the 2007 Next Generation Energy Act assessments, University of Minnesota Initiative for Renewable Energy and the Environment costs) shall be excluded from the calculation of net benefits and energy savings achieved and incentive awarded.
- Costs, energy savings, and energy production related to Electric Utility Infrastructure Costs, solar installation, and biomethane purchases shall not be included in energy savings for DSM financial incentive purposes.

[2] Docket E,G999/CI-08-133.

As part of this April 1, 2019, filing under section II, the Company is providing the 2018 proposed incentive. The following steps are used in the incentive calculation:

1. The 2018 incentive is calculated using the model provided by the Department and detailed in Appendix A, Table 2.
2. At year-end, the utility calculates the net benefits for the CIP projects based on actual participation and costs. The net benefits are the avoided costs less the total CIP costs, including both direct and indirect projects.
3. Appendix A, Table 3 lists the 2018 CIP Programs, each as proposed and approved by the Department, and each with actual 2018 results. Also listed are total program costs, resulting benefits, and net benefits for each program and as a total CIP Program.
4. **Actual energy savings was 70,237,937 kWh, excluding the Company's Publicly-Owned Property (POP) Solar and Company-Owned Street and Area Lighting (Street Lighting) programs' allocated savings, or 4.03 percent of historic average retail sales, and total net benefits are calculated to be $34,609,459, excluding assessments, House Therapy, POP Solar, and Street Lighting.** The 2018 results for energy savings, costs, and net benefits are entered in the post-year financial incentive tool as shown in Appendix A, Table 2.
5. Appendix A, Table 4 outlines the benefit/cost ratios for each 2018 program. Figures are listed for each project "as filed" as part of the 2017-2019 CIP Triennial Filing and "as actual" reflecting 2018 actual participation, savings, and costs.
6. As detailed in Appendix A, Table 2, the total incentive amount achieved in 2018 is **$3,153,096**, but Otter Tail is requesting **$3,004,311** to account for a **$148,785** reduction needed to be made to the 2017 financial incentive for actual 2018 LED Street Light project expenses. This adjustment is discussed further below.

II. FINANCIAL INCENTIVE - STATUTORY CRITERIA

Minn. Stat. §216B.16, subd. 6c(b), sets forth four statutory criteria with respect to approval by the Minnesota Public Utilities Commission of utility financial incentive plans for energy conservation improvements. In approving incentive plans, the Commission shall consider:

1. whether the plan is likely to increase utility investments in cost-effective energy conservation.
2. whether the plan is compatible with the interest of utility ratepayers and other interested parties.
3. whether the plan links the incentive to the utility's performance in achieving cost-effective conservation.
4. whether the plan is in conflict with other provisions of this chapter.

Consistent with the Commission's January 27, 2010 Order Approving Demand Side Management Financial Incentive Plans in Docket No. E,G999/CI-08-133, the following

discussion describes how Otter Tail's proposed 2018 Demand Side Management financial incentive in the present docket is consistent with each of these statutory criteria.

Otter Tail's financial incentive mechanism is consistent with the considerations set forth by the Commission as follows:

1. Increase investments: The incentive mechanism encourages increased utility investment in cost-effective conservation, recognizing higher incentives for greater net benefits.
2. Interest of ratepayers and others: The current mechanism is in the interest of ratepayers because it awards utilities a percentage of net benefits achieved. The mechanism does not award the incentives for simply complying with statutory spending, but encourages additional cost-effective energy-efficiency investment, which is in the ratepayer's interest.
3. Links incentive to performance: The current incentive is a shared savings mechanism that awards utilities a share of the net benefits from investments in energy efficiency. There is a direct link between the amount of the incentive and the utility's performance of achieving cost-effective efficiency. As cost-effectiveness increases, net benefits increase, and thus, the incentive increases until the utility reaches the expenditure cap.
4. Conflict with other provisions: Otter Tail does not believe the current incentive conflicts with other provisions of law. It does not result in unjust or unreasonable rates since the mechanism awards for cost-effective energy efficiency at a cost less than supply side options.

III. COST COMPARISONS / NET BENEFITS

In 2018, Otter Tail's average first year cost per kWh saved was 13 cents, which is equivalent to the five-year average of 13 cents. As noted in the Table 1, the average first year costs per kWh range have remained relatively consistent.

Table 1: History of Otter Tail's CIP Achievements, Tracker, and Incentives (2014-2018)

	2014	2015	2016	2017	2018
DSM Financial Incentive	$2,957,972	$4,257,105	$5,031,678	$2,642,360	$3,153,096
CIP Expenditures	$5,188,931	$6,105,445	$7,770,781	$6,605,899	$9,027,762
Achieved Energy Savings (kWh)	33,805,392	48,652,628	57,504,891	52,497,167	70,237,937
Average Cost per kWh Saved	$0.15	$0.13	$0.14	$0.13	$0.13

NET BENEFITS

The definition of "net benefits" used in the financial incentive calculation is the total utility benefits less the total utility costs for the entire CIP portfolio for a single year. These figures are derived from a single year (2018) benefit/cost analysis using DSMore™ software. The utility benefits are aggregated for the lifetime of all CIP energy efficiency measures, discounted back to 2018 dollars using the utility discount rate of 7.51 percent for the utility test as approved in the

2016 General Rate Case and 2.68 percent for the societal test as approved in the 2017-2019 CIP filing.

As shown in Table 3 of Appendix A, the estimated net benefits for the 2018 Proposed CIP are $22,342,055. Additional details of the total costs and the total benefits from benefit/cost analysis of the 2018 Proposed CIP portfolio include:

Program Costs - Proposed 2018**	
Delivery/Implementation/Administration Costs	$3,846,553
Incentives	$4,666,749
Total Costs	$8,513,303
Program Benefits - Proposed 2018*	
Avoided T&D Electric	$5,957,493
Cost-Based Avoided Electric Production	$17,085,103
Cost-Based Avoided Electric Capacity	$7,812,762
Cost-Based Avoided Ancillary	$0
Total Benefits	$30,855,358
Net Benefits - Proposed 2018	$22,342,055
Benefit/Cost Results - Proposed 2018	3.62

* Benefits are based on lifetime benefits, discounted back to 2018 dollars using 7.51 percent utility discount rate.
** Costs include assessements.

As shown in Table 3 of Appendix A, the actual net benefits of $35,041,670 for 2018 CIP are higher than the proposed net benefits. Additional details of the total costs and the total benefits from the DSMore analysis of the 2018 Actual CIP portfolio include:

Program Costs - Actual 2018**	
Delivery/Implementation/Administration Costs	$3,084,968
Incentives	$5,942,794
Total Costs	$9,027,762
Program Benefits - Actual 2018*	
Avoided T&D Electric	$9,007,611
Cost-Based Avoided Electric Production	$24,533,956
Cost-Based Avoided Electric Capacity	$10,527,866
Cost-Based Avoided Ancillary	$0
Total Benefits	$44,069,432
Net Benefits - Actual 2018	$35,041,670
Benefit/Cost Results - Actual 2018	4.88

* Benefits are based on lifetime benefits, discounted back to 2018 dollars using 7.51 percent utility discount rate.
** Costs include assessements.

CIP Cost Breakdown - 2018				
	Proposed Costs		Actual Costs	
Delivery	$3,846,553	45%	$3,084,968	34%
Incentives	$4,666,749	55%	$5,942,794	66%
Total CIP Costs	$8,513,303	100%	$9,027,762	100%

IV. DISSCUSSION OF OTTER TAIL'S PROPOSED 2018 SHARED FINANCIAL INCENTIVE

Based on Otter Tail's 2018 results and actual net benefits of $34,609,459, the Company would have realized a financial incentive of $4,153,135 at 12 percent of net benefits. However, due to a spending cap first introduced in 2017, the financial incentive is limited to 35 percent of overall spending, reducing the financial incentive to $3,153,096 for 2018 CIP results, a reduction of $1,000,039. As stated above, Otter Tail has further reduced its 2018 proposed financial incentive to reflect the lower spending on the LED Streetlight project. Forecasted LED Street Light project costs were included in 2017's financial incentive and Otter Tail now proposes to true-up the financial incentive to accurately reflect the actual annual costs. After the adjustment to account for LED street light expenses the Company is requesting a $3,004,311 financial incentive to be included in the 2019 CIP recovery tracker.

DISCUSSION OF STREET LIGHT EXPENSES ELGIBILITY TOWARD FINANCIAL INCENTIVE

In Otter Tail's 2017 CIP Financial Incentive filing, Docket No. E-017/M18-119, the Company proposed to include expenses from the Company's LED Street Light project within the financial incentive mechanism. The LED Streetlights are owned by Otter Tail but installed as an illumination service at the request of customers. The Company does not include any energy savings or net benefits from the LED Street Light project towards the financial incentive, but including the expenses unlocks other net benefits, from other programs that are financial incentive eligible, to be included in the financial incentive.

On October 4, 2018 the Minnesota Public Utilities Commission (MPUC) held a commission meeting to decide Otter Tail's financial incentive from 2017 CIP results. The Minnesota Department of Commerce's Division of Energy Resources (Department) raised concerns that expenses from a Company project may not be eligible to apply towards the financial incentive. Specifically the Department pointed to the MPUC's in docket number, E,G999/DI-12-1342.

MPUC order points 1. and 2. in docket number E,G-999/DI-12-1342 discuss utility participation in CIP and eligibility towards financial incentives. Otter Tail believes our proposal to include LED expenses is in compliance with these two order points.

Order point 1. from the MPUC's July 16, 2013 decision is as follows:

> *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.*

Concerning the first order point on the issue of double recovery Otter Tail is clearly not double recovering. The CIP rebate paid to Otter Tail reduces rate base and Otter Tail's ability to earn a rate of return. The rebate is essentially a rebate back to the customers lowering their future obligations to pay for rate base. The return on the remaining rate base through CIP which the MPUC approved in its November 2017 decision in 17-152 has not been included as an expense towards the financial incentive in this proceeding. Otter Tail and the Department have previously agreed those expenses, $18,915.68 in 2018, are not eligible expense towards the CIP financial incentive and have been removed from the financial incentive in this proceeding.

Otter Tail also believes double recovery does not exist because the proposed financial incentive is calculated based on net benefits strictly from other programs that are eligible to be included towards the financial incentive. The LED Street Light project expenses are simply unlocking theses net benefits from other programs. It is important to note that Otter Tail's 2018 programs set a state record for energy savings as a percent of sales, but 24 percent of the net benefits from these programs do not count towards the Company's financial incentive simply because Otter Tail diligently managed program costs and didn't spend more money. Otter Tail believes no double recovery exists since the Company's proposed financial incentive is strictly coming from other eligible programs' net benefits.

Order point 2. from the MPUC's July 16, 2013 decision is as follows:

> *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.*

Otter Tail is also in compliance with order point two since Otter Tail is not counting any energy savings or net benefits from Otter Tail's own facilities towards the financial incentive. Only

expenses from the LED Street Light project are being included. All energy savings and net benefits included in the proposed financial incentive are from non-Company owned and financial incentive eligible projects.

In the MPUC's order from July 16, 2013, the Commission Action area further describes the MPUC's intent of their order points. The first paragraph on page 4 states,

> *The purpose of DSM financial incentive is to neutralize, at least in part, the significant disincentive to conservation posed by lost energy sales. These incentives compensate utility for a portion of sales lost to conservation and have proven to be effective tools for maximizing utility participation in conservation efforts.*

Otter Tail agrees with the MPUC's assessment of applying a financial incentive only in instances where there are lost sales. Otter Tail believes we have clearly proven that our financial incentive proposal is tied to lost sales. As stated above previously, 24 percent of Otter Tail's net benefits are not eligible towards financial incentive purely due to the Company not spending substantially more money. These net benefits are being driven from significant lost sales from Otter Tail's record-breaking year of energy savings. Otter Tail's proposal is simply to allow expenses from the LED Street Light program to be included so other financial incentive eligible program net benefits can be allowed towards the financial incentive to offset a portion of the significant lost sales.

DISCUSSION ON ADJUSTMENT OF 2017 CIP EXENSES AND FINANCIAL INCENTIVE

The MPUC's order from 2017 allowed forecasted expenses from the LED street light project to be included as expenses towards the financial incentive. Now that Otter Tail has completed one year of actual expenses in 2018 the Company proposes to use the 2018 actual expenses for 2017 and reduce the Company's 2017 CIP financial incentive. Table 5 below, rows A through D, illustrates the MPUC's decision in the Company's 2017 CIP Financial Incentive filing, Docket No. E-017/M18-119. Otter Tail proposes to make and adjustment to this based on lines E through H. The total adjustment is a reduction to the 2017 financial incentive found in row I.

As stated in the LED Street Light project summary area of this filing Otter Tail completed 98 percent of proposed lighting installations at 50 percent of the approved budget. Otter Tail diligently managed project costs even though spending more dollars on the program would have increased the Company's financial incentive. The 2018 LED Street Light project is very cost-effective program for customers delivering a very strong Utility Cost Test of 2.88.

Adjustment to account for actual LED Street Light Project Expenses

Table 5

	2017 Net Benefits	$ 23,626,518
	2017 Fin. Inc. at 13.5% of NB	**$ 3,189,580**
A	2017 Expenses with no LED Street Light Expenses included	$ 6,605,899
B	2017 Forecasted LED Steet Light Exp. (no ROR on Rate Base included)	$ 739,375
C	2017 Total Expenses included in Financial Incentive (A+B)	$ 7,345,274
D	**2017 Fin. Inc. at 40% of Expenses, also approved by MPUC (C*40%)**	**$ 2,938,110**
E	2017 Expenses with no LED Street Light Expenses included	$ 6,605,899
F	2018 Actual LED Street Light Expenses used for 2017 Fin. Inc. (no ROR on Rate Base included)	$ 367,411
G	2017 Total Expenses included in Financial Incentive (E+F)	$ 6,973,310
H	**2017 Fin. Inc. at 40% of Expenses, based on 2018 LED actual expenses (G*40%)**	**$ 2,789,324**
I	**Adjustment to 2017 Financial Incentive (H-D)**	**$ (148,786)**

V. SUMMARY OF PROPOSAL

Otter Tail's 2018 CIP energy savings set a record in Minnesota at 4.03 percent of historical sales. The MPUC's August 5, 2016, Order adopting Modifications to Shared Savings Demand-Side Management Financial Incentive Plan reaffirmed the basis of the utility's financial incentive is to share the net benefits from the conservation programs between customers and the utility. For 2018 CIP results, the utility was eligible to receive 12 percent of the total net benefits delivered to its customers, but not to exceed 35 percent of total expenses. Applying these factors and adjusting 2017 LED Street Light expenses to match 2018 actual expenses, qualifies Otter Tail for a $3,004,311 financial incentive.

Otter Tail's proposed 2018 financial incentive is consistent with Minn. Stat. §216B.16, subd. 6c(b), since it supports an increase in cost-effective utility investments, links the utility's performance to achieving cost-effective conservation, and does not conflict with other provisions of Minn. Stat. §216B.16.

VI. REQUEST FOR APPROVAL

Financial Incentive Filing

Otter Tail respectfully requests the MPUC to approve the following items:

1. The inclusion of the Company's LED Street Light project expenses, less any rate of return for the project, within the financial incentive mechanism.
2. The 2018 CIP performance financial incentive amount of $3,004,311 be recoverable through its CIP Tracker Account.

If there are any questions concerning this filing, please contact Jason Grenier at (218)739-8639 or JGrenier@otpco.com.

Dated: April 1, 2019

Respectfully submitted,
OTTER TAIL POWER COMPANY

By: */s/ JASON GRENIER*

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Status Report

Status Report

Table of Contents

STATUS REPORT - 2018 CIP PROGRAMS

The 2018 Conservation Improvement Program (CIP) Status Report has been combined with the 2018 Financial Incentive Filing, produced annually on April 1. The Status Report covers all 2018 programs, including direct impact, indirect impact, and miscellaneous programs. Participation, program costs, and energy and demand savings for all programs are outlined in Appendix A, Table 5.

Direct Impact Programs

Residential

- Air Conditioning Control
- Appliance Recycling
- Energy Star Lighting
- Electronically Commutated Motors
- Energy Feedback
- Heat Pumps
- Home Insulation
- Home Transformer
- School Kits
- Smart Thermostats
- Water Heater Store & Save

Low-Income

- House Therapy

Commercial

- Adjustable Speed Drives
- Air Conditioning Control
- Commercial Direct Install
- Compressed Air Efficiency
- Custom Efficiency Grants
- Heat Pumps
- Commercial & Industrial Focused Efficiency
- Lighting – Retrofits
- Lighting – New Construction
- Motors
- Recommissioning
- Refrigeration

Other

- Company-Owned Street & Area Lighting
- Publicly Owned Property (POP) Solar

Indirect Impact Programs / Regulatory Requirements

- Advertising & Education
- Compressed Air Audits
- Integrated Building Design Plus
- Financing
- Implementation & Training
- Program Development
- PUC / Regulatory (NGEA) Assessments
- Transmission & Distribution Cost Study

Miscellaneous / Inactive Program Costs

- Accounting Adjustments
- Town Energy Challenge Pilot
- Midstream Commercial Kitchen Pilot
- Rooftop Unit Efficiency Pilot
- Carrying Charges

DIRECT IMPACT – RESIDENTIAL

AIR CONDITIONING CONTROL

The CoolSavings air conditioning control program targets residential customers with central air conditioning. Customers are encouraged to enroll in the program and receive a $8.25/month credit prorated for each of the four summer months (June-September).

Otter Tail Power Company (the Company, Otter Tail) promotes air conditioning control using various resources listed below:

- Bill inserts sent to customers in February, March, July, September, and December 2018.
- A digital campaign in conjunction with the Advertising and Education program.
- Customer care booklet sent to all new customers.
- Hero-spots on the Company website during February, March, May, and June.
- Return envelope spot in January, February, and March.
- Targeted mailing in October.
- Bill messages – April and November.
- *Programs and services guide* provided to contractors and employees.
- Print advertisement to regional home magazine.
- Billboard spot in March, April, May, and June.
- Annual and monthly service representative training.
- Agency training for House Therapy contractors.
- Brochures available upon request.
- Program, rate, and rebate page described within the Company's web site.

In 2018, Otter Tail controlled air conditioning 18 days totaling 21 hours and 17 minutes. This control time is within the 300-hour control limit in the air conditioning rider.

This program has been approved for continuation in the 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Air Conditioning Control (R)	**Actual**	**Proposed**	**% of Goal**
Participation	2,729	4,389	62%
Budget $	$45,898	$86,000	53%

Evaluation Methodology

Energy savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Air Conditioning Control (R)	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	84,629
Demand Savings – kW	2,018.06

APPLIANCE RECYCLING

The Appliance Recycling program offers residential customers a $50 incentive to recycle inefficient but operating refrigerators and freezers at no cost to the customer. In 2018 we again offered four LED bulbs in addition to the $50 recycling incentive to participants. This has helped to retain customer interest in the program as reflected in participation. We will continue with the additional incentive in 2019.

Otter Tail promotes appliance recycling using various resources:

- Bill inserts targeted at residential customers in May, July, and September.
- Print advertising in May.
- Radio campaign on targeted Minnesota stations in May.
- Web page content including hero ads placed on the Company's home page and program information including instructions about how to schedule appliance pickup.
- Billboard spot in July, August, and September.
- Bill message in May and June.
- Inclusion as appropriate on Home Energy Reports mailed to customers through the Energy Feedback program.
- Inserts available upon request.

This program has been approved for continuation in the 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Appliance Recycling	**Actual**	**Proposed**	**% of Goal**
Participation	396	230	172%
Budget $	$108,215	$65,000	166%

Evaluation Methodology

The Company uses figures from the Technical Reference Manual Version 2.0 (TRM) for calculating savings for the removal and recycling of second household refrigerators and freezers.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Appliance Recycling	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	410,767
Demand Savings – kW	58.62

ENERGY STAR LIGHTING

The Energy Star Lighting program aims to increase the market share for ENERGY STAR qualified LEDs, while educating both consumers and retailers about the benefits of energy efficient lighting. Promotion of LEDs was successfully expanded and will continue in 2019.

Through the services of Wisconsin Energy Conservation Corporation, Otter Tail offers the Energy Star Lighting campaign with the following objectives:

- Leverage manufacturer dollars for instant consumer rebate incentives of up to $1.93 per LED bulb.
- Leverage advertising dollars for retailer.
- Highlight Otter Tail's sponsorship of the promotions through press releases, in store displays, and special public relations events and LED bulb sales, and;
- Implement the program with seamless coordination with other Energy Star Lighting promotions throughout Minnesota and the Midwest.

There were approximately 21 retailers in our service territory that participated in the 2018 campaign, contributing to distribution of approximately 176,552 bulbs.

Otter Tail promotes the Energy Star Lighting program using various resources listed below:

- Bill inserts.
- Television, radio, and digital media spots in conjunction with the Advertising and Education program.
- The Company's web site.
- On-site promotion at the location of a participating retailer.
- Energy efficient lighting modules on Home Energy Reports mailed to customers through the Energy Feedback program.
- Factsheets available upon request.

Other program promotions included the following:

- The Company provided a four pack of LED bulbs for each customer who recycled either a refrigerator or freezer through the Appliance Recycling program. This extended customer education about LED bulbs and increased the total bulb distribution.
- The Company distributed Holiday LED light strings in the 2018 program. The strands were given away to Otter Tail customers who donated food or money to the local food shelf. This pilot program was held in Fergus Falls and Bemidji. The event resulted in collection of over 3,200 pounds of food and $1,242 in cash donations. There were approximately 4,874 light strands given out.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Be Bright	**Actual**	**Proposed**	**% of Goal**
Participation	176,552	105,000	168%
Budget $	$665,481	$395,000	168%

Evaluation Methodology

Energy savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Be Bright	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	6,459,690
Demand Savings – kW	730.10

ELECTRONICALLY COMMUTATED MOTORS

The Electronically Commutated Motors (ECM) program encourages customers to install an efficient ECM as a part of a new heating system rather than selecting a system with a lower efficiency motor option. ECMs use significantly less electricity to deliver warm air from the furnace and cool air from the central cooling system for space conditioning. ECMs can result in up to 75 percent less energy consumption than standard fan motors.

ECM efficiency was marketed to customers and contractors through:

- Bill inserts targeted at residential customers.
- *Programs and services guide* provided to contractors and employees.
- Program information on the Company's web page, www.otpco.com.
- Training material covered with service representatives in annual and monthly training.

Otter Tail provides customers a $100 rebate for a contractor installed unit. The ECM program has been approved for continuation in the 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Electronically Commutated Motors	**Actual**	**Proposed**	**% of Goal**
Participation	363	120	303%
Budget $	$50,239	$30,000	167%

Evaluation Methodology

Energy savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Electronically Commutated Motors	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	282,469
Demand Savings – kW	83.34

ENERGY FEEDBACK

The Energy Feedback program consists of two program components: Aclara Technologies Energy Prism Home Energy Analyzer (HEA) and an Opower Home Energy Report (HER). These behavior-based energy savings programs aim to maximize energy savings achieved through behavior changes that result from providing customers comparative energy use information.

The HEA component is an opt-in program that provides feedback to residential users through an online interface. The HER project is an opt-out program based on direct mail delivery of up to four comparative energy usage reports to participating Minnesota residential customers each year.

Home Energy Analyzer- HEA enables users to understand their individual energy use through online presentation of up to 25 months of billing history, analytic tools, and calculators. It includes a "My Energy" portal that includes a home energy profile, into which details about the age and size of home, number and type of appliances in use, insulation and window features, heating system, and energy consumption are compiled and included in energy analysis. Participants that complete the home energy profile are presented with performance benchmarks, comparing their energy use to similar homes. Customers can set their money savings goal and are presented options that will help them achieve their desired energy savings goal.

Because it is an opt-in tool total user participation in HEA is lower than HER but consists of a generally more highly motivated group of customers who have chosen to use the tool.

Minnesota residential customers were encouraged to participate in use of the HEA tool in the following ways:

- Through the Company's web site, including hero-spot ads presented on the home page for two months, a program page, and a demo tool within the website.
- Messaging presented on service statements during one billing period.
- Bill inserts sent twice to all residential customers.
- Customer service guide sent to all new customers.

- Online services brochure sent to all new customers.
- *Programs and services guide* sent to contractors and employees.

The Aclara Energy Prism HEA tool is designed for use on desktop PCs. As customers have increasingly turned to mobile devices, program participation has declined. For this reason, as well as due to changes to the Company's web backend, the Company is working with the vendor to upgrade the HEA tool to the Aclara ACE platform. ACE is built with responsive design and adjusts to customer's preferred devices including smart phones and tablets. This improvement will benefit a significant number of residential customers as metrics show that 54 percent of web sessions on the Company website are accessed through mobile devices. The upgrade began in late 2017 and is slated for completion in March 2019.

Opower Home Energy Reports – The HER program delivers comparative energy usage information to selected Minnesota residential customers. Program participants received up to four home energy reports during 2018.

Each HER contained various personalized components, including:

- Comparisons of recent energy use to a group of 100 similar homes.
- Comparison of recent energy use to current use, tracking changes over time.
- Targeted energy efficiency tips selected based on the home's energy use pattern and season, and household heating type.

Participation in the program is defined as any Minnesota residential customer that received one or more personalized HER during 2018.

The program is included for continuation in the 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Energy Feedback	**Actual**	**Proposed**	**% of Goal**
Aclara HEA Participation	514	2,500	21%
Opower HER Participation	30,672	28,000	110%
Budget $	$298,804	$302,100	99%

Evaluation Methodology – Home Energy Analyzer

Annually since 2010, Otter Tail contracted with Integral Analytics to perform an evaluation of the Bill Analyzer project. The methodology used in 2010 was approved by DER staff. The

evaluation relied upon a statistical analysis of the actual billed electricity consumption before and after participation in the HEA project.

The evaluation found that savings varied by the component or level of the HEA tool the participant used. In addition to calculating the savings by component or level, Integral Analytics again calculated an average overall savings calculation. In 2018, the evaluation demonstrated an average 385 kWh per year as measured at the meter.

In addition to analysis of post-participation usage compared to the customer's own pre-participation usage, Integral Analytics completed an analysis of the participant group against a randomly selected control group.

The HEA evaluation is included in Appendix B-Third Party Evaluations.

Evaluation Methodology – Opower HER

The 2018 evaluation of energy savings for the Opower HER program was completed by Opower using integrated data from a variety of sources that allow for detailed analysis of energy savings results. The evaluation is included in Appendix B - Third Party Evaluations. The data included:

1. **Consumption data:** Otter Tail provided weekly updates of monthly consumption data for all households in the program, including historical consumption information.

2. **Parcel data:** Opower received data, to the extent available from a third-party vendor, about household parcels, including house size, age and value, heating and cooling type, as well as pool and hot tub data. Parcel data elements for age and value are static. Other data elements may be updated at the customer's request.

3. **Demographic data:** Opower received demographic data, to the extent available from a third-party vendor, about participants, including household income, age of occupant(s), number of occupants, and an owner/renter indicator. The number of occupants is a field is available for update at customer's request.

Opower's analysis of the HERs program relies upon a fixed-effects regression model. This statistical methodology is standard procedure for the analysis of controlled experiments, is a well-accepted practice within the energy efficiency program measurement and verification community, and closely resembles the "Large Scale Data Analysis" techniques described in the Model Energy Efficiency Program Impact Evaluation Guide from the National Action Plan on Energy Efficiency.

In 2016, updates were made to the Modeled Savings Methodology to improve the accuracy of the reporting. These changes include:

- Establishing the relationship between the monthly savings rate and the cumulative number of print reports received per person in the wave up to that month.
- Applying the forecasted savings rate in each month to the usage of the modeled wave.
- Adapting the algorithm to apply to rolling enrollment waves.

Otter Tail received approval from the MN DER on October 7, 2016, to apply a revised Modeled Savings Methodology to calculate energy savings.

Overall adjusted energy savings associated with the HER program in 2018 totaled 10,722 MWh, equal to an average 349.56 kWh per participant household.

Energy Savings & Adjustments

In accordance with the Decision of the DER, these full savings are used in calculating the net benefits and cost effectiveness of the Energy Feedback program. For 2018, the energy savings associated with behavioral change has been reduced by two-thirds, based on the Decision[1] by the Deputy Commissioner of the DER.

ENERGY AND DEMAND RESULTS – 2018	
Aclara Home Energy Analyzer	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	213,009
Demand Savings – kW	33.57

ENERGY AND DEMAND RESULTS – 2018	
Opower Home Energy Reports	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	11,540,843
Demand Savings – kW	3,813.27

ENERGY AND DEMAND RESULTS – 2018	
Energy Feedback Combined Results	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	11,753,851
Demand Savings – kW	3,846.84

[1] April 26, 2012, Docket Nos. E,G999/CI-08-133, E017/CIP-10-356.

HEAT PUMPS
(Residential)

The Heat Pumps program targets residential customers currently using or considering the installation of less efficient resistance electric heating and cooling systems by offering rebates for high-efficiency air source heat pumps or geothermal heat pumps. The Company relies on Energy Star qualifications as the minimum equipment efficiency requirement for air source and geothermal heat pumps.

In 2018 air source heat pumps met the following minimum rating requirements.

Air Source Heat Pumps			
Energy Star	HSPF	SEER	EER
Split System	> or = 8.5	> or = 15.0	12.5
Package Terminal			> or = 12.0

A special category of air source heat pump, the cold climate heat pump (CCHP), was included in our 2018 program. CCHPs are identified as rated with a heating seasonal performance factor (HSPF) of 10 or greater and labeled Energy Star or have minimum ratings of 15 seasonal energy efficiency ratio (SEER) and 12.5 energy efficiency rating (EER).

In 2018 geothermal heat pumps met the following minimum rating requirements.

Geothermal Heat Pumps		
	COP	
Type	Open	Closed
Water to air	4.1	3.6
Water to water	3.5	3.1
Direct exchange	3.6	

Starting in 2019 geothermal efficiency requirements also include proof of the minimum EER along with coefficient of performance (COP).

Otter Tail promotes energy efficient heat pumps using the following resources:

- *Taking care of business* commercial CIP brochure.
- *Programs and services guide* provided to contractors and employees.
- A media campaign through television, radio, and digital media during April and November in conjunction with the Advertising and Education Program.
- Presentations and literature distribution Electrical contractor workshops.
- Bill messages included on customer statements.
- Bill inserts during April, June, July, and September about heat pump efficiency and

rebates.

- A bill board image from May thru September.
- Training material covered with customer service and service representatives in annual and monthly training.
- Program, rate, technology, and rebate pages described within the Company's web site.

This program is included for continuation in the 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Heat Pumps (R)	**Actual**	**Proposed**	**% of Goal**
Participation	160	102	157%
Budget $	$339,748	$275,000	124%

Evaluation Methodology

Energy savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Heat Pumps (R)	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	1,912,349
Demand Savings – kW	183.68

HOME INSULATION

The Home Insulation program targets residential customers with primary electric heat by offering rebates for contractor-installed weatherization and insulation measures.

Otter Tail promoted the Insulation program through:

- Bill inserts sent to all residential customers in the months of July and September.
- A radio and digital media campaign during March.
- Promoted on billboards in the months of March, April, May, and June.
- Program information included as a home page hero spot and elsewhere on the Company's

web site.

- Rebate materials and program information was shared in addition to literature distribution at the Electrical Contractor workshops.
- Training material presented to customer service and service representatives.
- Inclusion as appropriate on Home Energy Reports mailed to customers through the Energy Feedback program.

We will continue to offer incentives and seek additional marketing channels to drive increased participation. This program is included for continuation in the 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Home Insulation	**Actual**	**Proposed**	**% of Goal**
Participation	19	40	48%
Budget $	$29,037	$45,000	54%

Evaluation Methodology

Otter Tail collected information on the measures completed by the customers, including weatherization, attic and sealing insulation, and/or wall insulation, square footage of area being insulated and the pre- and post-insulation values.

Energy savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Home Insulation	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	339,969
Demand Savings – kW	62.50

HOME TRANSFORMER

The Home Transformer program aims to identify and assist customers in reducing energy loss and waste in their home and to save energy and money through efficiency improvements.

Through the program, electric heating customers with electric water heating are offered an energy audit and installations of select energy-efficiency products at no cost to the customer. Products included:

- An energy audit, a blower door test, and thermal imaging analysis.
- A detailed report on audit findings, including recommendations for energy saving measures (recommendations included estimated costs, annual savings, and simple payback).
- Efficiency products, installation demonstration, and education.
    - Electric measures – LED bulbs and engine block heater timer.
    - Heating and cooling measures – exterior door sweep, outlet gaskets, caulking, weather-stripping for windows.
    - Hot water measures – pipe insulation, low-flow showerheads and faucet aerators, temperature assessment and setback of water heater.

A community action agency was hired to deliver the home energy audits and complete the direct installs. Customers were approached to participate thru bill inserts that targeted approximately one-third of our customer service territory at a time covering our entire service territory within the year.

Promotion materials were revised to increase customer participation. It has remained somewhat difficult to capture customer interest in this program, but numbers show an improvement in participation over 2017.

Otter Tail also partnered with Minnesota Energy Resources (MER), Center for Energy and Environment (CEE) and Clean Energy Resource Teams (CERTs) in 2018 to complete in-home-energy-saving audits, valued at over $300 each, at a customer cost of $50. These partnerships focused on natural gas heated, multi-family units in the Bemidji area.

The customer received:

- A comprehensive analysis of their home's energy use, both gas and/or electric.
- Information on what energy-efficient improvements make the most sense for their home.
- A blower door test to determine leaks in the home.
- Safety tests: combustion safety, depressurization, and carbon monoxide detection.
- Where insulation is suggested, direction to authorized insulation contractors is provided to ensure customers will maximize available rebates.

Four single-family home audits and 24 multifamily rental unit audits were completed for Otter Tail customers. Measures received:

- Electric measures – LED bulbs.

- Hot water measures – low-flow showerheads and faucet aerators, temperature assessment and setback of water heater.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Home Transformer	**Actual**	**Proposed**	**% of Goal**
Participation	67	100	67%
Budget $	$47,180	$87,000	54%

Evaluation Methodology

Energy savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Home Transformer	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	339,969
Demand Savings – kW	62.50

SCHOOL KITS

The School Kit program offered energy efficient items and educational materials primarily to fifth grade students, and on a limited bases to sixth grade students, in school districts throughout our service area. Students took home the kit to share with their parents. The families were asked to install the items contained in the kit. Otter Tail implemented the LivingWise program using Resource Action Programs (RAP), a contracted third-party.

RAP representatives contacted a list of approved schools throughout our service territory where students of our customers attend. RAP ordered the kits, assembled in reusable tote bags, and shipped the needed inventory to each school. Kits included: a power cord timer, six 9-Watt LED Energy Star bulbs, two faucet aerators, low-flow showerhead and a temperature gauge for the refrigerator. Along with the products, the kits included information about the products and installation instructions. Each student received a workbook and a Student Guide. Teachers were given a Teacher Folder with a Teachers Book and lesson plans.

No promotion outside of the school was done for this program.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
School Kits	**Actual**	**Proposed**	**% of Goal**
Participation	1,508	1,000	151%
Budget $	$107,610	$130,000	83%

Evaluation Methodology

Energy and demand savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
School Kits	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	1,750,682
Demand Savings – kW	144.37

SMART THERMOSTATS

The Smart Thermostat program offers rebates to customers who buy and install a qualified Tier II or Tier III thermostat. Tier II thermostats are communicating thermostats that give users access to set points and schedule from anywhere using a smart device including a mobile phone, tablet, or computer. Tier III are analytics-capable thermostats that offer energy savings features in addition to those of the Tier II thermostats, including coaching, HVAC diagnostics, comparative information, and geofencing. The tier level and the type of heating system determined the level of rebate a customer received. A customer without primary electric heating but with a central cooling system would receive a lesser rebate.

Otter Tail promoted the Smart Thermostats program through:

- Bill inserts sent to all residential customers in the months of July and September.
- Billboard display in January, February, October, November, and December.
- Digital ad campaign including Pandora and Facebook.
- Company website pages and home page hero spots.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Smart Thermostats	**Actual**	**Proposed**	**% of Goal**
Participation	124	140	89%
Budget $	$32,832	$50,000	66%

Evaluation Methodology

The Company uses the methodology from the TRM for calculating savings for installing a Tier II or Tier III smart thermostat. Otter Tail completed an audit of 10 percent of the rebates given and found all thermostats installed, functioning correctly, and capable of wireless control. This program has been approved for 2019. Otter Tail plans to continue offering a prorated rebate based on reduced savings for those customers installing a smart thermostat with electric cooling only.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Smart Thermostats	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	220,024
Demand Savings – kW	4.84

WATER HEATING STORE & SAVE
(Residential)

Controlled water heating storage is one of Otter Tail's largest residential direct load management programs. The program gives participating customers a discounted rate or a bill credit in exchange for the customer allowing the Company to curtail their water heating energy use during peak and high energy price periods. During a control event, water heaters are interrupted entirely for the duration of the control period, which can occur at any time of the year.

Water heaters were controlled approximately 239.5 hours in 2018 over 252 days. Otter Tail uses a control protocol of more frequent, shorter duration control events based on pricing signals aimed at maximizing savings to customers from water heater control.

Otter Tail promoted controlled-service water heating during 2018 using the following resources:

- Radio campaign.

- Bill messages included on customer statements.
- Bill inserts.
- *Taking care of business* commercial CIP brochure.
- *Programs and services guide* provided to contractors and employees.
- Print advertisement in a regional home magazine.
- Training material covered with service representatives in annual and monthly training.
- Home page hero ads, program, rate, and rebate pages within the Company's web site.

Effort was made to inform customers about technology changes for large capacity water heaters and to introduce customers and contractors to grid enabled water heater options.

This program has been approved for continuation in the 2019 CIP.

Participation & Budget

Otter Tail initially filed the Water Heating Store & Save program with 100 percent residential participation. In 2018, the program has a ratio of 94 percent residential and 6 percent commercial. Otter Tail has included participation data for both classes in this section of the Status Report.

PARTICIPATION AND BUDGET – 2018			
Water Heating Control	**Actual**	**Proposed**	**% of Goal**
Participation	16,002	16,165	99%
Budget $	$19,108	$35,000	55%

Evaluation Methodology

Energy savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Water Heating Control (R&C)	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	579,951
Demand Savings – kW	11,712.70

DIRECT IMPACT – LOW INCOME

HOUSE THERAPY

The House Therapy program's primary focus is audit and weatherization services for low-income residential customers, both renters and owners. The following table provides details on measures installed and whether the participants were owners or renters.

House Therapy -- Owner / Renter Detail 2018			
Installed measures	**Owners**	**Renters**	**Total**
Audit	143	21	164
Attic Insulation Materials	4	16	20
Blower Door Test	6	0	6
Door Maintenance Materials	1	0	1
Engine Block Timer	130	4	134
Exterior Wall Insulation Materials	3	0	3
Foundation or Basement Insulation Materials	29	0	29
Faucet Aerator	229	34	263
Freezer	30	0	30
LED	1,544	106	1,650
Low-flow Showerhead	102	10	112
Pipe Insulation	65	0	65
Refrigeration	65	15	80
Water Heater	23	0	23
Water Heater - Reduce Temperature	81	17	98
Water Heater--Controlled Ser. Rate	5	0	5
Weatherization	5	16	23

House Therapy -- Owner / Renter Detail - 2018				
	CAP Spending	**Percent**	**Participation**	**Percent**
Owners	$128,541	88%	143	87%
Renters	$16,810	12%	21	13%
Total	$145,351	100%	164	100%

The Company meets yearly with the local Community Action Program (CAP) Agencies to implement House Therapy as cost-effectively as possible and commends the agencies that are committed to the program.

Otter Tail promotes House Therapy using various resources:

- Residential bill insert.
- As part of the environment disclosure insert posted on our website annually.
- Through the Company's website including providing a list of each of the agencies that implement the program.

This program has been approved for continuation in the 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
House Therapy	**Actual**	**Proposed**	**% of Goal**
Participation	164	130	126%
Budget $	$182,044	$150,000	121%

Evaluation Methodology

In 2018, the TRM was used for many of the House Therapy components. Where TRM was not available, engineering estimates were used. Energy and demand savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
House Therapy	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	306,305
Demand Savings – kW	32.73

DIRECT IMPACT – COMMERCIAL

ADJUSTABLE SPEED DRIVES

Induction motors are the workhorses of industry, used widely, and often exclusively, in virtually every manufacturing plant and office building. However, the single most potent source of energy savings in induction motor systems lies not in the motor but rather in the controls that govern the motor's operation. Adjustable speed drives are one method of modifying or controlling motor operation that is a proven option for improving performance and efficiency in drive systems.

Otter Tail promotes adjustable speed drives using various resources.

- *Taking care of business* commercial CIP brochure.
- *Programs and services guide* provided to contractors and employees.
- Otter Tail's commercial customer newsletter.
- Promotions and technical discussions at Electrical workshops for contractors.
- Directly to potential program participants in the educational sector at the annual Minnesota School Board Association conference.
- Bill inserts promoting drive power system efficiency to commercial and industrial customers.
- Program, technology, and rebate information available on the Company's web site at www.otpco.com.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Adjustable Speed Drives	**Actual**	**Proposed**	**% of Goal**
Participation	239	164	146%
Budget $	$325,033	$390,000	83%

Evaluation Methodology

The Company utilizes engineering calculations that are based on methodologies developed by the Electric Power Research Institute for fan- and pump-based adjustable speed drive systems. Hours of operation and associated loading factors are provided by the customer as inputs for the energy and demand savings calculations. Energy and demand savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Adjustable Speed Drives	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	4,646,390
Demand Savings – kW	583.16

Industrial facilities are often leading candidates for adjustable speed drive opportunities, but the Company is encouraged by the increasing adoption of adjustable speed drives in commercial applications.

AIR CONDITIONING CONTROL

The CoolSavings air conditioning control program targets small commercial customers in Minnesota with central air conditioning systems. Customers are encouraged to enroll in the program and receive a bill credit of $6 per ton of connected load for each summer month (June-September).

Otter Tail promotes the program through the following resources:

- Personal business contacts.
- Bill insert targeting commercial customers during February and April.
- *Taking care of business* commercial CIP brochure.
- *Programs and services guide* provided to contractors and employees.
- Program, technology, and rebate information available on the Company's web site.
- Otter Tail's Advertising and Education program targeting small- to mid-size businesses.

In 2018, Otter Tail controlled air conditioning 18 days, totaling 21 hours and 17 minutes. This control time is within the 300-hour control limit in the air conditioning rider.

PARTICIPATION AND BUDGET – 2018			
Air Conditioning Control (C)	**Actual**	**Proposed**	**% of Goal**
Participation	277	529	52%
Budget $	$5,869	$31,000	19%

Evaluation Methodology

Load data recorders are being installed at each of the locations enrolled. Otter Tail is collecting the data from these recorders for EM&V purposes. Current energy and demand savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Air Conditioning Control (C)	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	29,315
Demand Savings – kW	1,522.46

COMMERCIAL DIRECT INSTALL

The Commercial Direct Install (CDI) program offers free energy assessments and direct installation of low-cost energy efficiency measures for participating small- to mid-sized commercial customers. The program capitalizes on personal interactions to educate customers in this often-overlooked market segment on:

- Benefits of energy efficiency.
- Energy efficiency opportunities in the customer's business operations.
- Quick, easy, and affordable measures that have a direct, immediate impact on reducing energy bills.

The free energy assessment provides the customer with a simple two-page report identifying opportunities for investing in energy efficiency measures and further educates customers on the subject. At the same time, direct-installation of easily-installed energy efficiency measures at no cost to the participant provides real-world examples of technologies readily available for reducing energy expenses in small- to mid-size businesses.

Otter Tail promotes the CDI program through a targeted strategy based on community size and geographic location. The Company relies on personal contacts with city administration and government, Chamber of Commerce personnel, and any other business organizations to determine overall interest in implementing the program. The Company has also leveraged valuable assistance from CERTs in conducting outreach with potential participants. Once Otter Tail has discussed the program with community civic and business leaders, promotion of the CDI program for potential participants includes the following steps:

1. Otter Tail coordinates a mutually convenient time between internal staff, CERTs staff, and the Company's third-party implementation partner to conduct door-to-door outreach efforts at the community business district level.
2. Otter Tail notifies community government and city leaders of the scheduled outreach and direct install dates, verifying that local law enforcement is aware of both door-to-door promotion efforts and implementation of the direct install measures.
3. CERTs staff spends one to two days visiting potential participants, providing information about the program, and scheduling dates for the program implementation while determining customer interest.
4. Otter Tail, CERTs, and Otter Tail's program implementation partner discuss results from CERTs outreach efforts and businesses requesting participation in the CDI program.
5. Otter Tail's program implementation partner completes assessments for participating businesses and installation of all pertinent measures complimentary to program participants.
6. Following completion of all direct installation measures, Otter Tail follows up with participating businesses on opportunities for efficiency identified during the assessment completed by the Company's implementation partner.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Commercial Direct Install	**Actual**	**Proposed**	**% of Goal**
Participation	237	154	154%
Budget $	$49,316	$41,000	120%

Evaluation Methodology

The Company uses TRM savings algorithms and assumptions and customer-specific operational data where applicable.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Commercial Direct Install	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	740,779
Demand Savings – kW	93.42

COMPRESSED AIR EFFICIENCY

The Compressed Air Efficiency program provides incentives to commercial and industrial customers for implementing efficiency improvements in compressed air systems and for adhering to Otter Tail's proposed guidelines in completing studies focusing on compressed air system efficiency.

Compressed air systems afford users relatively easy distribution of and access to a robust power source present in nearly all industrial facilities with compressed air often referred to as the fourth utility in industrial plants. At the same time compressed air generation is one of the most energy-intensive utilities in industrial facilities with efficiency of compressed air systems typically at only ten to fifteen percent. Consequently, any improvements in compressed air system efficiency can lead to reduction of facility energy consumption on the order of 20 to 50 percent

Otter Tail promoted Compressed Air Efficiency using various resources:

- *Taking care of business* commercial CIP brochure.
- *Programs and services guide* provided to contractors and employees.
- Promotions and technical discussions at Electrical workshops for contractors.
- Program, technology, and rebate information available on the Company's web site at www.otpco.com.
- Outreach with industrial compressed air users at the Company's Compressed Air Challenge Fundamentals training available free of charge for Otter Tail customers.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Compressed Air Efficiency	**Actual**	**Proposed**	**% of Goal**
Participation	3	23	13%
Budget $	$28,418	$140,000	20%

Evaluation Methodology

Otter Tail uses the TRM, when available, and the Wisconsin and Vermont TRMs in its absence. All savings algorithms include actual data from historical Otter Tail compressed air assessment performed by independent third-party engineers or vendors.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Compressed Air Efficiency	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	78,550
Demand Savings – kW	15.10

HEAT PUMPS
(Commercial)

The Air Source Heat Pump program targets commercial customers currently using or considering the installation of less efficient resistance electric heating and cooling systems by offering rebates for high-efficiency air source heat pumps. During 2018 Otter Tail relied on Energy Star qualifications as the minimum equipment efficiency requirement.

Air source heat pumps met the following rating requirements:

Air Source Heat Pumps			
Energy Star	**HSPF**	**SEER**	**EER**
Split System	> or = 8.5	> or = 15.0	12.5
Package Terminal			> or = 12.0

We recognized a special category of air source heat pumps, the CCHP, in our 2018 program. CCHPs are identified as rated with a HSPF of 10 or greater and be labeled Energy Star or have minimum ratings of 15 SEER and 12.5 EER.

The Geothermal Heat Pump program capitalizes on a renewable technology and targets commercial customers currently using or considering the installation of less efficient resistance electric heating and cooling systems by offering rebates for high-efficiency geothermal heat pumps. Geothermal heat pumps met the following rating requirements:

Geothermal Heat Pumps		
	COP	
Type	Open	Closed
Water to air	4.1	3.6
Water to water	3.5	3.1
Direct exchange	3.6	

Starting in 2019 geothermal efficiency requirements include proof of the minimum COP and EER.

Otter Tail promotes energy efficient heat pumps using various resources:

- *Taking Care of Business* commercial CIP brochure.
- *Programs and services guide* provided to contractors and employees.
- Otter Tail's commercial customer newsletter.
- Brochures available upon request.
- Presentations and literature distribution at the Electrical workshops for contractors.
- Directly to potential program participants at the annual Minnesota School Board Association conference.
- Bill messages included on all customer statements.
- Bill inserts about heat pump efficiency, financing, and rebates.
- A media campaign through television, radio, and digital media during April in conjunction with the Advertising and Education Program.
- Training material covered with service representatives in annual and monthly training.
- Program, technology, and rebate information available on the Company's web site at www.otpco.com.
- Otter Tail's Advertising and Education program targeting small- to mid-size businesses.
- Participation in the Company's Integrated Building Designs Plus program.
- International Ground Source Heat Pump Association training offered to participating architectural and mechanical design professionals.

To increase participation, the Company offered rebates and financing at 1.9 percent in 2018.

This program is included for continuation in the 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Heat Pumps (C)	**Actual**	**Proposed**	**% of Goal**
Participation	123	157	78%
Budget $	$901,223	$705,000	128%

Evaluation Methodology

Energy savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Heat Pumps (C)	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	6,787,966
Demand Savings – kW	758.15

GRANTS (CUSTOM PROJECTS)

The Grants program offers customized incentives to commercial and industrial customers for conservation and efficiency improvements. In 2018 Otter Tail analyzed a variety of customer-submitted grant projects with 81 of these projects approved for incentives.

Custom Projects	Quantity
Appliances	1
Building Envelope Improvements	3
Chiller System	2
Compressed Air System	2
Cooking Equipment	1
Cooling System	19
Heat Recover System	1
Heating System – Heat Pumps	33
Integrated Building Design Plus	6
Motors	3
Process Improvements	4
Production Equipment	3
Pump	1
Refrigeration System	1
Variable Speed Drive	1
Total	**81**

Otter Tail promotes the Grant program through a variety of resources:

- *Taking Care of Business* commercial CIP brochure.
- *Programs and services guide* provided to contractors and employees.
- Otter Tail's commercial customer newsletter.
- Bill inserts.
- Presentations and literature distribution at the Company's annual electrical workshops for contractors.
- Directly with potential program participants in the educational sector at the annual

Minnesota School Board Association conference.

- Program, technology, and rebate information available on the Company's web site at www.otpco.com.
- Outreach with industrial compressed air users at the Company's Compressed Air Challenge Fundamentals training.
- Participation in the Company's Integrated Building Designs Plus program.

The Grant program is included in Otter Tail's 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Custom Efficiency Grants	**Actual**	**Proposed**	**% of Goal**
Participation	81	37	219%
Budget $	$362,473	$339,000	107%

Evaluation Methodology

Each custom grant measure is evaluated on an individual basis and estimated energy savings are calculated by Otter Tail and are specific to each individual measure. The Company will also consider and verify estimated energy savings when submitted by a qualified and independent third-party energy services provider. Otter Tail offers assistance as needed for our commercial and industrial customers to help determine the energy and demand savings needed to develop a grant proposal and often works with internal or third-party engineers to determine and verify savings.

The Large Custom Grant Measurement and Verification (M&V) protocols affect any large project with estimated savings exceeding one million kilowatts hours. The protocols include several options for measurement and verification of large grant projects that meet the protocol criteria. Otter Tail had no 2018 projects that qualified for formal M&V.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Grants	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	3,584,202
Demand Savings – kW	772.73

COMMERCIAL & INDUSTRIAL FOCUSED EFFICIENCY

Otter Tail's largest industrial customers collectively account for less than two percent of all Minnesota customers but account for more than 60 percent of total retail energy sales. As significant consumers of electricity, the industrial sector often provides abundant opportunities for improvements in energy management practices and implementation of energy efficiency upgrades.

The Commercial and Industrial Focused Efficiency program targets Otter Tail's largest energy-using customers with potential for improvements in production processes, end-use efficiency, and energy management practices. The program uses a proactive approach to benchmarking energy management practices and identifies specific opportunities for efficiency improvements in large commercial and industrial facilities.

Implementation of the Commercial and Industrial Focused Efficiency program consists of the following strategies:

1. **Proactive participant identification.** Otter Tail considers anticipated customer engagement and energy savings potential while screening potential participants. The program focuses on customers with annual savings potential of 250,000 kWh or greater, typically requiring annual consumption of at least 5,000,000 kWh. Potential participants bringing engaged, enthusiastic management and employee teams to the table are more likely to pursue the most cost-effective energy saving behaviors and opportunities.

2. **Energy management benchmarking.** For qualifying customers, Otter Tail funds the Envinta One2Five energy management benchmarking analysis. The benchmarking session focuses on management practices related to energy efficiency by incorporating participation from across the customer's organization.

3. **Project identification.** Forming an engaged and knowledgeable energy management team is imperative to identifying efficiency opportunities on the customer site. To further facilitate identification of efficiency measures, Otter Tail funds 50 percent of engineering studies needed to identify and evaluate energy savings opportunities. Possible efficiency measures include lighting, drive-power systems, process efficiency improvements, refrigeration systems, compressed air systems and custom efficiency projects.

4. **Project implementation.** Working in tandem with the customer's representation on the energy management team, Otter Tail develops a schedule of efficiency projects with bonus incentives provided in exchange for the participant's completion of all measures before established deadlines. Efficiency measures might include projects traditionally accounted for under Otter Tail's prescriptive rebate programs, but Otter Tail attributes

energy savings for each efficiency measure to the Commercial and Industrial Focused Efficiency program.

5. **Measurement and verification.** Otter Tail follows the Measurement and Verification Protocols for end-use efficiency projects meeting the formal measurement and verification requirements established by the DER.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Industrial Focused Efficiency	**Actual**	**Proposed**	**% of Goal**
Participation	4	1	400%
Budget $	$344,202	$220,000	156%

Four total customers from both the industrial and commercial sectors participated in the Commercial and Industrial Focused Efficiency program in 2018. Two participants continued to identify and implement efficiency projects after their initial participation in the program a year or more ago while two customers initiated their participation in 2018 by completing the following steps:

1. Formed a facility energy management team with representation from Otter Tail and leadership from an independent, third party energy management consultant.
2. Completed an Envinta One2Five energy management benchmarking session with participation from customer's executive management group and energy management team.
3. Completed an onsite engineering study identifying end-use energy efficiency opportunities.
4. Analyzed and evaluated cost effectiveness and any possible production impacts of energy efficiency measures identified in the engineering study.
5. Identified bonus incentive levels with Otter Tail needed to prioritize capital-intensive energy efficiency projects for completion by established deadlines.

Activities completed collectively by 2018 participants included:

- A retrocommissioning study of a large, ammonia-based industrial refrigeration system.
- Facilities energy audits used to identify future efficiency opportunities.
- Numerous lighting efficiency improvements.
- Adjustable speed drive installations.
- Refrigeration system efficiency improvements.
- Custom efficiency improvements.

Evaluation Methodology

Otter Tail developed energy savings estimates through both established methodologies for prescriptive measures and through engineering calculations for custom measures implemented by the customer.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Industrial Focused Efficiency	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	2,121,103
Demand Savings – kW	298.39

LIGHTING RETROFIT

The U.S. Energy Information Administration (EIA) estimates that in 2018, the U.S. residential sector and the commercial sector used about 232 billion kWh of electricity for lighting. This was about 8 percent of the total electricity consumed by these sectors and about 6 percent of total U.S. electricity consumption. The commercial sector, which includes commercial and institutional buildings, and public street and highway lighting, consumed about 141 billion kWh for lighting, equal to about 10 percent of total commercial sector electricity consumption in 2018. Otter Tail's Lighting Retrofit program provides cash incentives to commercial and industrial customers for purchasing and installing energy-efficient lighting technologies, including LED lamps and fixtures and lighting controls.

Otter Tail actively promotes the Lighting program through a variety of strategies:

- *Taking Care of Business* commercial and industrial CIP brochure.
- Bill inserts targeting commercial and industrial customers.
- Presentations and literature distribution at Electrical workshops for contractors.
- Personal interactions between customers and Company program implementation staff.
- Directly with customers in the educational sector at the annual Minnesota School Board Association conference.
- *Programs and services guide* provided to contractors and employees.
- Program, technology, and rebate information available on the Company's web site at www.otpco.com..
- Otter Tail's commercial customer newsletter.
- Otter Tail's Advertising and Education program targeting small- to mid-size businesses.

The Lighting Retrofit program will continue in Otter Tail's 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Lighting Retrofit	**Actual**	**Proposed**	**% of Goal**
Participation	1,214	1,147	106%
Budget $	$2,492,618	$2,070,000	120%

Evaluation Methodology

Otter Tail uses the TRM to calculate impact savings for the Lighting Retrofit program. The Company documents all existing lighting wattage removed at each site and compares it to the actual energy efficient lighting wattage being installed to calculate energy savings. The TRM establishes hours of operation. In accordance with the TRM protocols, energy and demand savings adjustments of 9.5 and 25.4 percent respectively were allocated to those businesses having electric mechanical cooling. This is consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Lighting Retrofit	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	23,968,891
Demand Savings – kW	3,499.84

LIGHTING – NEW CONSTRUCTION

Opportunities exist for customers to implement lighting technologies that are more efficient than widely-accepted, standard efficiency lighting systems during the new construction process. Examples of these technologies and systems include:

- High Intensity fluorescent.
- High Performance T8 lamps & ballasts/reduced wattage T8 lamps.
- LED fixtures and lamps.
- Occupancy, daylighting, and networked-based lighting controls.

Otter Tail promotes the Lighting-New Construction program using various resources:

- *Taking Care of Business* commercial CIP brochure.
- Bill inserts targeting commercial and industrial customers.

- *Programs and services guide* provided to contractors and employees.
- Otter Tail's commercial customer newsletter.
- Promotions and technical discussions at Electrical workshops for contractors.
- Directly with customers in the educational sector at the annual Minnesota School Board Association conference.
- Program, technology, and rebate information available on the Company's web site at www.otpco.com.
- Personal consultations between program implementation staff and customers.
- Otter Tail's Advertising and Education program targeting small- to mid-size businesses.
- Participation in the Company's Integrated Building Designs Plus program.

The Lighting-New Construction program will continue in the 2018 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Lighting – New Construction	**Actual**	**Proposed**	**% of Goal**
Participation	586	241	243%
Budget $	$356,745	$211,000	169%

Evaluation Methodology

Otter Tail uses the TRM to calculate impact savings for the program. For newly-installed lighting systems, qualifying installed measures are compared to baseline efficiency systems to determine kilowatt-hour savings. Hours of operation are determined by the TRM according to customer type. In accordance with the TRM protocols, energy and demand savings adjustments of 9.5 and 25.4 percent respectively were allocated to those businesses having electric mechanical cooling.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Lighting – New Construction	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	6,732,449
Demand Savings – kW	881.24

MOTORS

The goal of the Motors program is to reduce system peak demand and energy use by offering customers incentives to purchase and install motors that meet and/or exceed NEMA Premium® efficiency ratings in various applications. The Motors program covers motor sizes from one horsepower up to 500 horsepower in size and includes additional incentives for customers upgrading to high-efficiency motors with explosion-proof enclosures.

Otter Tail promotes the Motors program through a variety of resources:

- *Taking Care of Business* commercial CIP brochure.
- *Programs and services guide* provided to contractors and employees.
- Otter Tail's commercial customer newsletter.
- Through bill inserts targeting commercial and industrial customers.
- Presentations and literature distribution at the Company's annual Electrical workshops for contractors.
- Directly to customers in the educational sector at the annual Minnesota School Board Association conference.
- Otter Tail's Advertising and Education program targeting small- to mid-size businesses.
- In the *Make It Electric* newsletter for commercial and industrial customers.
- Personal consultations between program implementation staff and customers.
- Program, technology, and rebate information available on the Company's web site at www.otpco.com.
- Participation in the Company's Integrated Building Designs Plus program.

The Motors program will continue in the 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Motors	**Actual**	**Proposed**	**% of Goal**
Participation	397	215	185%
Budget $	$279,285	$137,000	204%

Motor Types Rebated	
New / replace non-operating	56
Replace operating	341
Total Motors Rebated	397

Evaluation Methodology

Otter Tail used Minnesota's TRM data, when applicable, along with engineering estimates and MotorMaster software to determine energy savings for specialty motors currently not in the TRM. For 1 to 200 horsepower motors installed in new applications and for motors replaced at failure, Otter Tail used NEMA Premium efficiency levels as baseline efficiency for totally-enclosed fan-cooled and open drip-proof motors. NEMA efficiency rating, horsepower, motor speed, run-time hours, and quantity are taken from the customer's application form.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Motors	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	1,310,725
Demand Savings – kW	249.41

RECOMMISSIONING/RETROCOMMISSIONING (RCx)

The *Energy Star Building Manual* defines commissioning as the process of ensuring that systems are designed, installed, functionally tested, and capable of being operated and maintained to the owner's operational needs.

- Recommissioning is the term used for applying the process to a building that has been commissioned previously (either during construction or as an existing building).
- Retrocommissioning is the systematic process applied to existing buildings that have never been commissioned to ensure that their systems can be operated and maintained according to the owners' needs.

Building tune-ups, RCx Lite, and building optimization all refer to an evolution of the traditional RCx process. The approach starts by targeting the most common RCx measures with the highest chances of returning payback on operations and maintenance improvements. Often, these operation and maintenance improvements are associated with advanced control strategies. Engineering firms completing RCx Lite studies are often capable of identifying these measures through spot inspections and direct digital control systems without the added costs of seasonal monitoring and functional performance testing completed through formal RCx studies. Consequently, the RCx Lite process can identify up to 75 percent of the savings of a more formal RCx study at approximately 25 percent of the cost.

Otter Tail's RCx program provides incentives to qualifying commercial customers to complete

RCx studies and implement cost effective, energy savings measures. The RCx program proposes a tiered approach to delivering RCx services. The RCx Lite tier provides incentives for building tune-ups, where the RCx tier incentivizes customers to implement formal RCx studies with more expansive measures. Potential participants must complete a pre-approval application form prior to initiating any RCx projects to be assured of eventual study funding from Otter Tail. Not all buildings and building types are ideal candidates for achieving energy savings through traditional RCx efficiency measures; the pre-approval process increases the likelihood that customers with buildings and building types with the best RCx opportunities capitalize on the RCx process.

Otter Tail promotes the RCx program through a variety of resources:

- *Taking Care of Business* commercial CIP brochure.
- *Programs and services guide* provided to contractors and employees.
- Bill inserts targeting commercial and industrial customers.
- Presentations and literature distribution at the Company's annual electrical workshops for contractors.
- Targeted campaigns featuring direct customer contact based on business type, energy use intensity, and geographic location.
- Brochures and literature explaining the RCx process and program.
- Directly with customers in the educational sector at the annual Minnesota School Board Association conference.
- Personal consultations between program implementation staff and customers.
- Program, technology, and rebate information available on the Company's web site at www.otpco.com.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
RCx	**Actual**	**Proposed**	**% of Goal**
Participation	9	4	225%
Budget $	$235,677	$188,000	125%

Evaluation Methodology

Traditional RCx

Otter Tail, together with a third-party engineering consulting firm, reviews the RCx study for accuracy of calculations, assumptions, and completion of all required RCx study requirements. The third-party engineering firm does not provide direct RCx services for customers or compete with engineering firms providing these services. Otter Tail works with the customer and the

customer's engineering firm as needed to assure engineering calculations, assumptions, and the study all meet the Company's RCx program requirements.

Turn-key RCx

Otter Tail uses savings calculations developed by the Company's program implementation consultant using engineering fundamentals, site data, and energy modeling. To evaluate those savings, Otter Tail and its third-party program implementation consultant perform post-installation functional testing at each facility. This on-site M&V confirms each measure's implementation in accordance with the engineering recommendations. The savings calculations are revised based on observed conditions post-implementation and reflect any alternation to the measure that results from customer implementation.

Energy Savings

ENERGY AND DEMAND RESULTS – 2018	
RCx	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	3,281,062
Demand Savings – kW	439.85

REFRIGERATION

The U.S. Energy Information Administration estimates that in 2017 refrigeration was the largest single use of electricity in the commercial sector. Otter Tail's Refrigeration program is designed to promote high-efficiency refrigeration technologies, including measures to upgrade compressor, condenser, and display case efficiency. The program incentivizes the installation of efficiency measures in both retrofit and new-construction applications in commercial sectors with intensive demand for commercial refrigeration.

Otter Tail promotes the Refrigeration program using various promotional resources:

- *Taking care of business* commercial CIP brochure.
- *Programs and services guide* provided to contractors and employees.
- Otter Tail's commercial customer newsletter
- Program, technology, and rebate information available on the Company's web site at www.otpco.com.

This program is included for continuation in Otter Tail's 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Refrigeration	**Actual**	**Proposed**	**% of Goal**
Participation	59	86	69%
Budget $	$81,757	$130,000	63%

Evaluation Methodology

The Company uses the TRM and engineering estimates for each refrigeration measure. Energy and demand savings for this program are consistent with Attachment B: Electric Product Assumptions, approved in the Company's triennial plan.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Refrigeration	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	612,880
Demand Savings – kW	90.60

DIRECT IMPACT – OTHER

COMPANY-OWNED STREET & AREA LIGHTING

Otter Tail provides illumination services to 161 Minnesota communities and other customers through company ownership, operation, and maintenance of approximately 19,677 street and area lighting fixtures. Customers receive hassle-free illumination service, including equipment installation, asset rental, electricity, and maintenance for a convenient monthly charge on the customer's electric service bill. Otter Tail installs street and area lighting fixtures at the request of our customers and, consequently, classifies electricity consumption for company-owned street and area lighting fixtures as customer electricity usage.

The objective of the Company-owned Street and Area Lighting program is to retrofit all Company-owned street and area light fixtures used in providing illumination services for retail customers from HID to LED technology.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Company-Owned Street & Area Lighting	**Actual**	**Proposed**	**% of Goal**
Participation	3,831	3,892	98%
Budget $	$386,327	$775,483	50%

Otter Tail worked closely with leaders of municipal governments in launching its successful 2018 street and area lighting retrofit campaign. Critical public relations milestones accomplished jointly with municipal streetlighting customers included:

- In-person discussions and meetings with key municipal administrators and government leaders.
- Development of public relations kits, including direct mailers, community posters, and news releases.
- Web pages with specialized LED street and area light information.
- Training for internal Otter Tail staff, including talking points and frequently asked questions.

The Company was able to minimize third party-program administration expenses services by leveraging services offered through existing relationships with key vendors as well as internal procedures already in place for existing street and area lighting services. Otter Tail is very pleased with the quality and performance of LED lighting products used in the retrofits. Customer feedback on the new LEDs has also been extremely positive, with little to no customer

complaints. Field representatives for Otter Tail report how well the project has been received for being such a significant change in our communities.

The Company-owned Street and Area Lighting program has been a success from the operations/installation side as well. Otter Tail was able to install 98 percent or 3,381 LEDs, while only spending 50 percent of budget or $386,327. By managing expenses closely Otter Tail has ultimately saved customers money, in addition to the energy savings of the LEDs. This project has become an immense value for customers; reducing energy use, increasing customer satisfaction, improving safety, all at a low cost. The following table summarizes expenses for the Company-owned Street and Area Lighting program for the year:

Summary of 2018 Tracker Account for Street & Area Lighting	**Budgeted Expenses**	**Actual Expenses**
CIP Program Evaluation	$3,000	$2,941
CIP Rebate (reduction to rate base)	$178,572	$222,552
Admin. Costs (external project management and adverting/printing)	$125,000	$6,197
Retirement and Disposal Costs	$432,803	$135,721
Return on Incremental Costs of New Lights	$36,108	$18,916
Total Recovery through CIP Tracker	**$775,483**	**$386,327**

Evaluation Methodology

The Company compares the fixtures being installed to the fixtures being removed to determine energy and demand savings. The savings calculation utilizes the TRM values for hours of operation. Specifics are included in Attachment B: Electric Product Assumptions.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Publicly Owned Property Solar	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	2,936,340
Demand Savings – kW	0.00

PUBLICLY OWNED PROPERTY (POP) SOLAR

The objective of the POP Solar program is to demonstrate the benefits of solar PV generation to rural Minnesota communities, educational facilities, and local and tribal governments by offering incentives for universal solar projects. The project provides incentives for installation of non-residential solar PV systems in public sector facilities. The POP Solar program is an example of

universal solar, which shares the benefits of solar with all members of the community, university, public school, tribal properties, or other public owned properties.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Publicly Owned Property Solar	**Actual**	**Proposed**	**% of Goal**
Participation	3	16	19%
Budget $	$229,685	$229,720	100%

Otter Tail's Energy Management Representatives promoted the POP program to public entities across Otter Tail's service territory. While we fell short of our participation goal for 2018, the projects that were completed were sized at the maximum of approximately 40kW. Customers are still expressing concerns over the upfront costs competing with other capital projects, age of current roof surface, and adequate land availability. Otter Tail is confident we will have stronger participation in 2019, since we already have several projects that have filled out POP applications.

Evaluation Methodology

Otter Tail will install production metering with data recorders and the required communications infrastructure needed to store customer-owned, solar PV production in the Company's web-based Power Profiler application. Otter Tail will use this production data to accumulate solar renewable energy credits to comply with Minnesota's Solar Energy Standard.

Energy Savings & Adjustments

ENERGY AND DEMAND RESULTS – 2018	
Publicly Owned Property Solar	**At the Generator (DSMore Summer Coincident Peak kW)**
Energy Savings – kWh	81,638
Demand Savings – kW	35.80

INDIRECT IMPACT PROGRAMS / REGULATORY REQUIREMENTS

ADVERTISING & EDUCATION – Residential & Commercial

Advertising & Education – Residential

The Advertising & Education program for 2018 targeted Minnesota customers and students with

reinforcing messages to make conserving energy a lifestyle. Three approaches were used:

- *Advertising* that increases awareness of and educates about energy efficient technologies and motivates individuals to act to conserve energy.
- *Internet-based resources* including YouTube.com videos and web-based content on the Company website.
- *Classroom based presentations* targeting fourth through sixth graders with educational messages about energy production, energy use, and conservation that reaches across all economic groups.

Advertising

Two new full media campaigns and two radio only campaigns ran in 2018 that focused on reaching residential customers. These included:

- LEDs: A media campaign that included television, radio, and digital media, was completed to educate customers about the energy saving opportunity offered by installing LED bulbs in home lighting.
- Cold Climate Heat Pumps: A media campaign that included television, radio, and digital media was completed to educate customers about new higher-efficiency air source heat pumps.
- Home insulation: A radio and digital campaign was completed to educate customers about the energy saving and comfort value of insulating their homes.
- Appliance recycling: A radio only campaign was completed to inform customers of the value of energy efficiency appliances and to encourage recycling of low efficiency appliances.

Additional advertising support included preparation of consistent energy efficiency messaging about residential CIP programs including energy feedback tools available online, smart thermostats, and AC cycling.

Internet-based resources

This program supports development of promotional and educational materials for the Company website and social media channels. These materials encourage participation in direct impact energy efficiency programs in the CIP portfolio. Data are collected from web analytic tools used on the company websites. Minnesota customer web participation is calculated as 45 percent of the unique visitor count to the website material. This represents the portion of Company customers located in Minnesota.

Home page and program support pages are placed on www.otpco.com to promote CIP programs including air-conditioning cycling program, Energy Star lighting, Home Energy Analyzer, Smart Thermostats, insulation rebates, heat pumps, off-peak water heating, commercial program rebates, and appliance recycling. Visitors were tracked as participation resulting from these ads.

An educational YouTube video series continued to be presented to customers focused on home insulation and maintenance topics:

- Weatherization.
- Furnace filter change out.
- Sealing attic access doors.
- Sealing attic bypass leaks.
- Insulating and sealing rim joists.

Classroom presentations

The Science Museum of Minnesota conducted an interactive lyceum program reaching Minnesota schools over 20 days during October, November, and December 2018. In small community schools, students primarily in fourth through sixth grades are invited to attend. The invitation schedule aims to reach out to all students in the Otter Tail service territory every other year. The southern service territory was targeted in 2018. Participation is dependent on school administrators requesting the program. During the 2018 tour, 30 schools were visited, and 2,646 students participated in the lyceums. The program remains popular with the school districts and program material is in line with the Minnesota school curriculum standards.

Additional activities

Energy efficiency and conservation related literature is made available to Minnesota customers upon request including conservation articles included in the Company's bimonthly newsletter including one issue specially designed for kids.

This program has been approved for continuation in the 2019 CIP.

Participation & Budget

2018 A&E Residential Detailed Participation	
Science Museum School Tour	2,646
Web visits tied to advertising spots	8,102
YouTube videos	3,843
Total	14,591

PARTICIPATION AND BUDGET – 2018			
Advertising & Education	**Actual**	**Proposed**	**% of Goal**
Residential Participation	14,591*	10,000	146%
Budget $	$151,799	$175,000	87%

*Web-based ad participation was not included when the original participation goal was established but was

added as an effective means to reach customers. In addition, participation in web visits to www.otpco.com has increased significantly from past years.

Advertising and Education – Commercial

Otter Tail's Advertising and Education program operated in conjunction with the Company's Commercial Direct Install program again in 2018. The combined program effort provided participating customers in the hard-to-reach small- to mid-sized commercial segment with no-cost energy assessments identifying the top energy efficiency opportunities in the customer's business. The Company's Advertising and Education budget provided funds for free customer assessments, while the Commercial Direct Install program provided customers with installation of low-cost, easily-installed energy efficiency measures while the assessment was taking place in the customer's place of business.

Participating customers anecdotally expressed satisfaction with the Company's effort to provide free installation of energy efficient technologies. Otter Tail is also following up with all participating customers regarding efficiency opportunities identified during facility assessments. The Company appreciates the opportunity to facilitate completion of efficiency measures by reaching out to local contractors and providing expertise to small- to mid-sized commercial customers on energy efficient opportunities in the customers' businesses.

Participation & Budget

2018 A&E Commercial Detailed Participation	
Fertile	26
Hallock	47
Parkers Prairie	34
Pelican Rapids	44
Perham	67
Twin Valley	19
Total	237

ACTUAL / BUDGET – 2018			
Advertising & Education	**Actual**	**Proposed**	**% of Goal**
Participation	237	100	237%
Commercial Budget $	$77,443	$67,000	116%

COMPRESSED AIR AUDITS - Commercial

The Compressed Air Audit program pays up to 50 percent of compressed audit costs, with a maximum of $10,000 per participant. The project relies on industry consultants to provide professional audit services with an unbiased report on saving energy with compressed air system improvements.

This program has been approved for continuation in the 2019 CIP.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Compressed Air Audits	**Actual**	**Proposed**	**% of Goal**
Participation	0	4	0%
Budget $	$270	$20,000	1%

Otter Tail attributes the low participation in the Compressed Air Audit program to the higher customer interest in the Compressed Air Efficiency program.

FINANCING – Commercial

The Financing program is designed to provide low-interest loans for energy-efficiency improvement projects currently included in the Company's CIP. These improvements include, but are not limited to, lighting, motors, variable speed drives, and heat pumps. The difference between the interest expense at the Company's after-tax cost of capital and the expense at the customer's interest rate is the cost charged to the CIP Tracker Account. The interest rate was 1.9 percent for 2018. Commercial customers are given a choice between rebates and financing except for heat pumps where both were offered.

Otter Tail promotes the low-interest Financing program in various resources.

- *Taking Care of Business* commercial CIP booklet.
- *Programs and services guide* provided to contractors and employees.
- Program brochures included with materials requests to customers.
- Part of the Company’s web site.

The commercial financing program has been approved for continuation in the 2019 CIP.

Participation & Budget

ACTUAL / BUDGET – 2018			
Financing	**Actual**	**Proposed**	**% of Goal**
Participation	0	5	0%
Commercial Budget $	$16,412	$50,000	33%

INTEGRATED BUILDING DESIGN PLUS - Commercial

In the integrated building design process, architects, engineers, and energy experts team up early in the design process to coordinate and optimize the design of all components and systems. This team functions and works according to clearly defined goals:

- Design a building with operating costs as low as possible without sacrifices to occupant comfort.
- Design a building with as little environmental impact as possible.
- Design a building that will boost worker productivity.
- Incorporate all features with minimal increases in first costs.

The greatest opportunities to reduce the future energy use of a new building occur during the design development phase. However, the decisions made during commercial building design are often driven by aesthetics, capital costs, and designer familiarity. Information on how these decisions will impact energy consumption and operating costs is often not readily available to building design teams. Obtaining data on energy impacts is the primary barrier to analyzing effects of various design decisions on building energy efficiency, as accurate projections require complex, detailed analysis and energy modeling. Most design firms do not have the time or budget to perform the required analyses, and without the need to regularly exercise such skills, the firms also lack the critical staffing needed to perform specialized energy analysis and modeling.

The objective of Otter Tail's Integrated Building Design Plus program is to optimize the energy efficiency of new construction projects by encouraging greater design team cooperation in an integrated building design process. Otter Tail encourages participation in the Integrated Building Design Plus program by providing:

- design assistance consulting services for participating customers and design teams,
- reimbursements to design team members for added time required to participate in the integrated building design process,
- identification of energy savings for various design packages compared to the baseline design efficiency of Minnesota State Energy Code,

- identification of incentives available through the Otter Tail's prescriptive Lighting, Motors, Adjustable Speed Drives, Heat Pumps, and custom Grants programs, and Training for design team professionals in proper design of geothermal and other high efficiency HVAC systems.

Otter Tail promotes the Integrated Building Design Plus program using the following resources:

- *Taking Care of Business* commercial CIP brochure mailed to targeted commercial and industrial customers annually.
- Annual *Program and Services Guide* sent to contractors and dealers.
- The Company's website (www.otpco.com) with a newly designed commercial and industrial energy efficiency section. The website also features a link to an electronic CDA program application form.
- The *Make it Electric* newsletter targeting commercial and industrial customers (when applicable).
- Through the design assistance consultant's network, membership, and participation as professionals in architectural and engineering organizations, including ASHRAE, AIA and IES.
- Funding for the added costs of design team participation.
- Incentives to building owners for construction of buildings that exceed Minnesota State Energy Code efficiency levels by at least five percent.
- Payment of all approved energy design assistance fees for customers.

Participation & Budget

PARTICIPATION AND BUDGET – 2018			
Integrated Building Design Plus	**Actual**	**Proposed**	**% of Goal**
Participation	6	6	100%
Budget $	$118,516	$234,000	51%

IMPLEMENTATION & TRAINING – Residential & Commercial

The Implementation and Training program provides instruction about energy efficient technologies and DSM trends for the Company's design, implementation, and customer service staff. This program also provides training for customers, electricians, realtors, insulation installers, and other contractors. Several energy efficiency workshops are held at various times through the year in locations in and around the service territory. Otter Tail co-sponsored several of these events with Minnkota Electric Cooperative. Workshops were promoted on our website, in newsletters, and through direct mail pieces. This program has been approved for continuation in the 2019 CIP.

Participation & Budget

ACTUAL / BUDGET – 2018			
Implementation & Training	**Actual**	**Proposed**	**% of Goal**
Residential Participation	38	175	22%
Residential Budget $	$49,080	$40,000	123%
Commercial Participation	537	250	215%
Commercial Budget $	$62,561	$60,000	104%

PROGRAM DEVELOPMENT

Program Development includes CIP strategic market planning analysis, CIP-related resource planning work, and CIP-related regulatory coordination. It also includes program development time for research and studying new energy efficient and DSM technologies.

In 2017, Otter Tail began seeking ways to further enhance load-control strategies for electric water heating. Otter Tail's Water Heating Store & Save, which is included in CIP, has high customer participation delivering energy savings and dollar savings to customers. Otter Tail has hired a Minneapolis based technology firm to help investigate ways to deliver even more benefits to these customers. The project officially began in 2017 with significant research completed on control equipment for existing water heaters as well as a new water heater solution enabled with advanced communication technology. Equipment vendor selection took place in 2017, and a small test group of approximately thirty Otter Tail employees have volunteered to allow the equipment installed at their home in quarter one of 2018. Allowing the Company to optimize the load-control algorithm for each water heater should enhance overall net benefits for all customers. Additional information regarding the water heater control pilot is included in this filing within Appendix B – Other Evaluations.

Otter Tail also used development funding for appropriate development research and information from internal and external sources, including E-Source.

Otter Tail's 2011-2013 CIP plan included developing and maintaining a system capable of providing the data necessary for reporting, forecasting, tracking, and processing CIP rebates. The 2017-2019 CIP plan continues work on this system, which is now operating as our rebate processing and data tracking tool. Continuing work includes adding new programs, development of management dashboards, and reporting tools for program management.

Program Development activities have been approved for continuation in the 2019 CIP.

BUDGET – 2018			
Program Development	**Actual**	**Proposed**	**% of Goal**
Planning – Regulatory Affairs	$221,538	$300,000	74%
Research & Development	$171,066	$180,000	95%

REGULATORY REQUIREMENTS

PUC ASSESSMENTS / REGULATORY (NGEA) ASSESSMENTS

PUC ASSESSMENTS / REGULATORY (NGEA) ASSESSMENTS			
	Actual	**Proposed**	**% of Goal**
PUC Assessments	$22,071	$20,000	110%
Regulatory Assessments (NGEA)	$101,237	$110,000	92%
Transmission & Distribution Cost Study	$2,261	$0	0%

ASSESSMENTS	
NGEA Assessment – Technical Assistance	$ 16,529
NGEA Assessment – R&D Grant	$ 74,378
NGEA Assessment – Facilities Efficiency	$ 10,330
Total NGEA Assessments	**$ 101,237**
Direct PUC Assessments	$ 22,071
Transmission & Distribution Cost Study	$2,261
Total	**$ 125,596**

MISCELLANEOUS / INACTIVE PROGRAM COSTS

These are inactive and miscellaneous programs. The associated costs, including closing costs for these programs, were charged to the 2018 CIP tracker account. Each is detailed separately below.

ACCOUNTING ADJUSTMENTS

One accounting adjustments was required in 2018 totaling $10,556. The adjustment occurred in the Energy Star Lighting program to record a true up to the 2017 year-end estimated billing from Wisconsin Energy Corporation for the Energy Star Lighting program reflecting an increase in costs of $10,556.

Since 1993, Otter Tail has implemented an internal process to handle moving incorrect charges

between project work orders. A line item has been added to the CIP Tracker Account to reflect those charges in transition. The Company believes this method allows us to report current year program costs more accurately.

INACTIVE PROGRAMS

TOWN ENERGY CHALLENGE PILOT

The Rothsay High School SC/EC (Student's for Community Energy Challenge) team (seventh through twelfth grade) promoted conservation at the school and in the community for a five-year commitment. Although the project is now completed, the students who served on the team were given small college scholarships based on the number of years of service to be collected their first year of college. The scholarships will continue through 2021.

MIDSTREAM COMMERCIAL KITCHEN PILOT

The Midstream Commercial Kitchen Equipment pilot program was designed to offer incentives at the equipment dealer and distributor level to encourage customer purchases of commercial kitchen equipment that exceeds baseline efficiency levels. Otter Tail recognized a successful network of engaged, participating dealers as key to program success.

Otter Tail implemented dealer recruiting strategies together with a program implementation consultant to some degree of success, but the Midstream Commercial Kitchen Equipment program saw no participation throughout 2017. Otter Tail attributed lack of participation to consumers focusing on minimizing first cost impacts. Equipment qualifying for the program was technically available through participating dealers, but capital budget constraints frequently pushed equipment buyers and establishment owners toward less costly used commercial kitchen equipment that did not meet efficiency requirements for the program. Otter Tail requested to terminate the program in July 2018 and received approval from the Deputy Commissioner on October 2018.

ROOFTOP UNIT EFFICIENCY PILOT

Otter Tail's Rooftop Unit (RTU) Efficiency pilot program was designed to provide incentives to customers for improving the efficiency of existing RTUs through on-going operational and maintenance activities and advanced RTU control package retrofits.

Otter Tail promoted the RTU Efficiency program by identifying a past participant from the Company's Commercial and Industrial Focused Efficiency program operating with significant, year-round RTU cooling load. The Company worked closely with its program implementation consultant, the program participant, the participant's contractor, and representatives of the

advanced RTU control package manufacturer on the proposed installation of the control package on eight RTU's totaling 140 tons of cooling capacity. Engineering analysis indicated potential savings from the installation of the advanced RTU control package, but even with nearly year-round cooling loads and utility incentives, the economics were not lucrative enough for the participant to move ahead with installation of the advanced RTU controls package.

With limited energy and demand savings producing results that were not cost effective when applied to the pilot participant's nearly year-round cooling load, Otter Tail did not see prudency in continuing to use CIP dollars in recruiting contractors and reaching out to potential participants with cooling loads almost certain to be less than that of the pilot participant. The Company is satisfied in pursuing and learning more about RTU efficiency measures but concluded that CIP budgets should focus on other opportunities at this time to advance the most cost-effective efficiency programs for Otter Tail ratepayers. Otter Tail requested to terminate the program in July 2018 and received approval from the Deputy Commissioner on October 2018.

CARRYING COSTS

Charges totaled $120,007 for carrying costs on the balance of the CIP Tracker, as shown in Appendix A, Table 1.

The Commission and Otter Tail have agreed that allowing carrying charges to be added to the CIP Tracker Account will compensate the Company for the time value of the money invested in CIP programs.

As set in the MNPUC's September 26, 2015 Order, E017/M-14-201, the monthly carrying charge has been modified on the CIP tracker-account balance to the short-term cost of debt set in the Company's last rate case, E017/GR-15-1033.

Otter Tail does not count the carrying costs charges toward the spending requirement (see Appendix A, Table 5 Status Report Recap) but does include the charges in the CIP Tracker for recovery.

Conservation Cost Recovery Adjustment

CONSERVATION COST RECOVERY ADJUSTMENT

This filing constitutes the 25th Annual Filing to Update the Conservation Improvement Program (CIP) Rider (Annual Filing) that Otter Tail Power Company (Otter Tail, the Company) has made with the Minnesota Public Utilities Commission (Commission, MPUC) to update the CIP Rider adjustment, more commonly referred to as the Conservation Cost Recovery Adjustment (CCRA).

The CCRA may be adjusted annually by approval of the Commission. The recoverable CIP tracker balance is determined as described below, starting with the Commission accepted CIP tracker account balance as of the end of the prior year. The following adjustments are made from this starting point:

1. Add financial incentives awarded by the Commission not reflected in the prior year-end CIP tracker balance;
2. Add current year CIP approved spending levels;
3. Subtract current year CIP cost recovery through base rates as estimated based on Company's projected retail sales.

All costs appropriately charged to the CIP tracker account shall be eligible for recovery through this rider and all revenues received from the application of the CCRA shall be credited to the CIP tracker account. Table 1 illustrates the last ten years of the CCRA charge.

Table 1

Year	CIP Surcharge / CCRA Factor	Previous Year Ending Tracker Balance
Jul 2009 / Jun 2010	1.75%	$265,057
Jul 2010 / Jun 2011	3.00%	$1,927,314
Jul 2011 / Jun 2012	3.00% / 3.80%	$3,721,665
Jul 2012 / Jun 2013	3.80% / $0.00142/kWh	$5,188,129
Jul 2013 / Jun 2014	$0.00175/kWh	$3,572,621
Oct 2014 / Sep 2015	$0.00263	$4,835,558
Oct 2015 / Sep 2016	$0.00287	$5,731,183
Oct 2016 / Sep 2017	$0.00275	$4,333,061
Oct 2017 / Sep 2018	$0.00536	$4,835,852
Oct 2018 / Sep 2019	$0.00600	$7,365,957
Oct 2019 / Sept 2020	$0.00710	$5,994,017

Otter Tail has included the CIP tracker, Exhibit 1, which uses the Commission approved per-kWh method from October 2019 through September 2020. For October 2019 through September 2020, Otter Tail is proposing to change the surcharge to $0.00710/kWh. Exhibit 2 illustrates the monthly impacts for each of the Company's ten rate classes.

Calculation of CCRA and Conservation Cost Recovery Charge (CCRC)

During the 21-month period from end of year 2018 through the end of September 2020, Otter Tail plans to reduce the CIP Tracker balance of $5,99,017 to an estimated negative $68,871, as illustrated in Table 2 below.

Table 2

	Jan 2019 - Sep 2019	Oct 2019 - Sep 2020
Beginning Balance	**$5,994,017**	**$3,532,791**
Carrying Charges	$55,891	$10,136
CIP Program Expenses	$5,859,156	$9,342,954
CIP Incentive Proposed	$3,004,311	$2,716,510
CCRC through Base Rates	($3,222,699)	($3,745,650)
CCRA - CIP Rider	($8,157,886)	($11,925,612)
Ending Balance	**$3,532,791**	**($68,871)**
CCRA Method	**$0.00600/ kWh**	**$0.00710/ kWh**

In addition, Otter Tail estimates the following impacts to the CIP Tracker balance during the 21-month period:

- $20,988,958 of additional expenses from carrying charges, CIP incentive, and CIP program expenses.
- $6,968,349 collected from the CCRC.
- $20,083,498 collected from the CCRA, of which $11,925,612 will be collected during the 12 months from October 2019-September 2020.

As illustrated in Exhibit 1, the proposed change in the surcharge will increase the CCRA by approximately 18 percent. By October 1, 2020, the CIP tracker balance is projected to decrease to an estimated negative $68,871. Otter Tail currently receives a carrying charge on the outstanding CIP tracker account balance based on its short-term cost of debt rate of 2.55 percent.

The amounts on lines 4 and 5 of Exhibit 1 reflect the projected expenditures and financial incentive for 2019 and 2020 through September 2020. Line 6 removes from the CIP tracker the portion of CIP costs that are included in base rates. The base rate amount from January 2019 through September 2020 is calculated each month as forecasted retail sales multiplied by the approved CCRC in base rates of $0.00223 per kWh. This rate was approved in Otter Tail's 2016 general rate case (Docket No. E017/GR-15-1033).

The proposed 2019/2020 CCRA is calculated assuming the rate is approved and is effective October 1, 2019. If implementation of the 2019/2020 CCRA occurs after October 1, 2019, the

CCRA may need to be adjusted to recover the approved revenue requirements over the remaining months of the period, through September 2020. This approach would ensure cost recovery and approved eligible costs match. If it is necessary to adjust the CCRA, Otter Tail proposes to calculate the final 2019/2020 CCRA and include it with the corresponding rate schedule pages in a compliance filing in this docket.

The redline and final versions of the CIP rider rate schedules are included immediately following Exhibits 1 and 2. The CIP rider rate schedule included in this filing accommodates the change to the CCRA based on the proposed $0.00710 per-kWh method of recovery. Once the 2019/2020 CCRA is approved, the Otter Tail will file the corresponding rate schedule that complies with the Commission's Order in this docket.

CONCLUSION

Otter Tail respectfully requests the following from the MPUC:

1. Approval of the 2017 CIP Tracker, resulting in a year-end balance of $5,994,017.
2. Approval to implement the CCRA factor of $0.00710/kWh reflected on customers' bills through the Resource Adjustment starting with bills rendered on and after October 1, 2019.
3. Approval of a variance to Minnesota Rule 7820.3500 to allow Otter Tail to continue to combine the FCA with the Conservation Improvement Adjustment on customer bills.

Otter Tail Power Company **Exhibit 1**

CIP TRACKER AND CALCULATION OF PROPOSED CCRA **Page 1 of 1**

-based on projected 2019 sales and 2018 financial incentive

		January 2019	February* 2019	March 2019	April 2019	May 2019	June 2019	July 2019	August 2019	September 2019	Total
1	Beginning of Period Balance	$5,994,017	$4,944,005	$3,640,437	$3,182,140	$2,648,839	$2,141,051	$1,652,432	$1,112,033	$986,690	
2	Carrying Charge Rate	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	
3	Monthly Carrying Charge	$12,737	$10,506	$7,736	$6,762	$5,629	$4,550	$3,511	$2,363	$2,097	$55,891
4	CIP Program Charges	$492,742	$466,127	$793,416	$625,089	$500,243	$516,515	$642,218	$1,097,237	$725,569	$5,859,156
5	CIP Incentive	$0	$0	$0	$0	$0	$0	$0	$0	$3,004,311	$3,004,311
6	Less: CIP Recovery thru Base Rates	($421,657)	($621,199)	($341,260)	($315,710)	($274,661)	($273,584)	($321,393)	($331,910)	($321,325)	($3,222,699)
7	Less: Conservation Adjustment (CIP Revenue)	($1,133,834)	($1,159,003)	($918,188)	($849,443)	($738,999)	($736,100)	($864,735)	($893,032)	($864,551)	($8,157,886)
8	End of Period Balance	$4,944,005	$3,640,437	$3,182,140	$2,648,839	$2,141,051	$1,652,432	$1,112,033	$986,690	$3,532,791	
9	**CCRA through September 2019**	**$0.00600**									
10	Projected sales (kWh)	171,669,633	172,078,995	153,031,412	141,573,809	123,166,454	122,683,335	144,122,543	148,838,717	144,091,885	
11	CCRC / kWh	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	

		October 2019	November 2019	December 2019	January 2020	February 2020	March 2020	April 2020	May 2020	June 2020	July 2020	August 2020	September 2020	Total
1	Beginning of Period Balance	$3,532,791	$2,939,443	$2,347,693	$2,537,381	$1,497,733	$448,485	($96,204)	($692,790)	($1,258,022)	($1,811,273)	($2,307,067)	($2,368,123)	$4,770,048
2	Carrying Charge Rate	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	2.55%	
3	Monthly Carrying Charge	$7,507	$6,246	$4,989	$5,392	$3,183	$953	($204)	($1,472)	($2,673)	($3,849)	($4,903)	($5,032)	$10,136
4	CIP Program Charges	$661,062	$798,564	$1,736,251	$516,955	$489,033	$832,405	$655,806	$524,825	$541,897	$673,777	$1,151,156	$761,224	$9,342,954
5	CIP Incentive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,716,510	$2,716,510
6	Less: CIP Recovery thru Base Rates	($301,616)	($333,797)	($370,843)	($373,339)	($368,431)	($329,372)	($299,290)	($260,187)	($261,116)	($278,624)	($288,564)	($280,471)	($3,745,650)
7	Less: Conservation Adjustment (CIP Revenue)	($960,301)	($1,062,763)	($1,180,709)	($1,188,657)	($1,173,032)	($1,048,674)	($952,898)	($828,398)	($831,357)	($887,098)	($918,745)	($892,979)	($11,925,612)
8	End of Period Balance	$2,939,443	$2,347,693	$2,537,381	$1,497,733	$448,485	($96,204)	($692,790)	($1,258,022)	($1,811,273)	($2,307,067)	($2,368,123)	($68,871)	
9	**CCRA PROPOSED ($ / kWh)**	**$0.00710**												
10	Projected sales (kWh)	135,253,693	149,684,862	166,297,093	167,416,417	165,215,807	147,700,620	134,210,935	116,675,736	117,092,595	124,943,438	129,400,768	125,771,668	1,679,663,633
11	CCRC / kWh	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	$0.00223	

*Actual data was used through February 2019, forecast used thereafter.

Otter Tail Power Company **Exhibit 2**

Comparison of Monthly Bill Impacts

CIP Surcharge (CCRA) is based on $0.00710 / kWh

			Monthly Impacts			
Rate Class	**Average kWh/Bill**	**Average $/Bill before CCRA**	**Current CCRA**	**Proposed CCRA**	**Monthly Bill $ Change**	**Monthly Bill % Change**
Residential	803	$81.96	$4.82	$5.70	$0.88	1.08%
Farm	2,139	$203.53	$12.83	$15.18	$2.35	1.16%
General Service	2,661	$249.14	$15.97	$18.89	$2.93	1.17%
Large General Service	117,853	$8,089.67	$707.12	$836.75	$129.64	1.60%
Irrigation	1,617	$138.76	$9.70	$11.48	$1.78	1.28%
Outdoor Lighting	80	$12.32	$0.48	$0.57	$0.09	0.72%
Municipal Pumping	3,119	$240.38	$18.71	$22.14	$3.43	1.43%
Water Heating Control	219	$17.05	$1.31	$1.55	$0.24	1.41%
Interruptible Load	1,838	$99.14	$11.03	$13.05	$2.02	2.04%
Deferred Load	1,423	$79.20	$8.54	$10.10	$1.57	1.98%

*All average data comes from Otter Tail's approved rates in Schedule-E that was filed January 20, 2017, in compliance to the ALJ's (Docket no. E017/GR-15-1033).

CONSERVATION IMPROVEMENT PROJECT (CIP) RIDER

DESCRIPTION	RATE CODE
Conservation Surcharge	MCIP
CIP Exempt Adjustment Credit	MCCRC

RULES AND REGULATIONS: Terms and conditions of this electric rate schedule and the General Rules and Regulations govern use of this rider.

APPLICATION OF RIDER: This rider is applicable to any electric service under all of the Company's retail rate schedules, except for Standby Service, Section 11.01 and those customers who have been granted an exemption under a large customer facility. The exemptions are as follows:

"Large Customer Facility" customers that have been exempted from the Company's Conservation Improvement Program charges pursuant to Minn. Stat. 216B.241, Subd. 1a (b) shall receive a monthly exemption from conservation improvement program charges pursuant to Minn. Stat.216B.16, subd. 6b Energy Conservation Improvement. Such monthly exemption will be effective beginning January 1 of the year following the grant of exemption. Upon exemption from conservation program charges, the "Large Customer Facility" customers can no longer participate in the Company's Energy Conservation Improvement Program.

CONSERVATION SURCHARGE AND EXEMPTION ADJUSTMENT: There shall be added to each non-exempt Customer's bill a Conservation Surcharge based on the applicable Conservation Surcharge Factor multiplied by the Customer's monthly energy use. The Conservation Surcharge shall not be applied to Meter(s) on Customer Account(s) granted exemption by the Commissioner of the Minnesota Department of Commerce, Division of Energy Resources (or successor agency) from CIP costs pursuant to Minn. Stat. 216B.241. Meter(s) on Customer Account(s) granted an exemption shall receive a Conservation Cost Recovery Charge (CCRC) Exemption Adjustment Credit.

The Conservation Surcharge Factor is $0.~~00600~~ 00710 per kWh.

DETERMINATION OF CONSERVATION SURCHARGE FACTOR: The Conservation Surcharge shall be the quotient of the Recoverable CIP Tracker Balance, divided by projected Minnesota non-exempt retail energy sales for a designated 12-month recovery period. The Surcharge may be adjusted annually by approval of the Minnesota Public Utilities Commission (MNPUC). The Recoverable CIP Tracker Balance is determined as described below, starting with the MNPUC accepted CIP Tracker account balance as of the end of the prior year. From this starting point:

1. Add financial incentives awarded by the MNPUC not reflected in the prior year-end CIP Tracker balance;

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The Conservation Surcharge Factor is $0.00710 per kWh. **R**

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Appendix A- Tables

APPENDIX A

Table 1
2018 CALCULATION OF CARRYING CHARGE ON CONSERVATION DOLLARS HELD IN CIP TRACKER ACCOUNT
Financial Incentive Project - Conservation Improvement Programs
Otter Tail Power Company

	Capital Expenditures (A)	Operating Expenses (B)	Revenues Received (C)	Dr. 1860.3100 Cr. 4310.4000 Carrying Charge 2.5549% (D)	Balance Account 1860.3000 + 1860.3100 (E)
Balance Dec. 31, 2017	0.00	108,463,311.38	(102,576,943.69)	1,064,682.78	7,365,957.40
January:					
Carrying Charge	--	--	--	15,652.66	15,652.66
Trf Carrying Charge Bal					0.00
Labor Accrual Adj					0.00
Activity	0.00	309,062.46	(1,431,164.25)	--	(1,122,101.79)
Deferred Taxes	--	--	--	--	--
Balance January 31, 2018	0.00	108,772,373.84	(104,008,107.94)	1,080,335.44	6,259,508.27
February:					
Carrying Charge	--	--	--	13,301.46	13,301.46
Labor Accrual Adj					0.00
Activity	0.00	1,030,816.91	(1,359,622.33)	--	(328,805.42)
Deferred Taxes	--	--	--	--	--
Balance February 28, 2018	0.00	109,803,190.75	(105,367,730.27)	1,093,636.90	5,944,004.31
March:					
Carrying Charge	--	--	--	12,631.01	12,631.01
Labor Accrual Adj					0.00
Activity	0.00	515,209.43	(1,193,542.90)	--	(678,333.47)
Deferred Taxes	--	--	--	--	--
Balance March 31, 2018	0.00	110,318,400.18	(106,561,273.17)	1,106,267.91	5,278,301.85
April:					
Carrying Charge	--	--	--	11,216.39	11,216.39
Labor Accrual Adj					0.00
Activity	0.00	663,730.23	(1,098,416.74)	--	(434,686.51)
Deferred Taxes	--			--	--
Balance April 30, 2018	0.00	110,982,130.41	(107,659,689.91)	1,117,484.30	4,854,831.73
May:					
Carrying Charge	--	--	--	10,316.52	10,316.52
Bonus/Incentive					0.00
Labor Accrual Adj					0.00
Activity	0.00	603,780.65	(975,869.87)	--	(372,089.22)
Deferred Taxes	--	--	--	--	--
Balance May 31, 2018	0.00	111,585,911.06	(108,635,559.78)	1,127,800.82	4,493,059.03
June:					
Carrying Charge	--	--	--	9,547.75	9,547.75
Bonus/Incentive					0.00
Labor Accrual Adj					0.00
Activity	0.00	440,261.10	(993,868.61)	--	(553,607.51)
Deferred Taxes	--	--	--	--	--
Balance June 30, 2018	0.00	112,026,172.16	(109,629,428.39)	1,137,348.57	3,948,999.27
July:					
Carrying Charge	--	--	--	8,391.62	8,391.62
Bonus/Incentive					0.00
Labor Accrual Adj					
Activity	0.00	477,474.96	(1,044,746.26)	--	(567,271.30)
Deferred Taxes	--	--	--	--	--
Balance July 31, 2018	0.00	112,503,647.12	(110,674,174.65)	1,145,740.19	3,390,119.59

APPENDIX A

Table 1
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Otter Tail Power Company

	Capital Expenditures (A)	Operating Expenses (B)	Revenues Received (C)	Dr. 1860.3100 Cr. 4310.4000 Carrying Charge 2.5549% (D)	Balance Account 1860.3000 + 1860.3100 (E)
August:					
Carrying Charge	--	--		7,204.00	7,204.00
Bonus/Incentive					0.00
Labor Accrual Adj					0.00
Activity	0.00	365,051.35	(1,026,498.08)	--	(661,446.73)
Deferred Taxes	--	--	--	--	--
Balance August 31, 2018	0.00	112,868,698.47	(111,700,672.73)	1,152,944.19	2,735,876.86
September:					
Carrying Charge	--	--	--	5,813.74	5,813.74
Lost Margin & Bonus/Incentive					0.00
Labor Accrual Adj					0.00
Activity	0.00	880,226.63	(975,459.07)	--	(95,232.44)
Deferred Taxes	--	--	--	--	--
Balance September 30, 2018	0.00	113,748,925.10	(112,676,131.80)	1,158,757.93	2,646,458.16
October:					
Carrying Charge	--	--	--	5,623.72	5,623.72
Lost Margin & Bonus/Incentive		2,938,110.00			2,938,110.00
Labor Accrual Adj					0.00
Activity	0.00	430,085.61	(1,002,537.37)	--	(572,451.76)
Deferred Taxes	--	--	--	--	--
Balance October 31, 2018	0.00	117,117,120.71	(113,678,669.17)	1,164,381.65	5,017,740.12
November:					
Carrying Charge	--		--	10,662.70	10,662.70
Labor Accrual Adj					0.00
Activity	0.00	671,208.41	(1,160,709.24)	--	(489,500.83)
Deferred Taxes	--	--	--	--	--
Balance November 30, 2018	0.00	117,788,329.12	(114,839,378.41)	1,175,044.35	4,538,901.99
December:					
Carrying Charge	--	--	--	9,645.17	9,645.17
Lost Margin & Bonus/Incentive					0.00
Labor Accrual Adj					0.00
Activity	0.00	2,640,854.63	(1,195,384.43)	--	1,445,470.20
Deferred Taxes	--	--	--	--	--
Balance December 31, 2018	0.00	120,429,183.75	(116,034,762.84)	1,184,689.52	5,994,017.36

Table 2
2018 INCENTIVE MECHANISM
Financial Incentive Project - Conservation Improvement Programs
Otter Tail Power Company

Inputs	**2018**	
3-year Weather-Normalized Sales Average (kWh)	1,741,875,298	(2013-2015 WN Sales)
1.0% Energy Savings	17,418,753	
Size of steps in Energy Savings	1,741,875	
Estimated CIP Expenditures	$8,513,303	
Estimated CIP Energy Goal	51,528,624	
Estimated Net Benefits at Approved Goal	$22,360,736	excludes Company-Owned Street Lighting, POP Solar, and Assessments
Energy savings at 1.5%	26,128,129	

Incentive Calibration	**2018**	
Max Percent of Benefits Awarded	12.0%	maximum net benefits awarded
Earning Threshold	1.0%	
Max Achievement Level	1.7%	
Max Percent of Expenditures	35.0%	
Increment (% Points)	7.5	% Points

Actual Electric CIP Incentive Results	**2018**	
Spending	$9,027,762	
Energy Saved	70,237,937	excludes Company-Owned Street Lighting and POP Solar
Net Benefits Achieved	$34,609,459	excludes House Therapy, Company-Owned Street Lighting, POP Solar, and Assessments
Resulting Incentive		
Achievement Level	4.03%	
Percent of Net Benefits Awarded	12.00%	
Financial Incentive without Expenditure Cap	$4,153,135	
Expenditure Cap	$3,153,096	excludes Company-Owned Street Lighting return on incremental costs
Financial Incentive Award -- 2018 Results	**$3,153,096**	
2017 Adjustment for Actual Spend in Street Lighting	**($148,786)**	
2018 Financial Incentive	**$3,004,311**	

Incentive/First Year kWh Saved $	$0.0449
Incentive/Net Benefits	9.11%
Incentive/CIP Expenditures	34.93%

Table 3
2018 PROJECT COSTS, SAVINGS, AND BENEFITS
Financial Incentive Project
Otter Tail Power Company

	2018 Proposed Savings, Costs, and Benefits				2018 Actual Savings, Costs, and Benefits			
	kWh Savings	Expenditures	Total Benefits	Net Benefits	kWh Savings	Expenditures	Total Benefits	Net Benefits
Residential								
Residential Air Conditioning Control	136,108	$86,000	$334,696	$248,696	84,629	$45,898	$208,108	$162,209
Appliance Recycling	241,851	$65,000	$95,486	$30,486	410,767	$108,215	$163,016	$54,801
Energy Star Lighting	3,760,869	$395,000	$2,306,802	$1,911,802	6,459,690	$665,481	$3,839,196	$3,173,714
Electronically Commutated Motors	90,418	$30,000	$101,344	$71,344	282,469	$50,239	$310,895	$260,656
Energy Feedback Program	3,322,502	$302,100	$681,257	$379,157	3,917,950	$298,804	$841,955	$543,151
Residential Heat Pumps	1,639,537	$275,000	$1,192,570	$917,570	1,912,349	$339,748	$1,222,058	$882,310
Home Insulation	165,584	$45,000	$98,393	$53,393	78,840	$29,037	$43,171	$14,134
Home Transformer	540,788	$87,000	$430,819	$343,819	339,969	$47,180	$370,074	$322,895
School Kit Program	1,154,443	$130,000	$488,660	$358,660	1,750,682	$107,610	$1,687,172	$1,579,562
Smart Thermostats	312,221	$50,000	$94,147	$44,147	220,024	$32,832	$71,848	$39,016
Water Heater Store & Save	585,858	$35,000	$917,849	$882,849	579,951	$19,108	$1,210,011	$1,190,903
Advertising & Education	0	$175,000	$0	($175,000)	0	$151,799	$0	($151,799)
Implementation & Training	0	$40,000	$0	($40,000)	0	$49,080	$0	($49,080)
Total - Residential	11,950,179	$1,715,100	$6,742,021	$5,026,921	16,037,320	$1,945,033	$9,967,504	$8,022,471
Low-Income								
House Therapy	230,355	$150,000	$113,584	($36,416)	306,305	$182,044	$142,415	($39,629)
Total - Low-Income	230,355	$150,000	$113,584	($36,416)	306,305	$182,044	$142,415	($39,629)
Commercial								
Adjustable Speed Drives	5,563,485	$390,000	$2,918,996	$2,528,996	4,646,390	$325,033	$2,706,290	$2,381,257
Commercial Cool Savings	57,124	$31,000	$364,260	$333,260	29,315	$5,869	$186,935	$181,067
Commercial Direct Install	505,708	$41,000	$88,501	$47,501	740,779	$49,316	$154,332	$105,016
Compressed Air Efficiency	1,026,919	$140,000	$457,064	$317,064	78,550	$28,418	$55,019	$26,601
Custom Effiency Grants	2,389,608	$339,000	$2,126,549	$1,787,549	3,584,202	$362,473	$5,183,493	$4,821,020
Commercial Heat Pumps	4,456,927	$705,000	$3,954,267	$3,249,267	6,787,966	$901,233	$2,790,267	$1,889,034
Commercial & Industrial Focused Efficiency	1,614,600	$220,000	$1,072,256	$852,256	2,121,103	$344,202	$1,666,561	$1,322,359
Lighting Retrofit	13,348,357	$2,070,000	$8,301,037	$6,231,037	23,968,891	$2,492,618	$13,983,860	$11,491,241
Lighting - New Construction	3,625,635	$211,000	$2,175,926	$1,964,926	6,732,449	$356,745	$3,889,445	$3,532,700
Motors	761,519	$137,000	$438,626	$301,626	1,310,725	$279,285	$913,422	$634,137
Recommissioning/Retrocommissioning	2,174,328	$188,000	$499,336	$311,336	3,281,062	$235,677	$1,054,762	$819,085
Refrigeration	1,243,764	$130,000	$449,997	$319,997	612,880	$81,757	$161,708	$79,950
Advertising & Education	0	$67,000	$0	($67,000)	0	$77,443	$0	($77,443)
Compressed Air Audits	0	$20,000	$0	($20,000)	0	$270	$0	($270)
Integrated Building Design Plus	0	$234,000	$0	($234,000)	0	$118,516	$0	($118,516)
Financing	0	$50,000	$0	($50,000)	0	$16,412	$0	($16,412)
Implementation & Training	0	$60,000	$0	($60,000)	0	$62,561	$0	($62,561)
Total - Commercial	36,767,973	$5,033,000	$22,846,815	$17,813,815	53,894,312	$5,737,828	$32,746,093	$27,008,265

Table 3
2018 PROJECT COSTS, SAVINGS, AND BENEFITS
Financial Incentive Project
Otter Tail Power Company

	2018 Proposed Savings, Costs, and Benefits				2018 Actual Savings, Costs, and Benefits			
	kWh Savings	**Expenditures**	**Total Benefits**	**Net Benefits**	**kWh Savings**	**Expenditures**	**Total Benefits**	**Net Benefits**
Other Projects								
Company-Owned Street & Area Lighting	2,355,868	$775,483	$908,914	$133,431	2,936,340	$386,327	$1,112,133	$725,806
Publicy-Owned Property Solar	224,250	$229,720	$244,024	$14,304	81,638	$229,685	$101,286	($128,399)
Total - Other	2,580,118	$1,005,203	$1,152,938	$147,735	3,017,978	$616,012	$1,213,419	$597,407
Program Development And Regulatory Requirements								
Planning - Regulatory Affairs	0	$300,000	$0	($300,000)	0	$221,538	$0	($221,538)
Research & Development	0	$180,000	$0	($180,000)	0	$171,066	$0	($171,066)
NGEA - Regulatory Assessments	0	$110,000	$0	($110,000)	0	$101,237	$0	($101,237)
PUC Assessments	0	$20,000	$0	($20,000)	0	$22,071	$0	($22,071)
Transmission & Distribution Cost Study	0	$0	$0	$0	0	$2,261	$0	($2,261)
Total - Development & Regulatory Requirements	0	$610,000	$0	($610,000)	0	$518,172	$0	($518,172)
Miscellaneous/Inactive								
Midstream Commercial Kitchen -- Discontinued	0	$0	$0	$0	0	$7,186	$0	($7,186)
Rooftop Unit Efficiency -- Discontinued	0	$0	$0	$0	0	$10,332	$0	($10,332)
Town Energy Challenge	0	$0	$0	$0	0	$600	$0	($600)
Company CIP Projects	0	$0	$0	$0	0	$0	$0	$0
Accounting Adjustments	0	$0	$0	$0	0	$10,556	$0	($10,556)
Total - Miscellaneous	0	$0	$0	$0	$0	$28,673	$0	($28,673)
Total - All CIP	51,528,624	$8,513,303	$30,855,358	$22,342,055	73,255,915	$9,027,762	$44,069,432	$35,041,670

All numbers are for a single year - 2018. DSMORE software was used for the analysis, with figures discounted to 2018.

Table 4
2018 CIP Program Status Report / CIP Tracker Recap
Financial Incentive Project -- 2018 Conservation Improvement Programs
Otter Tail Power Company

	As Filed - 2018 Proposed Benefit/Cost Ratios				Actual - 2018 Benefit/Cost Ratios			
	Utility Test	**RIM Test**	**Societal Test**	**Participant Test**	**Utility Test**	**RIM Test**	**Societal Test**	**Participant Test**
Residential								
Residential Air Conditioning Control	3.89	3.31	3.91	inf.	4.53	3.74	4.56	inf.
Appliance Recycling	1.47	0.41	2.45	inf.	1.51	0.40	2.53	inf.
Energy Star Lighting	5.84	0.52	6.75	14.56	5.77	0.49	5.58	11.79
Electronically Commutated Motors	3.38	0.70	3.58	6.46	6.19	0.74	5.04	6.88
Energy Feedback Program	2.26	0.51	2.71	inf.	2.82	0.55	3.35	inf.
Residential Heat Pumps	4.34	0.54	2.75	5.09	3.60	0.46	2.05	4.26
Home Insulation	2.19	0.39	1.78	4.70	1.49	0.33	1.36	4.74
Home Transformer	4.95	0.62	9.51	inf.	7.84	0.82	12.10	inf.
School Kit Program	3.76	0.46	11.81	inf.	15.68	1.07	19.99	inf.
Smart Thermostats	1.88	0.31	2.72	20.20	2.19	0.32	2.58	12.55
Water Heater Store & Save	26.22	9.66	26.45	inf.	63.33	15.02	63.74	inf.
Advertising & Education	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Implementation & Training	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Total - Residential	3.93	0.61	4.26	11.87	5.12	0.64	4.57	10.29
Low-Income								
House Therapy	0.76	0.31	9.14	inf.	0.78	0.32	7.93	inf.
Total - Low-Income	0.76	0.31	9.14	inf.	0.78	0.32	7.93	inf.
Commercial								
Adjustable Speed Drives	7.48	0.71	5.80	5.64	8.33	0.68	3.17	3.09
Commercial Cool Savings	11.75	4.70	11.78	inf.	31.85	6.26	31.92	inf.
Commercial Direct Install	2.16	0.50	6.33	inf.	3.13	0.52	4.25	10.80
Compressed Air Efficiency	3.26	0.71	3.42	3.88	1.94	0.62	1.15	1.26
Commercial Heat Pumps	6.27	0.99	2.31	1.43	5.75	0.78	4.14	3.78
Custom Effiency Grants	5.61	0.81	2.98	2.35	7.70	1.07	3.27	2.06
Commercial & Industrial Focused Efficiency	4.87	0.85	3.09	2.90	4.84	0.76	2.85	3.75
Lighting Retrofit	4.01	0.73	1.55	1.44	5.61	0.69	2.50	2.45
Lighting - New Construction	10.31	0.78	7.69	6.89	10.90	0.73	6.09	5.69
Motors	3.20	0.66	1.86	1.92	3.27	0.68	3.90	4.09
Recommissioning/Retrocommissioning	2.66	0.61	2.41	3.76	4.48	0.68	3.26	4.21
Refrigeration	3.46	0.70	3.52	4.51	1.98	0.56	2.06	3.24
Advertising & Education	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Compressed Air Audits	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Integrated Building Design Plus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inf.
Financing	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Implementation & Training	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Total - Commercial	4.54	0.76	1.88	1.67	5.71	0.73	3.07	2.98

Table 4
2018 CIP Program Status Report / CIP Tracker Recap
Financial Incentive Project -- 2018 Conservation Improvement Programs
Otter Tail Power Company

	As Filed - 2018 Proposed Benefit/Cost Ratios				Actual - 2018 Benefit/Cost Ratios			
	Utility Test	**RIM Test**	**Societal Test**	**Participant Test**	**Utility Test**	**RIM Test**	**Societal Test**	**Participant Test**
Other Projects								
Company-Owned Street & Area Lighting	1.17	0.31	2.99	inf.	2.88	1.91	13.38	inf.
Publicy-Owned Property Solar	1.06	0.53	0.64	0.72	0.44	0.30	1.04	1.86
Total - Other	1.15	0.34	1.76	4.57	1.97	1.32	6.82	4.30
Program Development And Regulatory Requirements								
Planning - Regulatory Affairs	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Research & Development	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
NGEA - Regulatory Assessments	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
PUC Assessments	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Transmission & Distribution Cost Study	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Total - Development & Regulatory Requirements	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Miscellaneous/Inactive								
Midstream Commercial Kitchen -- Discontinued	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Rooftop Unit Efficiency -- Discontinued	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Town Energy Challenge - Inactive	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Company CIP Projects	0.00	0.00	0.00	inf.	inf.	inf.	inf.	inf.
Accounting Adjustments	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Total - Miscellaneous	0.00	0.00	0.00	inf.	0.00	0.00	0.00	inf.
Total - All CIP	3.62	0.68	2.07	2.40	4.89	0.71	3.29	3.83

Table 5
2018 CIP Program Status Report / CIP Tracker Recap
Financial Incentive Project -- 2018 Conservation Improvement Programs
Otter Tail Power Company

	2018 Expenditures			2018 Participation			2018 Energy Savings - kWh			2018 Coincident Demand Savings - kW		
	Actual	Budget	% of Goal	Actual	Budget	% of Goal	Actual	Budget	% of Goal	Actual	Budget	% of Goal
Residential												
Residential Air Conditioning Control	$45,898	$86,000	53%	2,729	4,389	62%	84,629	136,108	62%	2,018.06	3,245.61	62%
Appliance Recycling	$108,215	$65,000	166%	396	230	172%	410,767	241,851	170%	58.62	34.05	172%
Energy Star Lighting	$665,481	$395,000	168%	176,552	105,000	168%	6,459,690	3,760,869	172%	730.10	455.60	160%
Electronically Commutated Motors	$50,239	$30,000	167%	363	120	303%	282,469	90,418	312%	83.34	27.55	302%
Energy Feedback Program	$298,804	$302,100	99%	31,186	30,500	102%	3,917,950	3,322,502	118%	3,846.84	2,994.15	128%
Residential Heat Pumps	$339,748	$275,000	124%	160	102	157%	1,912,349	1,639,537	117%	183.68	165.44	111%
Home Insulation	$29,037	$45,000	65%	19	40	48%	78,840	165,584	48%	2.13	8.76	24%
Home Transformer	$47,180	$87,000	54%	67	100	67%	339,969	540,788	63%	62.50	100.10	62%
School Kit Program	$107,610	$130,000	83%	1,508	1,000	151%	1,750,682	1,154,443	152%	144.37	96.00	150%
Smart Thermostats	$32,832	$50,000	66%	124	140	89%	220,024	312,221	70%	4.84	1.55	313%
Water Heater Store & Save	$19,108	$35,000	55%	16,002	16,165	99%	579,951	585,858	99%	11,712.70	8,839.20	133%
Advertising & Education	$151,799	$175,000	87%	14,591	10,000	146%	0	0	0%	0.00	0.00	0%
Implementation & Training	$49,080	$40,000	123%	38	175	22%	0	0	0%	0.00	0.00	0%
Total - Residential	$1,945,033	$1,715,100	113%	243,735	167,961	145%	16,037,320	11,950,179	134%	18,847.19	15,968.01	118%
Low-Income												
House Therapy	$182,044	$150,000	121%	164	130	126%	306,305	230,355	133%	32.73	24.45	134%
Total - Low-Income	$182,044	$150,000	121%	164	130	126%	306,305	230,355	133%	32.73	24.45	134%
Commercial												
Adjustable Speed Drives	$325,033	$390,000	83%	239	164	146%	4,646,390	5,563,485	84%	583.16	516.30	113%
Commercial Cool Savings	$5,869	$31,000	19%	277	529	52%	29,315	57,124	51%	1,522.46	2,966.66	51%
Commercial Direct Install	$49,316	$41,000	120%	237	154	154%	740,779	505,708	146%	93.42	71.51	131%
Compressed Air Efficiency	$28,418	$140,000	20%	3	23	13%	78,550	1,026,919	8%	15.10	147.20	10%
Custom Effiency Grants	$362,473	$339,000	107%	81	37	219%	3,584,202	2,389,608	150%	772.73	517.75	149%
Commercial Heat Pumps	$901,233	$705,000	128%	123	157	78%	6,787,966	4,456,927	152%	758.15	553.20	137%
Commercial & Industrial Focused Efficiency	$344,202	$220,000	156%	4	1	400%	2,121,103	1,614,600	131%	298.39	382.77	78%
Lighting Retrofit	$2,492,618	$2,070,000	120%	1,214	1,147	106%	23,968,891	13,348,357	180%	3,499.84	2,412.78	145%
Lighting - New Construction	$356,745	$211,000	169%	586	241	243%	6,732,449	3,625,635	186%	881.24	559.95	157%
Motors	$279,285	$137,000	204%	397	215	185%	1,310,725	761,519	172%	249.41	92.79	269%
Recommissioning/Retrocommissioning	$235,677	$188,000	125%	9	4	225%	3,281,062	2,174,328	151%	439.85	75.35	584%
Refrigeration	$81,757	$130,000	63%	59	86	69%	612,880	1,243,764	49%	90.60	178.85	51%
Advertising & Education	$77,443	$67,000	116%	237	100	237%	0	0	0%	0.00	0.00	0%
Compressed Air Audits	$270	$20,000	1%	0	4	0%	0	0	0%	0.00	0.00	0%
Integrated Building Design Plus	$118,516	$234,000	51%	6	6	100%	0	0	0%	0.00	0.00	0%
Financing	$16,412	$50,000	33%	0	5	0%	0	0	0%	0.00	0.00	0%
Implementation & Training	$62,561	$60,000	104%	537	250	215%	0	0	0%	0.00	0.00	0%
Total - Commercial	$5,737,828	$5,033,000	114%	4,009	3,123	128%	53,894,312	36,767,973	147%	9,204.35	8,475.11	109%
Other Projects												
Company-Owned Street & Area Lighting	$386,327	$775,483	50%	3,831	3,892	98%	2,936,340	2,355,868	125%	0.00	0.00	0%
Publicy-Owned Property Solar	$229,685	$229,720	100%	2	16	13%	81,638	224,250	36%	35.80	96.64	37%
Total - Other	$616,012	$1,005,203	61%	3,833	3,908	98%	3,017,978	2,580,118	117%	35.80	96.64	37%
Program Development And Regulatory Requirements												

Table 5
2018 CIP Program Status Report / CIP Tracker Recap
Financial Incentive Project -- 2018 Conservation Improvement Programs
Otter Tail Power Company

	2018 Expenditures			2018 Participation			2018 Energy Savings - kWh			2018 Coincident Demand Savings - kW		
	Actual	Budget	% of Goal	Actual	Budget	% of Goal	Actual	Budget	% of Goal	Actual	Budget	% of Goal
Planning - Regulatory Affairs	$221,538	$300,000	74%									
Research & Development	$171,066	$180,000	95%									
NGEA - Regulatory Assessments	$101,237	$110,000	92%									
PUC Assessments	$22,071	$20,000	110%									
Transmission & Distribution Cost Study	$2,261	$0	0%									
Total - Development & Regulatory Requirements	$518,172	$610,000	85%									
Miscellaneous/Inactive Projects												
Midstream Commercial Kitchen -- Discontinued	$7,186	$0	0%									
Rooftop Unit Efficiency -- Discontinued	$10,332	$0	0%									
Town Energy Challenge	$600	$0	0%									
Company CIP Projects	$0	$0	0%									
Accounting Adjustments	$10,556	$0	0%									
Total - Miscellaneous/Inactive	$28,673	$0	0%	0	0	0%	0	0	0%	0.00	0.00	0%
Total - 2018 CIP Project Costs	$9,027,762	$8,513,303	106%	251,741	175,122	144%	73,255,915	51,528,624	142%	28,120.07	24,564.20	114%
CIP Tracker Carrying Costs	$120,007											
Total - 2018 CIP with Carrying Costs	$9,147,769	$8,513,303	107%	251,741	175,122	144%	73,255,915	51,528,624	142%	28,120.07	24,564.20	114%
Incentives - 2017 [Bonus]	$2,938,110											
CIP Recovery Mechanism	($9,557,418)											
Recovered Through Rates	($3,900,402)											
Prior Year Carry Forward Balance	$7,365,957											
Tracker Balance - Year End 2018	$5,994,017											

Table 6
2018 CIP PROGRAM STATUS REPORT / CIP TRACKER RECAP - COST PER KW / KWH
Financial Incentive Project -- 2018 Conservation Improvement Programs
Otter Tail Power Company

	2018 Expenditures		2018 Energy Savings - kWh		Cost per kWh		2018 Coincident Demand Savings - kW		Cost per kW	
	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget
Residential										
Residential Air Conditioning Control	$45,898	$86,000	84,629	136,108	$0.54	$0.63	2,018.06	3,245.61	$23	$26
Appliance Recycling	$108,215	$65,000	410,767	241,851	$0.26	$0.27	58.62	34.05	$1,846	$1,909
Energy Star Lighting	$665,481	$395,000	6,459,690	3,760,869	$0.10	$0.11	730.10	455.60	$911	$867
Electronically Commutated Motors	$50,239	$30,000	282,469	90,418	$0.18	$0.33	83.34	27.55	$603	$1,089
Energy Feedback Program	$298,804	$302,100	3,917,950	3,322,502	$0.08	$0.09	3,846.84	2,994.15	$78	$101
Residential Heat Pumps	$339,748	$275,000	1,912,349	1,639,537	$0.18	$0.17	183.68	165.44	$1,850	$1,662
Home Insulation	$29,037	$45,000	78,840	165,584	$0.37	$0.27	2.13	8.76	$13,605	$5,136
Home Transformer	$47,180	$87,000	339,969	540,788	$0.14	$0.16	62.50	100.10	$755	$869
School Kit Program	$107,610	$130,000	1,750,682	1,154,443	$0.06	$0.11	144.37	96.00	$745	$1,354
Smart Thermostats	$32,832	$50,000	220,024	312,221	$0.15	$0.16	4.84	1.55	$6,777	$32,258
Water Heater Store & Save	$19,108	$35,000	579,951	585,858	$0.03	$0.06	11,712.70	8,839.20	$2	$4
Total - Residential	$1,744,153	$1,500,100	16,037,320	11,950,179	$0.11	$0.13	18,847.19	15,968.01	$93	$94
Low-Income										
House Therapy	$182,044	$150,000	306,305	230,355	$0.59	$0.65	32.73	30.49	$5,562	$4,920
Total - Low-Income	$182,044	$150,000	306,305	230,355	$0.59	$0.65	32.73	30.49	$5,562	$4,920
Commercial										
Adjustable Speed Drives	$325,033	$390,000	4,646,390	5,563,485	$0.07	$0.07	583.16	516.30	$557	$755
Commercial Cool Savings	$5,869	$31,000	29,315	57,124	$0.20	$0.54	1,522.46	2,966.66	$4	$10
Commercial Direct Install	$49,316	$41,000	740,779	505,708	$0.07	$0.08	93.42	71.51	$528	$573
Compressed Air Efficiency	$28,418	$140,000	78,550	1,026,919	$0.36	$0.14	15.10	147.20	$1,881	$951
Custom Effiency Grants	$362,473	$339,000	3,584,202	2,389,608	$0.10	$0.14	772.73	517.75	$469	$655
Commercial Heat Pumps	$901,233	$705,000	6,787,966	4,456,927	$0.13	$0.16	758.15	553.20	$1,189	$1,274
Commercial & Industrial Focused Efficiency	$344,202	$220,000	2,121,103	1,614,600	$0.16	$0.14	298.39	382.77	$1,154	$575
Lighting Retrofit	$2,492,618	$2,070,000	23,968,891	13,348,357	$0.10	$0.16	3,499.84	2,412.78	$712	$858
Lighting - New Construction	$356,745	$211,000	6,732,449	3,625,635	$0.05	$0.06	881.24	559.95	$405	$377
Motors	$279,285	$137,000	1,310,725	761,519	$0.21	$0.18	249.41	92.79	$1,120	$1,476
Recommissioning/Retrocommissioning	$235,677	$188,000	3,281,062	2,174,328	$0.07	$0.09	439.85	75.35	$536	$2,495
Refrigeration	$81,757	$130,000	612,880	1,243,764	$0.13	$0.10	90.60	178.85	$902	$727
Total - Commercial	$5,462,625	$4,602,000	53,894,312	36,767,973	$0.10	$0.13	9,204.35	8,475.11	$593	$543
Other Projects										
Company-Owned Street & Area Lighting	$386,327	$775,483	2,936,340	2,355,868	$0.13	$0.33	0.00	0.00	$0	$0
Publicy-Owned Property Solar	$229,685	$229,720	81,638	224,250	$2.81	$1.02	0.00	0.00	$0	$0
Total - Other	$616,012	$1,005,203	3,017,978	2,580,118	$0.20	$0.39	0.00	0.00	$0	$0
Total - Direct Impact	$8,004,835	$7,257,303	73,255,915	51,528,624	$0.11	$0.14	28,084.28	24,473.61	$285	$297
Miscellaneous/Inactive Projects										
Midstream Commercial Kitchen -- Discontinued	$7,186	$0	0	0	$0.00	$0.00	0.00	0.00	$0	$0
Rooftop Unit Efficiency -- Discontinued	$10,332	$0	0	0	$0.00	$0.00	0.00	0.00	$0	$0
Town Energy Challenge - Inactive	$600	$0	0	0	$0.00	$0.00	0.00	0.00	$0	$0
Company CIP Projects	$0	$0	0	0	$0.00	$0.00	0.00	0.00	$0	$0
Accounting Adjustments	$10,556	$0	0	0	$0.00	$0.00	0.00	0.00	$0	$0
Total - Miscellaneous	$28,673	$0	0	0	$0.00	$0.00	0.00	0.00	$0	$0
Total - Indirect Impact	$994,254	$1,189,000	0	0	$0.00	$0.00	0.00	0.00	$0	$0
Total - 2018 CIP Project Costs	$9,027,762	$8,446,303	73,255,915	51,528,624	$0.12	$0.16	28,084.28	24,473.61	$321	$345

Appendix B- Other Evaluations

- **Bill Analyzer Evaluation Program Year 2018**
- **OPOWER 2018 Results Report**
- **OATI Water Heater Pilot Program Report**

123 E. 4th St, Cincinnati Ohio 45202

Final Memorandum

To: **Otter Tail Power Company**

From: Ken Skinner, Integral Analytics

Date: **March 16, 2019**

RE: **Impact Evaluation Results for the Bill Analyzer Program (Program Year 2018)**

This memo presents the final results from the billing analysis of Otter Tail Power Company's (OTPCo's) Bill Analyzer energy efficiency program. This analysis relied upon a statistical analysis of actual customer billed electricity consumption before and after participation in the program to estimate the impact of the program. Table 1 presents the results of this billing analysis.

Table 1: Average Annual kWh Savings:

Participation Level	Savings (kWh/year)
Overall	385
Used Home Energy Center	300
Used the Bill History or Bill Analysis	247
Used CSR	216[1]
Level 1	577[2]
Level 2	1077
Level 3	246[3]

For this impact evaluation, data are available both across households (i.e., cross-sectional) and over time (i.e., time-series). With this type of data, known as "panel" data, it becomes possible to control, simultaneously, for differences across households as well as differences across periods in time through the use of a "fixed-effects" panel model specification. The fixed-effect refers to the model specification aspect that differences across homes that do not vary over the estimation period (such as square footage, heating system, etc.) can be explained, in large part, by customer-specific intercept terms that capture the net change in consumption due to the program, controlling for other factors that do change with time (e.g., the weather).

Because the consumption data in the panel model includes months before and after the installation of measures through the program, the period of program participation (or the participation window) may be defined specifically for each customer. This feature of the panel model allows for the pre-installation months of consumption to effectively act as controls for post-participation months. In addition, this model specification, unlike annual pre/post-participation models such as annual change models, does not require a full year of post-participation data. Per OTP's request in this analysis a control group was

[1] CSR was accessed only 8 times in 2018. The saving impact for CSR achieved is not statistically significant at a confidence level of 95%, i.e. there is 95% chance that the impact could be anywhere from as low as not saving at all to as high as 230 kWh / year.

[2] The saving impact for Level1 achieved is not statistically significant at a confidence level of 95%, i.e. there is 95% chance that the impact could be anywhere from as low as not saving at all to as high as 600 kWh / year.

[3] The saving impact for Level 3 achieved is not statistically significant at a confidence level of 95%, i.e. there is 95% chance that the impact could be anywhere from as low as not saving at all to as high as 300 kWh / year.

used to explicitly control for any bias that might not have been captured in a fixed effect model with only participants.

We know the exact month of participation in the program for each participant, and are able to construct customer specific models that measure the change in usage consumption immediately before and after the date of program participation, controlling for weather and customer characteristics.

The fixed effects model can be viewed as a type of differencing model in which all characteristics of the home, which (1) are independent of time and (2) determine the level of energy consumption, are captured within the customer-specific constant terms. In other words, differences in customer characteristics that cause variation in the level of energy consumption, such as building size and structure, are captured by constant terms representing each unique household.

Algebraically, the fixed-effect panel data model is described as follows:

$$y_{it} = \alpha_i + \beta x_{it} + \varepsilon_{it},$$

where:

y_{it} = energy consumption for home *i* during month *t*

α_i = constant term for site *i*

β = vector of coefficients

x = vector of variables that represent factors causing changes in energy consumption for home *i* during month *t* (i.e., weather and participation) including a binary variable which tracks months of participation. This binary variable is defined as being 1 for all months since inception of program participation. It is defined as being 0 for all the control group members and for treatment group participants in any month before participation

ε = error term for home *i* during month *t*.

With this specification, the only information necessary for estimation is those factors that vary month to month for each customer, and that will affect energy use, which effectively are weather conditions and program participation. Other non-measurable factors can be captured through the use of monthly indicator variables (e.g., to capture the effect of potentially seasonal energy loads).

The effect of the program was estimated by including a variable which is equal to one for all months after the customer first logged into the Bill Analyzer website. For those control group members this variable is set to zero in all months. Thus the coefficient on this variable is the savings associated with any general interaction with the website. In order to determine if there is any savings associated with going deeper in the tools available on the website, additional models were estimated that determined the savings from using various features on the site, as well as the highest level achieved by the

customer.[2] Finally, in order to account for differences in billing days, billing data was standardized according to calendar months.

Data

The statistical model used to determine the impact of Bill Analyzer incorporates monthly billing data from Jan. 1, 2010 to December 2018 from participants in Minnesota, a control group of nonparticipating OTPC residential customers also in Minnesota, weather data (average monthly temperate) for the same period, other OTP program participation and information about each participants use of Bill Analyzer (login date and tool used). Table 2 presents the number of households in the participant and non-participant group included in the model.

Table 2: Sample used for estimation.

	Participants	Non-participants
Original Sample size	624	654
Eliminated due to excessive missing or zero reads or extremely small reads in most months	110	136
Eliminated Dashboard (IBP) only customers[3]	0	0
Estimation Sample	514	518
Total Sample Size	1032 homes	

The numbers of 2018 participants that used the Home Energy Center (HEC), CSR, or bill history or bill analysis (CCSS) tools or have completed Level 1, Level2, or Level 3 are presented in Table 3. Since a customer can log in multiple times and use different combinations of the Bill Analyzer each time, the total across the different tools/levels will be greater than the number of individual users.

Table 3: Bill Analyzer featured used.

	HEC	CSR	CCSS	Completed		
				Level 1	Level 2	Level 3
Number	213	8	220	902	273	146
% of total	12%	<1%	12%	51%	15%	8%

[2] The features used by the customer and the levels (1, 2, and 3) achieved were defined in the dataset obtained from Otter Tail Power for 2018.

[3] Dashboard viewers (those accounts that participated ONLY in IBP) are removed given they are not considered interactive.

Finally, table 4 presents that average annual kWh usage for both the participants and non-participants for 2008 to 2018.

Table 4: Average annual electricity usage (kWh), by year and group.

Year	Participants	Non-participants
2008	16,908	13,267
2009	17,309	13,628
2010	16,330	12,929
2011	17,589	14,158
2012	15,696	12,834
2013	17,459	14,461
2014	18,398	14,309
2015	14,682	11,831
2016	12,797	11,166
2017	14,397	10,687
2018	12,667	11,496

Estimation

The estimated models are presented in Table 5-7.[4]

Table 5: Estimated Overall Savings – dependent variable is monthly kWh usage, using usage from Jan. 2010 through Dec. 2018 (savings are negative and represent average monthly savings).

Independent Variable	Coefficient (kWh/month)	t-value
Logged into the Bill Analyzer website	-32.05	-5.31
Sample Size	85,657 obs	
R-Squared	61%	

[4] The models include weather terms, monthly indicator terms and other OTP program participation in addition to the variables presented in these tables. These variables were not included in order make interpretation clearer. The full models are included in the Appendix.

Table 6: Estimated Savings by Tool Used – dependent variable is monthly kWh usage, using usage from Jan. 2010 through Dec. 2018 (savings are negative)

Independent Variable	Coefficient (kWh/month)	t-value
Used Home Energy Center	-25.02	-2.44
Used the Bill History or Bill Analysis	-20.67	-4.11
Used CSR	-18.01	-0.41
Sample Size	85,657 obs	
R-Squared	61%	

Table 7: Estimated Savings by Achieved Level – dependent variable is monthly kWh usage, using usage from Jan. 2008 through Dec. 2018 (savings are negative) of those who actively participated in 2018. (savings are negative).

Independent Variable	Coefficient (kWh/month)	t-value
Reached Level 1	-48.07	-1.53
Reached Level 2	-89.78	-1.99
Reached Level 3[5]	-20.52	-0.38
Sample Size	85,657 obs	
R-Squared	61%	

These estimated models show that the Bill Analyzer program does induce energy conservation by participants, with a statistically significant average annual savings of 385 kWh / year. Customers who

[5] The coefficient estimates are total saving of each level. Therefore the total saving of level 2 customers are (89.78*12). Level1 and Level 3 with low tvalues means the saving estimate is not significantly different from 0.

used CSR achieved the highest savings level of 825 kWh / year. Customer who used the bill history or bill analysis tools achieved some savings of 221 kWh per year.

Customers who reached level 1 show a not statistical significant savings of 577 kWh per year. However, savings becomes statistically significant when customers reached level 2 with an estimating savings of 1077 kWh per year. Getting to level 3 results in annual savings not statistically significant, i.e. the saving is not significantly different from zero; also note that level 3 customers achieved no saving in 2017.

Conclusion

In summary, these results show that the Bill Analyzer program does induce some energy conservation by participants, with a statistically significant average annual savings of 385 kWh. This savings estimation per customer has decreased over last year, and may be due to a reduction in the number of participants, or times the customer has come back to the website Customers who used HEC achieved savings level of 300 kWh. Customer who used the bill history or bill analysis tools achieved some savings (247 kWh). Customers who used CSR saved 216 kWh.

Customers who reached level 2 show statistical significant savings of 1077 kWh per year. Customers who only reached Level 1 have a savings of 577 kWh per year.. Getting to level 3 did not produce statistically significant savings, and may be due to low participation in level 3.

Based on the estimated results and their statistical significance, the most appropriate savings estimate for the Bill Analyzer program is the overall estimate of 385 kWh / year per participant based on the sample of 514 participating accounts.

APPENDIX:

Estimated Overall Model

The GLM Procedure

Dependent Variable: kwh kwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1968	51689123409	26264798	66.61	<.0001
Error	83688	32996410780	394279		
Corrected Total	85656	84685534189			

R-Square	Coeff Var	Root MSE	kwh Mean
0.610365	60.00296	627.9163	1046.476

Source	DF	Type I SS	Mean Square	F Value	Pr > F
AccountNumber	184	945904036260	24826412	62.97	<.0001
cdd*hdd*monthid	108	5724125412	53001161	134.43	<.0001
Overall_BA	1	11578424	11578424	29.37	<.0001
Opower	1	16911498	16911498	42.89	<.0001
OtherPrograms	1	17400518	17400518	44.13	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
cdd*hdd*monthid	108	5721466176	52976539	134.36	<.0001
Overall_BA	1	139346	139346	0.35	0.5522
Opower	1	18420073	18420073	46.72	<.0001
OtherPrograms	1	17400518	17400518	44.13	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > |t|
cdd*hdd*monthid 2010-01-01	0.4961447	0.02387007	20.79	<.0001
cdd*hdd*monthid 2010-02-01	0.5434926	0.01792556	30.32	<.0001
cdd*hdd*monthid 2010-03-01	0.5012502	0.02657085	18.86	<.0001
cdd*hdd*monthid 2010-04-01	0.1126212	0.02823406	3.99	<.0001
cdd*hdd*monthid 2010-05-01	0.0028290	0.00296514	0.95	0.3400
cdd*hdd*monthid 2010-06-01	-0.0000162	0.00507205	-0.00	0.9974
cdd*hdd*monthid 2010-07-01	0.0540652	0.01309017	4.13	<.0001

cdd*hdd*monthid 2010-08-01	0.0135214	0.00289547	4.67<.0001
cdd*hdd*monthid 2010-09-01	-0.0035364	0.00288429	-1.230.2202
cdd*hdd*monthid 2010-10-01	0.0334519	0.01254957	2.670.0077
cdd*hdd*monthid 2010-11-01	0.5147946	0.02480110	20.76<.0001
cdd*hdd*monthid 2010-12-01	0.1897098	0.03316295	5.72<.0001
cdd*hdd*monthid 2011-01-01	0.4812586	0.02017240	23.86<.0001
cdd*hdd*monthid 2011-02-01	0.5758914	0.01676511	34.35<.0001
cdd*hdd*monthid 2011-03-01	0.5615712	0.01931611	29.07<.0001
cdd*hdd*monthid 2011-04-01	0.3787260	0.03162146	11.98<.0001
cdd*hdd*monthid 2011-05-01	0.0071668	0.00343631	2.090.0370
cdd*hdd*monthid 2011-06-01	-0.0020186	0.00289196	-0.700.4852
cdd*hdd*monthid 2011-07-01	0.0284433	0.00607174	4.68<.0001
cdd*hdd*monthid 2011-08-01	0.0132767	0.00466153	2.850.0044
cdd*hdd*monthid 2011-09-01	-0.0115208	0.00278839	-4.13<.0001
cdd*hdd*monthid 2011-10-01	0.0033358	0.00269122	1.240.2152
cdd*hdd*monthid 2011-11-01	0.3067938	0.01975945	15.53<.0001
cdd*hdd*monthid 2011-12-01	-0.0539619	0.04092380	-1.320.1873
cdd*hdd*monthid 2012-01-01	0.3463807	0.02502741	13.84<.0001
cdd*hdd*monthid 2012-02-01	0.4305148	0.01834228	23.47<.0001
cdd*hdd*monthid 2012-03-01	0.0474838	0.00771411	6.16<.0001
cdd*hdd*monthid 2012-04-01	-0.0050246	0.00785092	-0.640.5222
cdd*hdd*monthid 2012-05-01	-0.0079691	0.00203629	-3.91<.0001
cdd*hdd*monthid 2012-06-01	-0.0040126	0.00236823	-1.690.0902
cdd*hdd*monthid 2012-07-01	0.0270511	0.00668846	4.04<.0001
cdd*hdd*monthid 2012-08-01	-0.0030799	0.00288328	-1.070.2854
cdd*hdd*monthid 2012-09-01	-0.0057674	0.00154379	-3.740.0002
cdd*hdd*monthid 2012-10-01	0.0652991	0.01343397	4.86<.0001
cdd*hdd*monthid 2012-11-01	0.4077989	0.02305727	17.69<.0001
cdd*hdd*monthid 2012-12-01	-0.0321430	0.03657681	-0.880.3795
cdd*hdd*monthid 2013-01-01	0.0946576	0.00837776	11.30<.0001
cdd*hdd*monthid 2013-02-01	0.0901549	0.00575333	15.67<.0001
cdd*hdd*monthid 2013-03-01	0.0722508	0.00527572	13.69<.0001
cdd*hdd*monthid 2013-04-01	0.0510380	0.00566392	9.01<.0001
cdd*hdd*monthid 2013-05-01	0.0032143	0.00347107	0.930.3544
cdd*hdd*monthid 2013-06-01	-0.0027579	0.00218438	-1.260.2068
cdd*hdd*monthid 2013-07-01	0.0023197	0.00283745	0.820.4136
cdd*hdd*monthid 2013-08-01	-0.0006376	0.00200227	-0.320.7501
cdd*hdd*monthid 2013-09-01	-0.0030079	0.00140991	-2.130.0329
cdd*hdd*monthid 2013-10-01	0.0102785	0.00360041	2.850.0043
cdd*hdd*monthid 2013-11-01	0.0593608	0.00617625	9.61<.0001
cdd*hdd*monthid 2013-12-01	0.0755867	0.01939350	3.90<.0001
cdd*hdd*monthid 2014-01-01	0.4343707	0.01936638	22.43<.0001
cdd*hdd*monthid 2014-02-01	0.5628145	0.01371589	41.03<.0001
cdd*hdd*monthid 2014-03-01	0.5367142	0.01673493	32.07<.0001
cdd*hdd*monthid 2014-04-01	0.0793654	0.01318697	6.02<.0001
cdd*hdd*monthid 2014-05-01	0.0021581	0.00160457	1.340.1786
cdd*hdd*monthid 2014-06-01	-0.0134674	0.00339574	-3.97<.0001

cdd*hdd*monthid 2014-07-01	-0.0105124	0.00543500	-1.930.0531
cdd*hdd*monthid 2014-08-01	-0.0058216	0.00426961	-1.360.1727
cdd*hdd*monthid 2014-09-01	-0.0089576	0.00246908	-3.630.0003
cdd*hdd*monthid 2014-10-01	0.0134536	0.00429661	3.130.0017
cdd*hdd*monthid 2014-11-01	0.4743298	0.01888771	25.11<.0001
cdd*hdd*monthid 2014-12-01	-0.0614238	0.03634914	-1.690.0911
cdd*hdd*monthid 2015-01-01	0.4016044	0.02184598	18.38<.0001
cdd*hdd*monthid 2015-02-01	0.5021471	0.01544827	32.51<.0001
cdd*hdd*monthid 2015-03-01	0.4442397	0.02021290	21.98<.0001
cdd*hdd*monthid 2015-04-01	0.1053179	0.03433078	3.070.0022
cdd*hdd*monthid 2015-05-01	-0.0099522	0.00417176	-2.390.0171
cdd*hdd*monthid 2015-06-01	-0.0129319	0.00342724	-3.770.0002
cdd*hdd*monthid 2015-07-01	-0.0029619	0.00549576	-0.540.5899
cdd*hdd*monthid 2015-08-01	-0.0029891	0.00240869	-1.240.2146
cdd*hdd*monthid 2015-09-01	-0.0079533	0.00149752	-5.31<.0001
cdd*hdd*monthid 2015-10-01	-0.0027696	0.00289192	-0.960.3382
cdd*hdd*monthid 2015-11-01	0.2790222	0.02480782	11.25<.0001
cdd*hdd*monthid 2015-12-01	-0.2259114	0.04311179	-5.24<.0001
cdd*hdd*monthid 2016-01-01	0.3262626	0.02125510	15.35<.0001
cdd*hdd*monthid 2016-02-01	0.4454272	0.01783897	24.97<.0001
cdd*hdd*monthid 2016-03-01	0.3470655	0.02314482	15.00<.0001
cdd*hdd*monthid 2016-04-01	0.0320124	0.01116649	2.870.0041
cdd*hdd*monthid 2016-05-01	-0.0059567	0.00245491	-2.430.0152
cdd*hdd*monthid 2016-06-01	-0.0134470	0.00374273	-3.590.0003
cdd*hdd*monthid 2016-07-01	-0.0062233	0.00641750	-0.970.3322
cdd*hdd*monthid 2016-08-01	-0.0067506	0.00420816	-1.600.1087
cdd*hdd*monthid 2016-09-01	-0.0162569	0.00340662	-4.77<.0001
cdd*hdd*monthid 2016-10-01	-0.0034520	0.01105935	-0.310.7549
cdd*hdd*monthid 2016-11-01	0.2820629	0.02602567	10.84<.0001
cdd*hdd*monthid 2016-12-01	0.0042382	0.03286340	0.130.8974
cdd*hdd*monthid 2017-01-01	0.3079982	0.02135275	14.42<.0001
cdd*hdd*monthid 2017-02-01	0.3876568	0.01842279	21.04<.0001
cdd*hdd*monthid 2017-03-01	0.3689008	0.02041957	18.07<.0001
cdd*hdd*monthid 2017-04-01	0.0250434	0.01216201	2.060.0395
cdd*hdd*monthid 2017-05-01	-0.0016875	0.00189220	-0.890.3725
cdd*hdd*monthid 2017-06-01	-0.0063583	0.00243349	-2.610.0090
cdd*hdd*monthid 2017-07-01	-0.0005585	0.00487527	-0.110.9088
cdd*hdd*monthid 2017-08-01	-0.0144809	0.00651393	-2.220.0262
cdd*hdd*monthid 2017-09-01	-0.0169251	0.00295414	-5.73<.0001
cdd*hdd*monthid 2017-10-01	0.0118533	0.00396732	2.990.0028
cdd*hdd*monthid 2017-11-01	0.3152813	0.01938439	16.26<.0001
cdd*hdd*monthid 2017-12-01	-0.1726165	0.03846029	-4.49<.0001
cdd*hdd*monthid 2018-01-01	0.3487401	0.01846776	18.88<.0001
cdd*hdd*monthid 2018-02-01	0.4440263	0.01414714	31.39<.0001
cdd*hdd*monthid 2018-03-01	0.4084319	0.01672044	24.43<.0001
cdd*hdd*monthid 2018-04-01	0.0296314	0.00422006	7.02<.0001
cdd*hdd*monthid 2018-05-01	-0.0013407	0.00108041	-1.240.2146

cdd*hdd*monthid	2018-06-01	-0.0014326	0.00411722	-0.35	0.7279
cdd*hdd*monthid	2018-07-01	0.0212161	0.00738982	2.87	0.0041
cdd*hdd*monthid	2018-08-01	-0.0033213	0.00374191	-0.89	0.3748
cdd*hdd*monthid	2018-09-01	-0.0037761	0.00148525	-2.54	0.0110
cdd*hdd*monthid	2018-10-01	0.0245968	0.00434823	5.66	<.0001
cdd*hdd*monthid	2018-11-01	0.3861397	0.01826438	21.14	<.0001
cdd*hdd*monthid	2018-12-01	-0.7474063	0.05646419	-13.24	<.0001
Overall_BA		-32.055358	24.37725185	-5.31	<.0001
Opower		-30.7635659	8.88995038	6.84	<.0001
OtherPrograms		-106.442694	16.02273052	-6.64	<.0001

Dependent Variable: kwh kwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1968	51689123409	26264798	66.61	<.0001
Error	83688	32996410780	394279		
Corrected Total	85656	84685534189			

R-Square	Coeff Var	Root MSE	kwh Mean
0.610365	60.00296	627.9163	1046.476

Source	DF	Type I SS	Mean Square	F Value	Pr > F
AccountNumber	1	849459040	36260	24826412	62.97	<.0001
cdd*hdd*monthid	108	5724125412		53001161	134.43	<.0001
used_BA	1	11578424		11578424	29.37	<.0001
Used_HEC	1	437975		437975	1.11	0.2919
used_CSR	1	4427922		4427922	11.23	0.0008
Opower	1	16911498		16911498	42.89	<.0001
OtherPrograms	1	17400518		17400518	44.13	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
cdd*hdd*monthid	108	5721466176	52976539	134.36	<.0001
used_BA	1	139346	139346	0.35	0.5522
Used_HEC	1	681766	681766	1.73	0.1885
used_CSR	1	3714935	3714935	9.42	0.0021
Opower	1	18420073	18420073	46.72	<.0001
OtherPrograms	1	17400518	17400518	44.13	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > |t|
cdd*hdd*monthid 2010-01-01	0.4961447	0.02387007	20.79	<.0001
cdd*hdd*monthid 2010-02-01	0.5434926	0.01792556	30.32	<.0001
cdd*hdd*monthid 2010-03-01	0.5012502	0.02657085	18.86	<.0001
cdd*hdd*monthid 2010-04-01	0.1126212	0.02823406	3.99	<.0001
cdd*hdd*monthid 2010-05-01	0.0028290	0.00296514	0.95	0.3400
cdd*hdd*monthid 2010-06-01	-0.0000162	0.00507205	-0.00	0.9974
cdd*hdd*monthid 2010-07-01	0.0540652	0.01309017	4.13	<.0001
cdd*hdd*monthid 2010-08-01	0.0135214	0.00289547	4.67	<.0001
cdd*hdd*monthid 2010-09-01	-0.0035364	0.00288429	-1.23	0.2202
cdd*hdd*monthid 2010-10-01	0.0334519	0.01254957	2.67	0.0077
cdd*hdd*monthid 2010-11-01	0.5147946	0.02480110	20.76	<.0001
cdd*hdd*monthid 2010-12-01	0.1897098	0.03316295	5.72	<.0001
cdd*hdd*monthid 2011-01-01	0.4812586	0.02017240	23.86	<.0001
cdd*hdd*monthid 2011-02-01	0.5758914	0.01676511	34.35	<.0001

cdd*hdd*monthid	2011-03-01	0.5615712	0.01931611	29.07<.0001
cdd*hdd*monthid	2011-04-01	0.3787260	0.03162146	11.98<.0001
cdd*hdd*monthid	2011-05-01	0.0071668	0.00343631	2.090.0370
cdd*hdd*monthid	2011-06-01	-0.0020186	0.00289196	-0.700.4852
cdd*hdd*monthid	2011-07-01	0.0284433	0.00607174	4.68<.0001
cdd*hdd*monthid	2011-08-01	0.0132767	0.00466153	2.850.0044
cdd*hdd*monthid	2011-09-01	-0.0115208	0.00278839	-4.13<.0001
cdd*hdd*monthid	2011-10-01	0.0033358	0.00269122	1.240.2152
cdd*hdd*monthid	2011-11-01	0.3067938	0.01975945	15.53<.0001
cdd*hdd*monthid	2011-12-01	-0.0539619	0.04092380	-1.320.1873
cdd*hdd*monthid	2012-01-01	0.3463807	0.02502741	13.84<.0001
cdd*hdd*monthid	2012-02-01	0.4305148	0.01834228	23.47<.0001
cdd*hdd*monthid	2012-03-01	0.0474838	0.00771411	6.16<.0001
cdd*hdd*monthid	2012-04-01	-0.0050246	0.00785092	-0.640.5222
cdd*hdd*monthid	2012-05-01	-0.0079691	0.00203629	-3.91<.0001
cdd*hdd*monthid	2012-06-01	-0.0040126	0.00236823	-1.690.0902
cdd*hdd*monthid	2012-07-01	0.0270511	0.00668846	4.04<.0001
cdd*hdd*monthid	2012-08-01	-0.0030799	0.00288328	-1.070.2854
cdd*hdd*monthid	2012-09-01	-0.0057674	0.00154379	-3.740.0002
cdd*hdd*monthid	2012-10-01	0.0652991	0.01343397	4.86<.0001
cdd*hdd*monthid	2012-11-01	0.4077989	0.02305727	17.69<.0001
cdd*hdd*monthid	2012-12-01	-0.0321430	0.03657681	-0.880.3795
cdd*hdd*monthid	2013-01-01	0.0946576	0.00837776	11.30<.0001
cdd*hdd*monthid	2013-02-01	0.0901549	0.00575333	15.67<.0001
cdd*hdd*monthid	2013-03-01	0.0722508	0.00527572	13.69<.0001
cdd*hdd*monthid	2013-04-01	0.0510380	0.00566392	9.01<.0001
cdd*hdd*monthid	2013-05-01	0.0032143	0.00347107	0.930.3544
cdd*hdd*monthid	2013-06-01	-0.0027579	0.00218438	-1.260.2068
cdd*hdd*monthid	2013-07-01	0.0023197	0.00283745	0.820.4136
cdd*hdd*monthid	2013-08-01	-0.0006376	0.00200227	-0.320.7501
cdd*hdd*monthid	2013-09-01	-0.0030079	0.00140991	-2.130.0329
cdd*hdd*monthid	2013-10-01	0.0102785	0.00360041	2.850.0043
cdd*hdd*monthid	2013-11-01	0.0593608	0.00617625	9.61<.0001
cdd*hdd*monthid	2013-12-01	0.0755867	0.01939350	3.90<.0001
cdd*hdd*monthid	2014-01-01	0.4343707	0.01936638	22.43<.0001
cdd*hdd*monthid	2014-02-01	0.5628145	0.01371589	41.03<.0001
cdd*hdd*monthid	2014-03-01	0.5367142	0.01673493	32.07<.0001
cdd*hdd*monthid	2014-04-01	0.0793654	0.01318697	6.02<.0001
cdd*hdd*monthid	2014-05-01	0.0021581	0.00160457	1.340.1786
cdd*hdd*monthid	2014-06-01	-0.0134674	0.00339574	-3.97<.0001
cdd*hdd*monthid	2014-07-01	-0.0105124	0.00543500	-1.930.0531
cdd*hdd*monthid	2014-08-01	-0.0058216	0.00426961	-1.360.1727
cdd*hdd*monthid	2014-09-01	-0.0089576	0.00246908	-3.630.0003
cdd*hdd*monthid	2014-10-01	0.0134536	0.00429661	3.130.0017
cdd*hdd*monthid	2014-11-01	0.4743298	0.01888771	25.11<.0001
cdd*hdd*monthid	2014-12-01	-0.0614238	0.03634914	-1.690.0911

cdd*hdd*monthid	2015-01-01	0.4016044	0.02184598	18.38<.0001
cdd*hdd*monthid	2015-02-01	0.5021471	0.01544827	32.51<.0001
cdd*hdd*monthid	2015-03-01	0.4442397	0.02021290	21.98<.0001
cdd*hdd*monthid	2015-04-01	0.1053179	0.03433078	3.070.0022
cdd*hdd*monthid	2015-05-01	-0.0099522	0.00417176	-2.390.0171
cdd*hdd*monthid	2015-06-01	-0.0129319	0.00342724	-3.770.0002
cdd*hdd*monthid	2015-07-01	-0.0029619	0.00549576	-0.540.5899
cdd*hdd*monthid	2015-08-01	-0.0029891	0.00240869	-1.240.2146
cdd*hdd*monthid	2015-09-01	-0.0079533	0.00149752	-5.31<.0001
cdd*hdd*monthid	2015-10-01	-0.0027696	0.00289192	-0.960.3382
cdd*hdd*monthid	2015-11-01	0.2790222	0.02480782	11.25<.0001
cdd*hdd*monthid	2015-12-01	-0.2259114	0.04311179	-5.24<.0001
cdd*hdd*monthid	2016-01-01	0.3262626	0.02125510	15.35<.0001
cdd*hdd*monthid	2016-02-01	0.4454272	0.01783897	24.97<.0001
cdd*hdd*monthid	2016-03-01	0.3470655	0.02314482	15.00<.0001
cdd*hdd*monthid	2016-04-01	0.0320124	0.01116649	2.870.0041
cdd*hdd*monthid	2016-05-01	-0.0059567	0.00245491	-2.430.0152
cdd*hdd*monthid	2016-06-01	-0.0134470	0.00374273	-3.590.0003
cdd*hdd*monthid	2016-07-01	-0.0062233	0.00641750	-0.970.3322
cdd*hdd*monthid	2016-08-01	-0.0067506	0.00420816	-1.600.1087
cdd*hdd*monthid	2016-09-01	-0.0162569	0.00340662	-4.77<.0001
cdd*hdd*monthid	2016-10-01	-0.0034520	0.01105935	-0.310.7549
cdd*hdd*monthid	2016-11-01	0.2820629	0.02602567	10.84<.0001
cdd*hdd*monthid	2016-12-01	0.0042382	0.03286340	0.130.8974
cdd*hdd*monthid	2017-01-01	0.3079982	0.02135275	14.42<.0001
cdd*hdd*monthid	2017-02-01	0.3876568	0.01842279	21.04<.0001
cdd*hdd*monthid	2017-03-01	0.3689008	0.02041957	18.07<.0001
cdd*hdd*monthid	2017-04-01	0.0250434	0.01216201	2.060.0395
cdd*hdd*monthid	2017-05-01	-0.0016875	0.00189220	-0.890.3725
cdd*hdd*monthid	2017-06-01	-0.0063583	0.00243349	-2.610.0090
cdd*hdd*monthid	2017-07-01	-0.0005585	0.00487527	-0.110.9088
cdd*hdd*monthid	2017-08-01	-0.0144809	0.00651393	-2.220.0262
cdd*hdd*monthid	2017-09-01	-0.0169251	0.00295414	-5.73<.0001
cdd*hdd*monthid	2017-10-01	0.0118533	0.00396732	2.990.0028
cdd*hdd*monthid	2017-11-01	0.3152813	0.01938439	16.26<.0001
cdd*hdd*monthid	2017-12-01	-0.1726165	0.03846029	-4.49<.0001
cdd*hdd*monthid	2018-01-01	0.3487401	0.01846776	18.88<.0001
cdd*hdd*monthid	2018-02-01	0.4440263	0.01414714	31.39<.0001
cdd*hdd*monthid	2018-03-01	0.4084319	0.01672044	24.43<.0001
cdd*hdd*monthid	2018-04-01	0.0296314	0.00422006	7.02<.0001
cdd*hdd*monthid	2018-05-01	-0.0013407	0.00108041	-1.240.2146
cdd*hdd*monthid	2018-06-01	-0.0014326	0.00411722	-0.350.7279
cdd*hdd*monthid	2018-07-01	0.0212161	0.00738982	2.870.0041
cdd*hdd*monthid	2018-08-01	-0.0033213	0.00374191	-0.890.3748
cdd*hdd*monthid	2018-09-01	-0.0037761	0.00148525	-2.540.0110
cdd*hdd*monthid	2018-10-01	0.0245968	0.00434823	5.66<.0001

cdd*hdd*monthid	2018-11-01	0.3861397	0.01826438	21.14<.0001
cdd*hdd*monthid	2018-12-01	-0.7474063	0.05646419	-13.24<.0001
Used_HEC		-25.017234	342.08177950	-2.44 0.0120
Used_BA		-20.665993	862.75007633	-4.11<.0001
used_CSR		-18.008338	043.40014779	-0.41 0.6782
Opower		-30.6053695	7.68875074	4.87<.0001
OtherPrograms		-105.54324	616.02273052	-5.94<.0001

Estimated Achieved Level Model

The GLM Procedure

Dependent Variable: kwh kwh

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1969	51702003691	26258001	66.62	<.0001
Error	83687	32983530498	394130		
Corrected Total	85656	84685534189			

R-Square	Coeff Var	Root MSE	kwh Mean
0.610518	59.99160	627.7975	1046.476

Source	DF	Type I SS	Mean Square	F Value	Pr > F
AccountNumber	184945	904036260	24826412	62.99	<.0001
cdd*hdd*monthid	108	5724125412	53001161	134.48	<.0001
l1	1	228602	228602	0.58	0.4463
l2	1	1868242	1868242	4.74	0.0295
l3	1	86636	86636	0.22	0.6392
Opower	1	15042528	15042528	38.17	<.0001
OtherPrograms	1	17894698	17894698	45.40	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
cdd*hdd*monthid	1085	721496823	52976822	134.41	<.0001
l1	1	917847	917847	2.33	0.1270
l2	1	1556887	1556887	3.95	0.0469
l3	1	57079	57079	0.14	0.7035
Opower	1	16452349	16452349	41.74	<.0001
OtherPrograms	1	17894698	17894698	45.40	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > |t|
cdd*hdd*monthid 2010-01-01	0.4946812	0.02386692	20.73	<.0001
cdd*hdd*monthid 2010-02-01	0.5426274	0.01792281	30.28	<.0001
cdd*hdd*monthid 2010-03-01	0.5000000	0.02656672	18.82	<.0001
cdd*hdd*monthid 2010-04-01	0.1105839	0.02823096	3.92	<.0001

cdd*hdd*monthid 2010-05-01	0.0026227	0.00296480	0.88	0.3764
cdd*hdd*monthid 2010-06-01	-0.0003579	0.00507144	-0.07	0.9437
cdd*hdd*monthid 2010-07-01	0.0533877	0.01308823	4.08	<.0001
cdd*hdd*monthid 2010-08-01	0.0133819	0.00289503	4.62	<.0001
cdd*hdd*monthid 2010-09-01	-0.0036656	0.00288383	-1.27	0.2037
cdd*hdd*monthid 2010-10-01	0.0327338	0.01254782	2.61	0.0091
cdd*hdd*monthid 2010-11-01	0.5135402	0.02479738	20.71	<.0001
cdd*hdd*monthid 2010-12-01	0.1885117	0.03315733	5.69	<.0001
cdd*hdd*monthid 2011-01-01	0.4797294	0.02017035	23.78	<.0001
cdd*hdd*monthid 2011-02-01	0.5747369	0.01676315	34.29	<.0001
cdd*hdd*monthid 2011-03-01	0.5600092	0.01931439	28.99	<.0001
cdd*hdd*monthid 2011-04-01	0.3758803	0.03161939	11.89	<.0001
cdd*hdd*monthid 2011-05-01	0.0069042	0.00343597	2.01	0.0445
cdd*hdd*monthid 2011-06-01	-0.0022757	0.00289176	-0.79	0.4313
cdd*hdd*monthid 2011-07-01	0.0285289	0.00607061	4.70	<.0001
cdd*hdd*monthid 2011-08-01	0.0133836	0.00466068	2.87	0.0041
cdd*hdd*monthid 2011-09-01	-0.0114395	0.00278789	-4.10	<.0001
cdd*hdd*monthid 2011-10-01	0.0034100	0.00269075	1.27	0.2050
cdd*hdd*monthid 2011-11-01	0.3066125	0.01975573	15.52	<.0001
cdd*hdd*monthid 2011-12-01	-0.0540786	0.04091606	-1.32	0.1863
cdd*hdd*monthid 2012-01-01	0.3462564	0.02502269	13.84	<.0001
cdd*hdd*monthid 2012-02-01	0.4306618	0.01833883	23.48	<.0001
cdd*hdd*monthid 2012-03-01	0.0474750	0.00771265	6.16	<.0001
cdd*hdd*monthid 2012-04-01	-0.0050079	0.00784943	-0.64	0.5235
cdd*hdd*monthid 2012-05-01	-0.0079891	0.00203591	-3.92	<.0001
cdd*hdd*monthid 2012-06-01	-0.0040519	0.00236779	-1.71	0.0870
cdd*hdd*monthid 2012-07-01	0.0270525	0.00668720	4.05	<.0001
cdd*hdd*monthid 2012-08-01	-0.0030969	0.00288274	-1.07	0.2827
cdd*hdd*monthid 2012-09-01	-0.0057805	0.00154350	-3.75	0.0002
cdd*hdd*monthid 2012-10-01	0.0653914	0.01343144	4.87	<.0001
cdd*hdd*monthid 2012-11-01	0.4077122	0.02305291	17.69	<.0001
cdd*hdd*monthid 2012-12-01	-0.0317539	0.03656995	-0.87	0.3852
cdd*hdd*monthid 2013-01-01	0.0947267	0.00837619	11.31	<.0001
cdd*hdd*monthid 2013-02-01	0.0901845	0.00575225	15.68	<.0001
cdd*hdd*monthid 2013-03-01	0.0722736	0.00527473	13.70	<.0001
cdd*hdd*monthid 2013-04-01	0.0509805	0.00566286	9.00	<.0001
cdd*hdd*monthid 2013-05-01	0.0031852	0.00347042	0.92	0.3587
cdd*hdd*monthid 2013-06-01	-0.0027703	0.00218396	-1.27	0.2046
cdd*hdd*monthid 2013-07-01	0.0023196	0.00283692	0.82	0.4136
cdd*hdd*monthid 2013-08-01	-0.0006352	0.00200189	-0.32	0.7510
cdd*hdd*monthid 2013-09-01	-0.0030109	0.00140964	-2.14	0.0327
cdd*hdd*monthid 2013-10-01	0.0103190	0.00359974	2.87	0.0042
cdd*hdd*monthid 2013-11-01	0.0594387	0.00617510	9.63	<.0001
cdd*hdd*monthid 2013-12-01	0.0759357	0.01938992	3.92	<.0001
cdd*hdd*monthid 2014-01-01	0.4347957	0.01936286	22.46	<.0001
cdd*hdd*monthid 2014-02-01	0.5631074	0.01371339	41.06	<.0001

cdd*hdd*monthid 2014-03-01	0.5370526	0.01673187	32.10<.0001
cdd*hdd*monthid 2014-04-01	0.0795282	0.01318450	6.03<.0001
cdd*hdd*monthid 2014-05-01	0.0021863	0.00160427	1.360.1729
cdd*hdd*monthid 2014-06-01	-0.0134321	0.00339510	-3.96<.0001
cdd*hdd*monthid 2014-07-01	-0.0104845	0.00543397	-1.930.0537
cdd*hdd*monthid 2014-08-01	-0.0057793	0.00426881	-1.350.1758
cdd*hdd*monthid 2014-09-01	-0.0089223	0.00246862	-3.610.0003
cdd*hdd*monthid 2014-10-01	0.0134845	0.00429580	3.140.0017
cdd*hdd*monthid 2014-11-01	0.4746963	0.01888424	25.14<.0001
cdd*hdd*monthid 2014-12-01	-0.0610372	0.03634233	-1.680.0931
cdd*hdd*monthid 2015-01-01	0.4016552	0.02184185	18.39<.0001
cdd*hdd*monthid 2015-02-01	0.5022515	0.01544536	32.52<.0001
cdd*hdd*monthid 2015-03-01	0.4443926	0.02020909	21.99<.0001
cdd*hdd*monthid 2015-04-01	0.1057662	0.03432437	3.080.0021
cdd*hdd*monthid 2015-05-01	-0.0099424	0.00417097	-2.380.0171
cdd*hdd*monthid 2015-06-01	-0.0129053	0.00342660	-3.770.0002
cdd*hdd*monthid 2015-07-01	-0.0029039	0.00549473	-0.530.5972
cdd*hdd*monthid 2015-08-01	-0.0029703	0.00240824	-1.230.2174
cdd*hdd*monthid 2015-09-01	-0.0079395	0.00149724	-5.30<.0001
cdd*hdd*monthid 2015-10-01	-0.0027151	0.00289139	-0.940.3477
cdd*hdd*monthid 2015-11-01	0.2797477	0.02480345	11.28<.0001
cdd*hdd*monthid 2015-12-01	-0.2256858	0.04310365	-5.24<.0001
cdd*hdd*monthid 2016-01-01	0.3270880	0.02125157	15.39<.0001
cdd*hdd*monthid 2016-02-01	0.4459418	0.01783582	25.00<.0001
cdd*hdd*monthid 2016-03-01	0.3476477	0.02314066	15.02<.0001
cdd*hdd*monthid 2016-04-01	0.0322151	0.01116443	2.890.0039
cdd*hdd*monthid 2016-05-01	-0.0059009	0.00245446	-2.400.0162
cdd*hdd*monthid 2016-06-01	-0.0133313	0.00374207	-3.560.0004
cdd*hdd*monthid 2016-07-01	-0.0060879	0.00641633	-0.950.3427
cdd*hdd*monthid 2016-08-01	-0.0066662	0.00420739	-1.580.1131
cdd*hdd*monthid 2016-09-01	-0.0161796	0.00340600	-4.75<.0001
cdd*hdd*monthid 2016-10-01	-0.0032411	0.01105731	-0.290.7694
cdd*hdd*monthid 2016-11-01	0.2827812	0.02602105	10.87<.0001
cdd*hdd*monthid 2016-12-01	0.0046796	0.03285727	0.140.8867
cdd*hdd*monthid 2017-01-01	0.3088176	0.02134919	14.47<.0001
cdd*hdd*monthid 2017-02-01	0.3881978	0.01841955	21.08<.0001
cdd*hdd*monthid 2017-03-01	0.3694261	0.02041592	18.10<.0001
cdd*hdd*monthid 2017-04-01	0.0251361	0.01215972	2.070.0387
cdd*hdd*monthid 2017-05-01	-0.0016689	0.00189184	-0.880.3777
cdd*hdd*monthid 2017-06-01	-0.0063257	0.00243304	-2.600.0093
cdd*hdd*monthid 2017-07-01	-0.0005354	0.00487435	-0.110.9125
cdd*hdd*monthid 2017-08-01	-0.0144128	0.00651271	-2.210.0269
cdd*hdd*monthid 2017-09-01	-0.0168670	0.00295360	-5.71<.0001
cdd*hdd*monthid 2017-10-01	0.0119086	0.00396658	3.000.0027
cdd*hdd*monthid 2017-11-01	0.3158618	0.01938099	16.30<.0001
cdd*hdd*monthid 2017-12-01	-0.1718947	0.03845322	-4.47<.0001

cdd*hdd*monthid 2018-01-01	0.3493058	0.01846453	18.92<.0001
cdd*hdd*monthid 2018-02-01	0.4439491	0.01414446	31.39<.0001
cdd*hdd*monthid 2018-03-01	0.4081390	0.01671736	24.41<.0001
cdd*hdd*monthid 2018-04-01	0.0294190	0.00421942	6.97<.0001
cdd*hdd*monthid 2018-05-01	-0.0013842	0.00108023	-1.280.2000
cdd*hdd*monthid 2018-06-01	-0.0016532	0.00411663	-0.400.6880
cdd*hdd*monthid 2018-07-01	0.0207784	0.00738882	2.810.0049
cdd*hdd*monthid 2018-08-01	-0.0035117	0.00374135	-0.940.3479
cdd*hdd*monthid 2018-09-01	-0.0038834	0.00148509	-2.610.0089
cdd*hdd*monthid 2018-10-01	0.0241333	0.00434816	5.55<.0001
cdd*hdd*monthid 2018-11-01	0.3840287	0.01826466	21.03<.0001
cdd*hdd*monthid 2018-12-01	-0.7549926	0.05646910	-13.37<.0001
l1	-48.066825	31.49777734	-1.530.1270
l2	-89.779043	145.17166071	-1.990.0469
l3	-20.523774	153.93078782	-0.380.7035
Opower	-37.5417204	8.90611828	6.46<.0001
OtherPrograms	-107.958398	316.02189262	-6.74<.0001

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Otter Tail Home Energy Reports Program: 2018 Results Report

Section 1: Program Overview

In June 2011, Otter Tail Power Company (Otter Tail) and Opower launched the Home Energy Reports pilot, a behavioral program designed to boost customer engagement and reduce residential energy consumption. Initially, 30,000 households were selected for the program, and the vast majority received a series of personalized Home Energy Reports designed to motivate and educate recipients to take actions to improve the energy efficiency of their homes.

- Annually in 2012, 2013, and 2014, additional residential customers in Otter Tail's Minnesota service territory were added to the program as a refill to offset attrition (primarily from utility account turnover) and return the program to its original size. At the onset of the program a control group was put in place, and in August 2015, the control group was discontinued, and program design was expanded to reach as many eligible customers as possible.
    - Refill groups were measured utilizing the Modeled Savings Protocol approved by the Minnesota Department of Energy Resources (MN DER, formerly Office of Energy Security) in 2010. This method is discussed in more detail in Section 2.
    - An update to the Modeled Savings Protocol was submitted for approval to the MN DER with a request to apply the revised methodology to all waves of the program in 2016. The revised methodology is described in more detail in Section 2.

- In January 2017, the program size was reduced to 28,000 households. An additional 5,000 households were added to the program in October 2018 to maintain the 28,000-household program goal and to provide a level of over selection to plan for near term attrition.

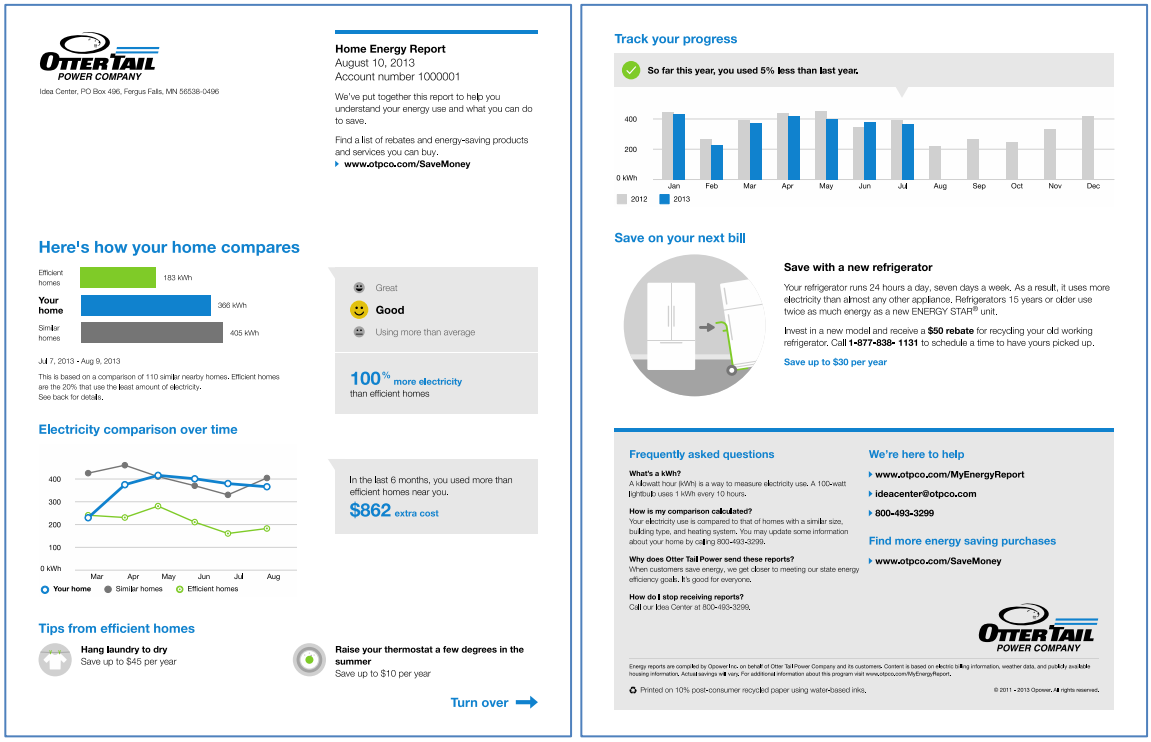
Figure 1: 2018 Report Recipients by Wave (households receiving at least 1 report in 2018)

Waves	Recipients
June 2011 Wave	**13,971**
October 2012 Wave	**2,003**
July 2013 Wave	**1,675**
July 2014 Wave	**1,439**
August 2015 Wave	**5,107**
July 2016 Wave	**2,176**
October 2018 Wave	**4,301**
2018 Total	**30,672**

Home Energy Reports, pictured in Figure 1, contain various personalized components designed to motivate and educate customers on energy efficiency actions. Report components include:

- Comparisons of recent energy use to a group of comparable 'similar homes'; this section includes both normative and injunctive messages designed to motivate action.
- Comparison of recent energy use to historical energy use, tracking household improvement over time.
- Targeted energy efficiency advice; specific tips are selected based on the home's energy use pattern, housing characteristics, and household demographics.
- Dynamic modules to promote programs and include seasonal information.
- An informative Frequently Asked Questions section.

Figure 1: Example of Otter Tail Home Energy Report (Front & Back)



Cumulatively, 32 customers chose to opt out of the program in 2018, which corresponds to an opt-out rate of 0.10 percent for the year. The 2018 opt-out rate compares favorably to opt-out rates of between 1 and 3 percent at other Minnesota utilities and is lower than the Opower overall average. In the same timeframe, 2,161 participants closed their electric accounts with Otter Tail, effectively removing them from the program. Depending on when these events occurred, these customers may have received fewer than four reports in 2018 but are included as participants.

Figure 2: 2018 Account Closures & Opt-Outs by Wave

Month	Account Closures	Opt-Outs
June 2011 Wave	760	22
October 2012 Wave	159	1
July 2013 Wave	162	0
July 2014 Wave	150	2
August 2015 Wave	465	4
July 2016 Wave	323	1
October 2018 Wave	142	2
2018 Total	**2,161**	**32**

Section 2: Savings Calculation Methodology

This section describes the criteria used to define the population eligible to receive Home Energy Reports, the methodology originally used to assign homes to treatment and control groups, the methodology for assigning homes to certain customer segments, and the measurement and verification techniques used to derive program savings.

Opower integrates data from a variety of sources to ensure the Home Energy Reports are personalized, accurate, and meaningful for all recipients. These data integration efforts also allow for detailed analysis of energy savings results that enable the optimization of feature design and targeting of specific energy efficiency messages. The data used for the various analyses presented herein were collected from three primary sources:

1. *Consumption data:* Otter Tail provides Opower with weekly updates of monthly consumption data for all households in the program, including historical consumption information.

2. *Parcel data:* Opower received, to the extent available from a third-party vendor, data about household parcels, including home size, age and value, heating and cooling type, as well as pool and hot tub data. These data elements are static with the exception of square footage, heating and cooling type, and pool and hot tub data, which may be updated at the customer's request.

3. *Demographic data:* Opower received, to the extent available from a third-party vendor, demographic data about participants, including household income, number of occupants, age of occupant(s), and an owner/renter indicator. These fields were used to recommend customized energy efficiency tips to customers by using relevant demographic targeting. Household size may be updated at the customer's request.

The primary measure of success for the Home Energy Reports program is the difference between the average energy consumption of homes in the treatment group and homes in the control group. Because of the statistical homogeneity of these two groups, any difference in their respective energy consumption from June 2011 (program start) to August 2015 (end of randomized controlled trial (RCT)) can be attributed to the Home Energy Reports.

The analysis of the Home Energy Reports program relies upon a fixed-effects regression model. The rationale for using a regression model to interpret the results of the 2011 wave are threefold: 1) the model eliminates variability due to other factors and allows for tighter error bars around the estimate of report impact; 2) in order to isolate the impact of the Home Energy Reports on energy use, it is appropriate to control for slight differences in the housing and demographic characteristics present in the treatment and control population; and 3) the model makes the search for population segments with better or worse than average impact much more manageable. This statistical methodology is standard procedure for the analysis of controlled experiments and is a well-accepted practice within the energy efficiency program measurement and verification community. This was the statistical methodology used to measure results for the initial wave of 30,000 households up until the expansion to territory-wide deployment in August 2015.

2.1 Modeled Savings Methodology

Without the benefit of a control group, the Modeled Savings Methodology was applied to measure the impact of the Home Energy Reports program in the 2012 through 2018 waves. This approach was approved by the MN DER in October 2010. This protocol aimed to leverage Opower expertise from ongoing programs in Minnesota with treatment and control populations, thus offering better safeguards to control for weather and other conditions specific to the state. With the Otter Tail program, savings associated with Otter Tail's 2012 through 2018 waves have been modeled using RCT-measured results from Otter Tail's own 2011 wave.

2.2 RCT Disbanded

As of August 2015, the control group associated with the 2011 pilot wave was converted to recipient status and began receiving reports as participants in the program. Measuring savings for the 2011 wave via a RCT became no longer possible. Therefore, Opower began reporting all savings for the program under the Modeled Savings Protocol. The Modeled Savings Protocol states that:

> "Larger utilities in Minnesota (greater than 15,000 customers) could also have the option of deploying the Opower platform to the entire service territory. Should this case arise, Opower proposes that this protocol also be extended to larger utilities that have a minimum of two years of experimental data from a program administered by Opower. In this case, the model should be based only on results for that particular client, not a sampling of clients across the state."

Otter Tail's Opower program had over four years of measured savings, meeting the approved threshold. Therefore, consistent with the recommendations of the Modeled Savings Protocol, Opower is able to rely on Otter Tail's own results to inform the model for calculating savings going forward.

2.3 Update to the *Modeled Savings Methodology*

In 2016, updates were made to the Modeled Savings Methodology to improve the accuracy of the reporting. These changes include:

- Establishing the relationship between the monthly savings rate and the cumulative number of print reports received per person in the wave up to that month.
- Applying the forecasted savings rate in a given month to the usage of the modeled wave.
- Adapting the algorithm to apply to rolling enrollment waves.

This methodology for measuring savings in territory-wide deployments, described in more detail below, has also been used successfully at Rochester Public Utilities in Minnesota and Fort Collins Utilities in Colorado.

Otter Tail received approval from the MN DER on October 7, 2016, to apply a revised Modeled Savings Methodology to calculate energy savings.

2.2.1 Regression Model & Modeled Savings Methodology

The regression model of program results includes regressors for heating and cooling degree days, baseline usage, home square footage, age of the home, and a treatment variable interacted with an indicator of whether the billing period is pre-treatment or post-treatment. Opower then scores the model based on the coefficients for treatment times post-deployment, baseline usage, home square footage, and age of the home.

Output is a function that describes energy savings as a function of observable household or customer characteristics. The final form of the model is determined based on the statistical significance of the candidate variables. A simplified equation using square footage and age of the customer's home, the number of occupants, the baseline usage in the pre-treatment period, and an indicator of whether the customer owns or rents their home is given below:

$$Savings = b0 + b1(sqft) + b2(age) + b3(\#\ of\ occupants) + b\ 4(baseline\ usage) + b5(owner)$$

Model output is the result of a similar equation, depending on the statistically significant variables.

The average of the 'scored' savings is the predicted per household savings for each customer in the utility. Multiplying this score by the number of customers yields the total savings over the time period in question.

Opower recognizes that because this methodology does not employ experimental design, it may be prudent to adjust the savings percentage accordingly. The resolved solution is to cap the savings calculated through this protocol at the maximum measured savings across the experimentally designed programs in Minnesota.

Section 3: Program Energy Savings

The Home Energy Reports program demonstrated a clear and significant reduction in residential energy consumption. Gross total savings for the program in 2018 amounted to 10,874 MWh. Over the course of 2018, participants saved at a rate of 2.71 percent. A month-by-month breakdown of savings by deployment wave is shown below in Figure 3.

Figure 3: 2018 Monthly Electric Savings Impact Broken Down by Deployment Wave

Month	2011 Wave Savings (MWh)	2012 Wave Savings (MWh)	2013 Wave Savings (MWh)	2014 Wave Savings (MWh)	2015 Wave Savings (MWh)	2016 Wave Savings (MWh)	2018 Wave Savings (MWh)
Jan. 2018	783	113	90	70	214	84	-
Feb. 2018	654	95	76	59	180	71	-
March 2018	609	89	71	55	168	66	-
April 2018	490	71	57	44	134	53	-
May 2018	404	59	48	37	112	43	-
June 2018	434	63	51	39	121	47	-
July 2018	479	70	56	43	133	51	-
Aug. 2018	433	62	50	38	121	46	-
Sept. 2018	383	55	44	34	107	41	-
Oct. 2018	428	61	49	38	117	45	0
Nov. 2018	566	81	65	49	158	61	19
Dec. 2018	628	70	57	42	137	52	51
2018 Total	**6,291**	**889**	**714**	**548**	**1,702**	**660**	**70**

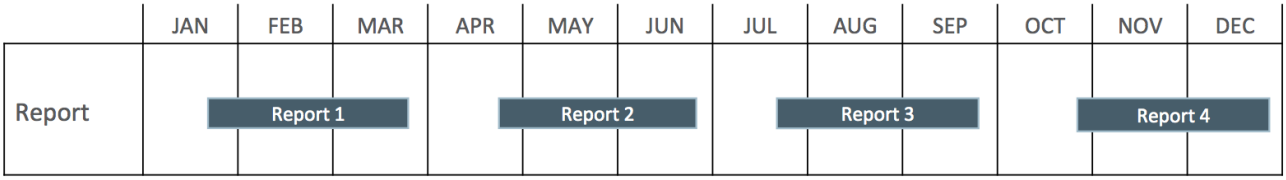
Opower Home Energy Report programs increase customer participation in other utility energy efficiency programs. The evidence for this comes from Opower's RCTs. Treatment customers who receive reports participate in utility energy efficiency programs at higher rates than do control customers. The most recent Opower meta-analyses of the impact on program participation show a 15 percent lift across all utility energy efficiency programs. The increase in participation impacts savings for the reports program in the form of jointly attributable savings. Opower will remove these jointly attributable savings, to avoid the risk of 'double-counting'.

With a control group no longer available for program participation measurement, Opower has applied a value measured by Xcel Energy in its Minnesota program evaluation, entitled *Verification of Savings from Xcel Energy Minnesota's Print Energy Feedback Pilot Project* from March 2014, performed by the Center for Energy and Environment. The value is an average of the jointly attributable percentage savings from 2010-2012, which equates to 1.4 percent of program annual savings. Gross savings in 2018 will be reduced by 152.24 MWh to account for these jointly attributable savings. Net annual savings for the program in 2018 is therefore adjusted to 10,721.76 MWh, which is equal to an average of 349.56 kilowatt-hours in energy savings per participant household.

Section 4: Program Design

Figure 4 displays the frequency with which Home Energy Reports were sent to program participants in 2018. Participants received, on average, four reports per year on a bi-monthly cadence. Customers generally received reports in February, May, August, and November.

Figure 4: Program Design for 2018



WATER HEATER PILOT PROGRAM REPORT v2.0

OTTER TAIL POWER COMPANY

PROJECT #7110

MARCH 2019

PROPRIETARY AND CONFIDENTIAL

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Table of Contents

1. Project Overview

OATI is working with Otter Tail Power Company (OTP) on a Pilot Program to test out different thermal storage technologies and to control a fleet of devices strategically to reduce energy costs and derive value by providing services to the grid. The Pilot Program is used to demonstrate new technology and new control strategies which may improve financial performance, increase energy conservation, improve customer comfort, and increase customer participation over OTP's existing residential demand response water heater program.

During the Pilot Program, multiple technology vendors and differing control strategies have been considered with two technologies selected for deployment into OTP customer homes for evaluation.

This report is intended to provide a current snapshot on the progress with this pilot.

1.1 Project Goals and Challenges

The goals of the Pilot Program are: 1) to enable control program for water heaters which would allow OTP to perform traditional control of a water heater load via deferment (e.g., turning off the water heater), 2) to allow for optimizing the load to OTP's system when market prices are low, and 3) to investigate the timing and magnitude for energy savings and energy consumption. OTP is also interested in having the control capability responsive enough to use in the Mid-Continent Independent System Operator (MISO) Ancillary Services Market (through the Demand Response Resource [DRR] participation model). Ultimately, OTP is targeting control response time at four seconds to meet MISO's current requirements for regulation.

The Pilot Program has identified several challenges with implementing these control strategies. First, the new technology must provide some measure of internal water temperature or energy storage for calculation and control purposes. These measures, temperature and stored energy, must be observed and monitored to meet customer comfort levels and the unit's availability to be controlled (e.g., turned on or off to optimize its power consumption). The second challenge is providing the monitored information and controls within the timeframes required (from five minutes down to four seconds) to meet the MISO operational requirements to participate in the MISO Ancillary Services Market. The third challenge is developing algorithms for optimizing control strategies to meet both customer and energy market constraints. A fourth challenge is providing technology solutions that can work with existing water heaters and also work with

the newer smart water heaters that are available for consumers to purchase. The fifth major challenge is verifying that the technologies can scale up to OTP's needs and be cost effective for both the consumer and OTP.

1.2 Project Scope

OATI and OTP developed a project scope to meet the project goals in a timely and cost effective manner.

The first step was to select a small subset of OATI's existing field-proven webDistribute Demand Response software for creating OTP operational strategies, and to limit the pilot to two customer use cases: retro fitting an existing water heater, and the purchase of a new replacement water heater.

The next step was to survey existing technology solutions and narrow down the equipment selections to no more than one selection for each customer use case. Once technology was selected, Pilot Program customers for each technology were chosen and a broad outline for technology deployment and testing was developed.

During the deployment phase, the control strategies were implemented, tuned to test different operational assumptions, and to gather real-world results. Once technology and basic control strategies were deployed and tested, the planning stages for the second set of technology strategies were being developed. This allowed the teams to learn from the first deployment and apply these lessons to the second technology deployment.

1.3 Equipment Survey and Selection

Based upon market research and prior experience, OATI and OTP developed a list of potential vendors for the equipment survey. Depending on the equipment vendor's technology, there were two general methods for integration and implementation. Figure 1 depicts the two general methods: OATI Distributed Energy Resource Management System (DERMS) Headend to Vendor Headend and OATI Headend to Vendor Device.

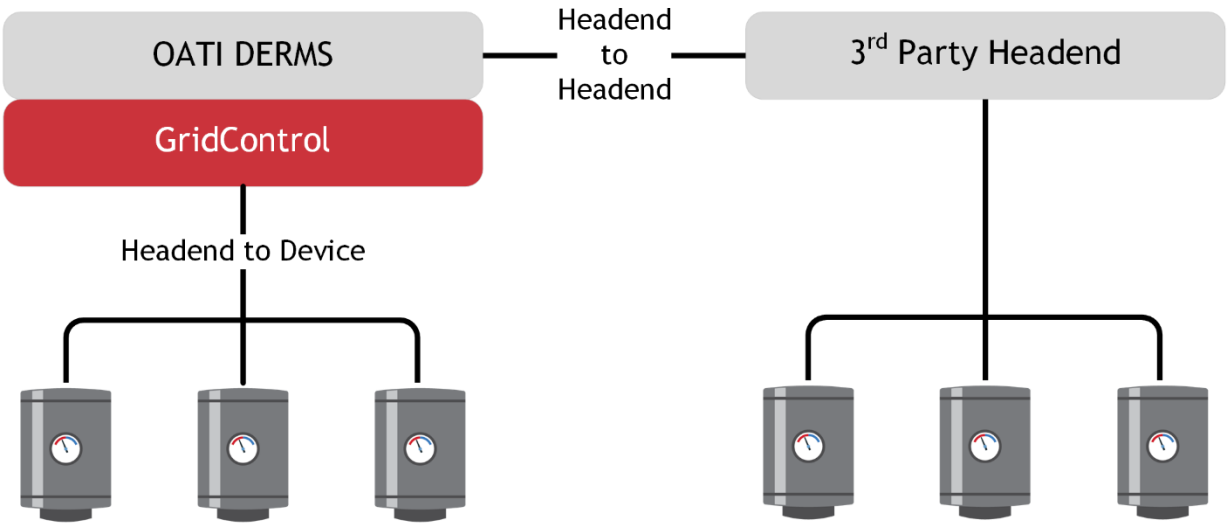

Figure 1: Potential Integration Methods

OATI surveyed each of the equipment vendors to gather specific details on the technical capabilities for each proposed solution. Note that each vendor may have more than one possible technical solution. Key criteria for the selections included: 1) the ability to collect the temperature or stored energy; 2) the ability to control the devices and to receive confirmation of the control; 3) the timeliness of the data and controls (e.g., MISO DRR participation requires ten minute telemetry for provision of Spin and Supplemental reserves, and four second controls for provision of the more desirable and lucrative regulation service); and 4) the vendor's ability to support an industry standard protocol for communications. During the survey and selection process, additional information was collected about the vendor's market presence and the costs associated with the technology solutions.

The selected technologies for both use cases, Retrofit and Replacement, are intended to meet all four key criteria. Beyond the key criteria, each of the selected technologies has additional features that may prove to be beneficial as the pilot proceeds into real-world testing and analysis.

2. Project Timeline

The project timeline is shown below in Figure 2. During 2018, the project completed the Analysis phase, made significant progress on the Retrofit use case, and started initial integration testing on the Replacement use case. The plan for 2019 is to complete all of the field testing, start final analysis, and draft the final report for the project that is due in early 2020.

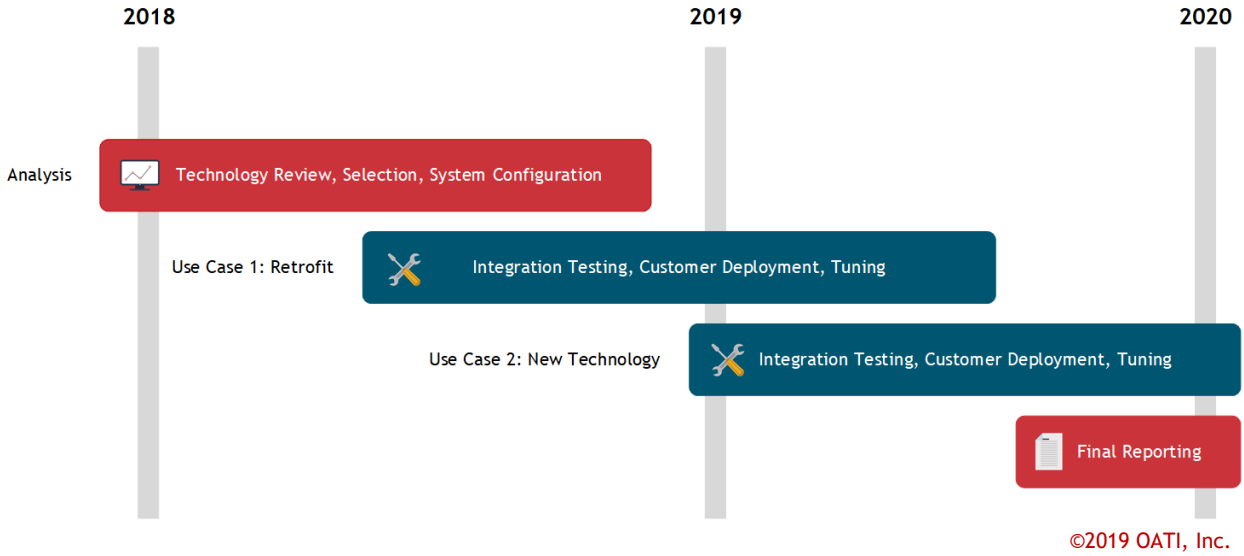

Figure 2: OATI – OTP Pilot Project Timeline

2.1 What Has Been Accomplished to Date

Major activities completed to date (12/31/2018):

- Market survey and technology selection for both use cases (Retrofit and Replacement).
- 15 Customers selected to participate in each use case.
- OATI webDistribute software configured for deployment.
- Retrofit Use Case:
  - Complete hardware/software deployed and tested at the OATI Smart House.
  - Complete hardware/software deployed at OTP's local office site.
  - Complete hardware/software deployed at 15 Customer sites.
  - 50 test runs using the Retrofit technology with differing control strategies.
- Replacement Use Case:
  - Complete hardware/software deployed and tested at the OATI Smart House.
  - New water heater hardware deployed at OTP's local office site.

- New water heater hardware deployed at 15 customer sites.

Planned activities for 2019 include:

- Deploying the remaining hardware and software component for the Replacement use case.
- Testing multiple control strategies for the Replacement units.
- Testing control strategies that combine both Retrofit and Replacement use cases into a single system level solution.
- Begin the detailed analysis and reporting on the Pilot Program.

3. Optimize Water Heating Control to Respond to Market Economics

The OATI Pilot Program is focused on providing a potential solution that meets the requirements of MISO for DRR Type 1 or Type 2 resources. Within each of these resource categories are further breakdowns for specific wholesale product requirements that must be met.

Depending on the hourly market prices for these wholesale products, the economic value for controlling the water heaters can vary substantially over a day, week, month, and season. By optimizing the control of the water heaters, OTP can purchase lower priced energy from the wholesale markets which in turn lowers the costs to the end customer.

A key component of the pilot is to use the water heaters to optimize energy consumption at specific times. During a weekday morning, OTP may need to shave the peak load to reduce its wholesale costs. This means creating a control strategy so that the total energy consumption (and/or energy cost) of all of the water heaters is reduced while also maintaining a minimum water temperature across all water heaters.

Similarly, during other times of the day, energy prices may go lower and the control strategy can be configured to consume more energy (valley filling) while the energy prices are lower. The control strategy can accept new energy consumption targets on an hourly, sub-hourly, minute, or sub-minute basis. Significant economic value can be created depending on the frequency of control, the time of day, the amount of energy requested, and the market pricing.

3.1 Analysis of Energy and Economic Savings

During 2018, the project team collected large amounts of operational data by running many tests for the Retrofit water heater use case. Initial cost data were also collected for both the Retrofit and Replacement use cases.

It is anticipated that during the next year the remaining operational data from the Replacement use case group will be collected. The team will then be able to create the economic models from the data and extrapolate the information as it relates to the total fleet of water heaters controlled by OTP. This information will include analysis for energy savings, economic savings, and potential new control strategies.

Appendix C- Project Information Sheets

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Residential Air Conditioning Control					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$41,250	$28,167	$41,250	$28,035	$41,250	
Administration	$17,060	$9,353	$17,625	$7,439	$18,190	
Evaluation, Measurement & Verification	$3,000	$220	$3,000	$676	$3,000	
Advertising & Promotion	$20,000	$18,813	$20,000	$9,749	$20,000	
Incentives	$0	$0	$0	$0	$0	
Other	$3,690	$0	$4,125	$0	$4,560	
Total Utility Costs	$85,000	$56,552	$86,000	$45,898	$87,000	
Total Participants	4,244	2,627	4,389	2,729	4,534	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	126,447	75,684	126,447	78,622	130,625	
Annual kWh Savings at Generator	136,907	81,944	136,907	85,126	141,430	0
Cost per Annual kWh Saved at Generator	$0.6209	$0.6901	$0.6282	$0.5392	$0.6151	$0.0000
Peak kW Savings at Meter	2,915.628	1,804.749	3,015.243	1,874.823	3,114.858	
Peak kW Savings at Generator	3,156.808	1,954.037	3,264.663	2,029.908	3,372.518	0.000
Cost per Peak kW Saved at Generator	$26.93	$28.94	$26.34	$22.61	$25.80	$0.00
Utility Ratio	4.00	3.72	3.89	4.53	4.22	
Utility NPV	$254,622	$153,671	$248,696	$162,209	$280,305	
Ratepayer Ratio	3.50	3.22	3.41	3.74	3.67	
Ratepayer NPV	$242,591	$144,966	$236,413	$152,428	$267,109	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$12,587	$9,107	$12,850	$10,233	$13,806	
Societal Ratio	4.02	3.74	3.91	4.56	4.24	
Societal NPV	$256,485	$154,825	$250,553	$163,364	$281,807	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Appliance Recycling					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$33,500	$47,826	$33,500	$49,347	$33,500	
Administration	$4,000	$10,791	$4,000	$11,996	$4,000	
Evaluation, Measurement & Verification	$2,000	$189	$2,000	$734	$2,000	
Advertising & Promotion	$14,000	$14,086	$14,000	$26,339	$14,000	
Incentives	$11,500	$19,400	$11,500	$19,800	$11,500	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$65,000	$92,291	$65,000	$108,215	$65,000	
Total Participants	230	388	230	396	230	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	200%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	224,685	373,197	224,685	381,612	224,685	
Annual kWh Savings at Generator	243,271	404,068	243,271	413,179	243,271	0
Cost per Annual kWh Saved at Generator	$0.2672	$0.2284	$0.2672	$0.2619	$0.2672	$0.0000
Peak kW Savings at Meter	36.570	53.364	36.570	54.464	36.570	
Peak kW Savings at Generator	39.595	57.778	39.595	58.969	39.595	0.000
Cost per Peak kW Saved at Generator	$1,641.62	$1,597.34	$1,641.62	$1,835.12	$1,641.62	$0.00
Utility Ratio	1.33	1.62	1.42	1.51	1.56	
Utility NPV	$21,292	$57,119	$27,169	$54,801	$36,105	
Ratepayer Ratio	0.41	0.42	0.44	0.40	0.41	
Ratepayer NPV	($126,088)	($209,329)	($118,897)	($241,023)	($147,981)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$199,707	$348,740	$197,955	$385,328	$240,293	
Societal Ratio	2.35	2.88	2.45	2.53	2.53	
Societal NPV	$72,209	$136,950	$77,354	$134,848	$82,079	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Energy Star Lighting					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$95,000	$67,100	$103,000	$74,820	$108,000	
Administration	$8,000	$25,507	$7,000	$26,448	$9,000	
Evaluation, Measurement & Verification	$2,000	$569	$2,000	$837	$2,000	
Advertising & Promotion	$10,000	$4,529	$10,000	$78,495	$10,000	
Incentives	$285,000	$238,578	$273,000	$484,835	$231,000	
Other	$0	$0	$0	$45	$0	
Total Utility Costs	$400,000	$336,283	$395,000	$665,481	$360,000	
Total Participants	100,000	129,587	105,000	176,552	110,000	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	3,493,933	4,386,741	3,493,933	6,001,199	3,660,310	
Annual kWh Savings at Generator	3,782,950	4,749,611	3,782,950	6,497,617	3,963,091	0
Cost per Annual kWh Saved at Generator	$0.1057	$0.0708	$0.1044	$0.1024	$0.0908	$0.0000
Peak kW Savings at Meter	403.104	512.142	423.259	678.281	443.414	
Peak kW Savings at Generator	436.449	554.506	458.271	734.388	480.094	0.000
Cost per Peak kW Saved at Generator	$916.49	$606.46	$861.94	$906.17	$749.85	$0.00
Utility Ratio	4.93	8.12	5.84	5.77	6.99	
Utility NPV	$1,570,109	$2,394,722	$1,911,802	$3,173,714	$2,157,093	
Ratepayer Ratio	0.53	0.53	0.52	0.49	0.47	
Ratepayer NPV	($1,736,127)	($2,470,129)	($2,157,880)	($3,963,349)	($2,886,819)	
Participant Ratio	10.65	11.19	14.56	11.79	17.39	
Participant NPV	$4,824,720	$6,572,104	$5,695,007	$9,789,445	$7,213,425	
Societal Ratio	5.50	5.88	6.75	5.58	6.93	
Societal NPV	$2,767,543	$3,651,063	$3,115,910	$4,997,118	$3,372,404	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Electroncially Commutated Motors					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$10,000	$6,922	$10,000	$6,780	$10,000	
Administration	$5,000	$6,516	$5,000	$4,555	$5,000	
Evaluation, Measurement & Verification	$1,000	$189	$1,000	$601	$1,000	
Advertising & Promotion	$2,000	$2,462	$2,000	$2,003	$2,000	
Incentives	$12,000	$22,700	$12,000	$36,300	$12,000	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$30,000	$38,789	$30,000	$50,239	$30,000	
Total Participants	120	227	120	363	120	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	84,000	164,268	84,000	262,420	84,000	
Annual kWh Savings at Generator	90,948	177,856	90,948	284,127	90,948	0
Cost per Annual kWh Saved at Generator	$0.3299	$0.2181	$0.3299	$0.1768	$0.3299	$0.0000
Peak kW Savings at Meter	25.596	44.434	25.596	77.428	25.596	
Peak kW Savings at Generator	27.713	48.109	27.713	83.833	27.713	0.000
Cost per Peak kW Saved at Generator	$1,082.51	$806.26	$1,082.51	$599.28	$1,082.51	$0.00
Utility Ratio	2.98	4.59	3.11	6.19	3.24	
Utility NPV	$59,523	$139,291	$63,433	$260,656	$67,168	
Ratepayer Ratio	0.71	0.70	0.74	0.74	0.66	
Ratepayer NPV	($36,972)	($75,101)	($32,031)	($110,519)	($50,754)	
Participant Ratio	5.90	6.39	5.83	6.88	7.49	
Participant NPV	$146,873	$305,630	$144,984	$533,259	$194,554	
Societal Ratio	3.47	4.21	3.58	5.04	3.68	
Societal NPV	$118,678	$234,083	$123,738	$422,964	$128,621	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Energy Feedback					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$265,100	$297,759	$265,100	$292,123	$265,100	
Administration	$7,000	$2,220	$7,000	$436	$7,000	
Evaluation, Measurement & Verification	$18,000	$1,972	$18,000	$4,001	$18,000	
Advertising & Promotion	$12,000	$2,483	$12,000	$2,244	$12,000	
Incentives	$0	$0	$0	$0	$0	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$302,100	$304,434	$302,100	$298,804	$302,100	
Total Participants	30,500	29,715	30,500	31,186	30,500	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	3,086,680	4,187,050	3,086,680	3,639,865	3,086,680	
Annual kWh Savings at Generator	3,342,010	4,533,402	3,342,010	3,940,954	3,342,010	0
Cost per Annual kWh Saved at Generator	$0.0904	$0.0672	$0.0904	$0.0758	$0.0904	$0.0000
Peak kW Savings at Meter	2,949.633	3,895.683	2,781.633	3,573.805	2,781.633	
Peak kW Savings at Generator	3,193.626	4,217.933	3,011.729	3,869.430	3,011.729	0.000
Cost per Peak kW Saved at Generator	$94.59	$72.18	$100.31	$77.22	$100.31	$0.00
Utility Ratio	2.19	2.84	2.26	2.82	2.47	
Utility NPV	$360,208	$559,722	$379,157	$543,151	$444,523	
Ratepayer Ratio	0.52	0.53	0.56	0.55	0.60	
Ratepayer NPV	($616,447)	($764,502)	($535,617)	($701,952)	($506,842)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$1,021,777	$1,385,404	$957,036	$1,302,627	$995,318	
Societal Ratio	2.68	3.47	2.71	3.35	2.82	
Societal NPV	$508,970	$751,177	$515,114	$703,474	$550,976	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Residential Heat Pumps					
Status:	Existing					
Year:	**2017 Proposed**	**2017 Actual**	**2018 Proposed**	**2018 Actual**	**2019 Proposed**	**2019 Actual**
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$82,000	$48,627	$82,000	$93,158	$82,000	
Administration	$20,000	$5,255	$20,000	$8,978	$20,000	
Evaluation, Measurement & Verification	$4,000	$312	$4,000	$969	$4,000	
Advertising & Promotion	$16,000	$7,051	$16,000	$48,086	$16,000	
Incentives	$153,000	$216,132	$153,000	$188,557	$153,000	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$275,000	$277,377	$275,000	$339,748	$275,000	
Total Participants	102	150	102	160	102	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	1,523,167	2,227,982	1,742,076	1,776,615	1,742,076	
Annual kWh Savings at Generator	1,649,163	2,412,280	1,886,180	1,923,576	1,886,180	0
Cost per Annual kWh Saved at Generator	$0.1668	$0.1150	$0.1458	$0.1766	$0.1458	$0.0000
Peak kW Savings at Meter	153.714	171.943	153.714	170.639	153.714	
Peak kW Savings at Generator	166.429	186.166	166.429	184.754	166.429	0.000
Cost per Peak kW Saved at Generator	$1,652.35	$1,489.95	$1,652.35	$1,838.92	$1,652.35	$0.00
Utility Ratio	3.76	5.40	3.92	3.60	4.08	
Utility NPV	$757,982	$1,220,748	$802,454	$882,310	$845,680	
Ratepayer Ratio	0.47	0.51	0.50	0.46	0.44	
Ratepayer NPV	($1,159,234)	($1,431,390)	($1,094,499)	($1,413,727)	($1,454,427)	
Participant Ratio	5.31	4.74	5.25	4.26	6.59	
Participant NPV	$2,667,508	$3,360,582	$2,632,103	$2,821,508	$3,458,116	
Societal Ratio	2.61	2.68	2.69	2.05	2.76	
Societal NPV	$1,194,615	$1,614,343	$1,250,058	$1,070,268	$1,305,600	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Home Insulation					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$11,000	$4,126	$11,000	$1,911	$11,000	
Administration	$3,000	$4,640	$3,000	$4,516	$3,000	
Evaluation, Measurement & Verification	$1,500	$125	$1,500	$664	$1,500	
Advertising & Promotion	$10,000	$9,440	$10,000	$15,406	$10,000	
Incentives	$19,500	$6,685	$19,500	$6,539	$19,500	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$45,000	$25,016	$45,000	$29,037	$45,000	
Total Participants	40	20	40	19	40	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	153,832	100,936	153,832	73,244	153,832	
Annual kWh Savings at Generator	166,556	109,285	166,556	79,303	166,556	0
Cost per Annual kWh Saved at Generator	$0.2702	$0.2289	$0.2702	$0.3662	$0.2702	$0.0000
Peak kW Savings at Meter	8.140	3.193	8.140	1.983	8.140	
Peak kW Savings at Generator	8.813	3.457	8.813	2.147	8.813	0.000
Cost per Peak kW Saved at Generator	$5,105.90	$7,237.25	$5,105.90	$13,525.10	$5,105.90	$0.00
Utility Ratio	1.94	2.33	2.02	1.49	2.09	
Utility NPV	$42,132	$33,362	$45,731	$14,134	$49,258	
Ratepayer Ratio	0.39	0.37	0.41	0.33	0.36	
Ratepayer NPV	($134,582)	($98,373)	($129,094)	($89,465)	($166,696)	
Participant Ratio	4.29	5.82	4.24	4.74	5.45	
Participant NPV	$246,437	$178,404	$242,978	$134,575	$333,756	
Societal Ratio	1.73	1.96	1.78	1.36	1.83	
Societal NPV	$73,615	$53,028	$78,561	$20,999	$83,600	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Home Transformer					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$64,200	$4,540	$64,200	$4,477	$64,200	
Administration	$5,000	$10,029	$5,000	$10,633	$5,000	
Evaluation, Measurement & Verification	$2,000	$127	$2,000	$236	$2,000	
Advertising & Promotion	$5,000	$2,427	$5,000	$1,757	$5,000	
Incentives	$10,800	$36,819	$10,800	$30,077	$10,800	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$87,000	$53,942	$87,000	$47,180	$87,000	
Total Participants	100	88	100	67	100	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	502,405	409,502	502,405	315,839	502,405	
Annual kWh Savings at Generator	543,964	443,376	543,964	341,965	543,964	0
Cost per Annual kWh Saved at Generator	$0.1599	$0.1217	$0.1599	$0.1380	$0.1599	$0.0000
Peak kW Savings at Meter	92.991	75.278	92.991	58.066	92.991	
Peak kW Savings at Generator	100.683	81.505	100.683	62.869	100.683	0.000
Cost per Peak kW Saved at Generator	$864.10	$661.83	$864.10	$750.44	$864.10	$0.00
Utility Ratio	4.39	8.71	4.59	7.84	4.78	
Utility NPV	$295,178	$415,626	$312,252	$322,895	$328,640	
Ratepayer Ratio	0.63	0.88	0.67	0.82	0.59	
Ratepayer NPV	($223,210)	($64,783)	($200,721)	($79,847)	($293,301)	
Participant Ratio	96.64	inf.	95.57	inf.	121.59	
Participant NPV	$851,186	$734,814	$841,660	$615,448	$1,073,218	
Societal Ratio	8.27	13.49	8.52	12.10	8.76	
Societal NPV	$618,357	$673,646	$639,541	$523,577	$660,045	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	School Kits					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$46,000	$22,844	$46,000	$23,754	$46,000	
Administration	$10,000	$11,157	$10,000	$12,465	$10,000	
Evaluation, Measurement & Verification	$2,000	$377	$2,000	$620	$2,000	
Advertising & Promotion	$4,000	$0	$4,000	$0	$4,000	
Incentives	$68,000	$70,911	$68,000	$70,770	$68,000	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$130,000	$105,290	$130,000	$107,610	$130,000	
Total Participants	1,000	1,511	1,000	1,508	1,000	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	1,072,503	1,629,659	1,072,503	1,626,423	1,072,503	
Annual kWh Savings at Generator	1,161,221	1,764,464	1,161,221	1,760,961	1,161,221	0
Cost per Annual kWh Saved at Generator	$0.1120	$0.0597	$0.1120	$0.0611	$0.1120	$0.0000
Peak kW Savings at Meter	89.186	134.388	89.186	134.122	89.186	
Peak kW Savings at Generator	96.564	145.505	96.564	145.216	96.564	0.000
Cost per Peak kW Saved at Generator	$1,346.26	$723.62	$1,346.26	$741.03	$1,346.26	$0.00
Utility Ratio	3.40	15.70	3.58	15.68	3.75	
Utility NPV	$311,705	$1,548,279	$334,765	$1,579,562	$356,982	
Ratepayer Ratio	0.47	1.13	0.50	1.07	0.47	
Ratepayer NPV	($500,484)	$195,776	($469,744)	$114,874	($553,303)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$1,197,583	$1,800,893	$1,186,210	$1,949,264	$1,360,360	
Societal Ratio	11.46	20.15	11.81	19.99	12.14	
Societal NPV	$648,373	$2,016,343	$670,441	$2,043,552	$690,490	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Smart Thermostats					
Status:	New					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$10,000	$9,057	$10,000	$7,871	$10,000	
Administration	$13,000	$2,937	$13,000	$4,009	$13,000	
Evaluation, Measurement & Verification	$1,500	$126	$1,500	$580	$1,500	
Advertising & Promotion	$10,500	$9,773	$10,500	$8,838	$10,500	
Incentives	$15,000	$6,376	$15,000	$11,535	$15,000	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$50,000	$28,268	$50,000	$32,832	$50,000	
Total Participants	140	50	140	124	140	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	290,060	131,876	290,060	204,407	290,060	
Annual kWh Savings at Generator	314,054	142,785	314,054	221,315	314,054	0
Cost per Annual kWh Saved at Generator	$0.1592	$0.1980	$0.1592	$0.1484	$0.1592	$0.0000
Peak kW Savings at Meter	1.440	2.090	1.440	4.501	1.440	
Peak kW Savings at Generator	1.559	2.263	1.559	4.873	1.559	0.000
Cost per Peak kW Saved at Generator	$32,069.44	$12,490.01	$32,069.44	$6,737.26	$32,069.44	$0.00
Utility Ratio	1.72	1.53	1.80	2.19	1.88	
Utility NPV	$36,081	$14,856	$40,214	$39,016	$44,147	
Ratepayer Ratio	0.31	1.53	0.33	0.32	0.32	
Ratepayer NPV	($187,407)	$14,856	($181,144)	($149,250)	($202,924)	
Participant Ratio	18.36	0.79	18.19	12.55	20.43	
Participant NPV	$298,642	($1,735)	$295,625	$234,420	$334,255	
Societal Ratio	2.67	2.21	2.72	2.58	2.78	
Societal NPV	$87,201	$36,230	$90,026	$65,588	$92,770	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Water Heater Store & Save					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$10,000	$9,675	$10,000	$2,755	$10,000	
Administration	$5,000	$0	$5,000	$0	$5,000	
Evaluation, Measurement & Verification	$5,000	$191	$5,000	$0	$5,000	
Advertising & Promotion	$15,000	$13,401	$15,000	$16,353	$15,000	
Incentives	$0	$0	$0	$0	$0	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$35,000	$23,267	$35,000	$19,108	$35,000	
Total Participants	16,165	16,056	16,165	16,002	16,165	
% of Spending by Customer Segments						
Residential	94%	94%	94%	94%	94%	
Commercial	6%	6%	6%	6%	6%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	544,276	540,606	544,276	538,787	544,276	
Annual kWh Savings at Generator	589,298	585,324	589,298	583,356	589,298	0
Cost per Annual kWh Saved at Generator	$0.0594	$0.0398	$0.0594	$0.0328	$0.0594	$0.0000
Peak kW Savings at Meter	8,211.820	10,918.080	8,211.820	10,881.360	8,211.820	
Peak kW Savings at Generator	8,891.100	11,821.221	8,891.100	11,781.464	8,891.100	0.000
Cost per Peak kW Saved at Generator	$3.94	$1.97	$3.94	$1.62	$3.94	$0.00
Utility Ratio	27.50	54.75	26.22	63.33	27.88	
Utility NPV	$927,499	$1,250,552	$882,849	$1,190,903	$940,776	
Ratepayer Ratio	10.76	15.87	10.34	15.02	10.73	
Ratepayer NPV	$873,036	$1,193,560	$829,081	$1,129,468	$884,858	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$56,980	$59,625	$56,252	$64,273	$58,502	
Societal Ratio	27.74	55.10	26.45	63.74	28.06	
Societal NPV	$935,795	$1,258,792	$890,840	$1,198,814	$947,033	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Residential Advertising and Education					
Status:	Existing					
Year:	**2017 Proposed**	**2017 Actual**	**2018 Proposed**	**2018 Actual**	**2019 Proposed**	**2019 Actual**
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$160,000	$66,172	$160,000	$65,344	$160,000	
Administration	$6,000	$2,777	$6,000	$2,822	$6,000	
Evaluation, Measurement & Verification	$4,000	$0	$4,000	$33	$4,000	
Advertising & Promotion	$0	$120,369	$0	$83,600	$0	
Incentives	$0	$0	$0	$0	$0	
Other	$5,000	$0	$5,000	$0	$5,000	
Total Utility Costs	$175,000	$189,318	$175,000	$151,799	$175,000	
Total Participants	10,000	18,629	10,000	14,591	10,000	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	0	0	0	0	0	
Annual kWh Savings at Generator	0	0	0	0	0	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	0.00	0.00	0.00	0.00	0.00	
Utility NPV	($175,000)	($189,318)	($175,000)	($151,799)	($175,000)	
Ratepayer Ratio	0.00	0.00	0.00	0.00	0.00	
Ratepayer NPV	($175,000)	($189,318)	($175,000)	($151,799)	($175,000)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$0	$0	$0	$0	$0	
Societal Ratio	0.00	0.00	0.00	0.00	0.00	
Societal NPV	($175,000)	($189,318)	($175,000)	($151,799)	($175,000)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Residential Implementation and Training					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$37,600	$24,850	$37,600	$32,524	$37,600	
Administration	$1,200	$2,172	$1,200	$2,305	$1,200	
Evaluation, Measurement & Verification	$1,200	$2,046	$1,200	$8,740	$1,200	
Advertising & Promotion	$0	$624	$0	$1,103	$0	
Incentives	$0	$0	$0	$0	$0	
Other	$0	$0	$0	$4,409	$0	
Total Utility Costs	$40,000	$29,692	$40,000	$49,080	$40,000	
Total Participants	175	36	175	38	175	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	31%	31%	31%	31%	31%	
Budget % (% of Total Utility Costs)	31%	31%	31%	31%	31%	
Renter Participation*						
Participants % (% of Total Participants)	21%	21%	21%	21%	21%	
Budget % (% of Total Utility Costs)	21%	21%	21%	21%	21%	
Energy Savings						
Annual kWh Savings at Meter	0	0	0	0	0	
Annual kWh Savings at Generator	0	0	0	0	0	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	0.00	0.00	0.00	0.00	0.00	
Utility NPV	($40,000)	($29,692)	($40,000)	($49,080)	($40,000)	
Ratepayer Ratio	0.00	0.00	0.00	0.00	0.00	
Ratepayer NPV	($40,000)	($29,692)	($40,000)	($49,080)	($40,000)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$0	$0	$0	$0	$0	
Societal Ratio	0.00	0.00	0.00	0.00	0.00	
Societal NPV	($40,000)	($29,692)	($40,000)	($49,080)	($40,000)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Low-Income House Therapy					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$0	$12,657	$0	$11,617	$0	
Administration	$16,510	$14,097	$16,510	$14,081	$16,510	
Evaluation, Measurement & Verification	$1,500	$377	$1,500	$1,151	$1,500	
Advertising & Promotion	$1,500	$1,709	$1,500	$359	$1,500	
Incentives	$130,490	$132,314	$130,490	$154,836	$130,490	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$150,000	$161,155	$150,000	$182,044	$150,000	
Total Participants	130	122	130	164	130	
% of Spending by Customer Segments						
Residential	100%	100%	100%	100%	100%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)	100%	100%	100%	100%	100%	
Budget % (% of Total Utility Costs)	100%	100%	100%	100%	100%	
Renter Participation*						
Participants % (% of Total Participants)	21%	9%	21%	13%	21%	
Budget % (% of Total Utility Costs)	21%	9%	21%	13%	21%	
Energy Savings						
Annual kWh Savings at Meter	214,005	237,243	214,005	284,564	214,005	
Annual kWh Savings at Generator	231,707	256,868	231,707	308,103	231,707	0
Cost per Annual kWh Saved at Generator	$0.6474	$0.6274	$0.6474	$0.5909	$0.6474	$0.0000
Peak kW Savings at Meter	22.713	24.690	22.713	30.406	22.713	
Peak kW Savings at Generator	24.591	26.732	24.591	32.921	24.591	0.000
Cost per Peak kW Saved at Generator	$6,099.72	$6,028.48	$6,099.72	$5,529.70	$6,099.72	$0.00
Utility Ratio	0.68	0.66	0.71	0.78	0.75	
Utility NPV	($47,556)	($54,149)	($42,891)	($39,629)	($38,061)	
Ratepayer Ratio	0.31	0.30	0.32	0.32	0.31	
Ratepayer NPV	($230,022)	($245,346)	($223,441)	($302,580)	($247,869)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$400,970	$391,408	$397,973	$512,367	$451,991	
Societal Ratio	8.89	5.70	9.14	7.93	9.40	
Societal NPV	$153,889	$135,635	$158,784	$188,539	$163,816	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Adjustable Speed Drives					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$45,000	$24,585	$45,200	$18,947	$45,200	
Administration	$7,500	$5,505	$7,500	$6,715	$7,500	
Evaluation, Measurement & Verification	$1,000	$720	$1,000	$1,056	$1,000	
Advertising & Promotion	$5,000	$3,359	$5,000	$2,490	$5,000	
Incentives	$319,000	$242,784	$329,800	$295,826	$329,800	
Other	$1,500	$0	$1,500	$0	$1,500	
Total Utility Costs	$379,000	$276,952	$390,000	$325,033	$390,000	
Total Participants	152	122	164	239	164	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	30%	30%	30%	30%	30%	
Industrial	70%	70%	70%	70%	70%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	5,168,603	4,325,213	5,168,603	4,316,602	5,168,603	
Annual kWh Savings at Generator	5,596,149	4,682,993	5,596,149	4,673,670	5,596,149	0
Cost per Annual kWh Saved at Generator	$0.0677	$0.0591	$0.0697	$0.0695	$0.0697	$0.0000
Peak kW Savings at Meter	657.030	514.123	884.144	541.768	884.144	
Peak kW Savings at Generator	711.380	556.652	957.280	586.583	957.280	0.000
Cost per Peak kW Saved at Generator	$532.77	$497.53	$407.40	$554.11	$407.40	$0.00
Utility Ratio	7.57	9.18	884.14	8.33	7.79	
Utility NPV	$2,490,418	$2,264,862	$2,624,764	$2,381,257	$2,649,572	
Ratepayer Ratio	0.76	0.76	0.81	0.68	0.63	
Ratepayer NPV	($886,886)	($814,695)	($717,691)	($1,280,747)	($1,785,460)	
Participant Ratio	5.52	4.64	5.47	3.09	6.60	
Participant NPV	$3,154,176	$2,718,068	$3,117,716	$2,791,834	$4,216,370	
Societal Ratio	6.53	5.29	6.73	3.17	5.96	
Societal NPV	$4,195,390	$3,348,918	$4,343,069	$2,955,121	$4,033,640	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

	Commercial Air Conditioning Control					
Category:						
Status:	Existing					
Year:	**2017 Proposed**	**2017 Actual**	**2018 Proposed**	**2018 Actual**	**2019 Proposed**	**2019 Actual**
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$14,350	$5,027	$14,435	$3,279	$14,520	
Administration	$9,650	$1,898	$10,565	$536	$11,480	
Evaluation, Measurement & Verification	$1,000	$189	$1,000	$471	$1,000	
Advertising & Promotion	$5,000	$845	$5,000	$1,583	$5,000	
Incentives	$0	$5,785	$0	$0	$0	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$30,000	$13,743	$31,000	$5,869	$32,000	
Total Participants	512	271	529	277	546	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	100%	100%	100%	100%	100%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	53,069	26,586	53,069	27,235	54,775	
Annual kWh Savings at Generator	57,459	28,785	57,459	29,487	59,306	0
Cost per Annual kWh Saved at Generator	$0.5221	$0.4774	$0.5395	$0.1990	$0.5396	$0.0000
Peak kW Savings at Meter	2,667.520	1,380.717	2,756.090	1,414.402	2,844.660	
Peak kW Savings at Generator	2,888.177	1,494.930	2,984.073	1,531.401	3,079.970	0.000
Cost per Peak kW Saved at Generator	$10.39	$9.19	$10.39	$3.83	$10.39	$0.00
Utility Ratio	10.58	11.95	11.75	31.85	12.08	
Utility NPV	$287,296	$150,490	$333,260	$181,067	$354,494	
Ratepayer Ratio	6.34	4.64	7.08	6.26	7.16	
Ratepayer NPV	$267,231	$128,846	$312,794	$157,085	$332,524	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$20,992	$28,430	$21,412	$25,090	$22,984	
Societal Ratio	10.60	20.69	11.78	31.92	12.10	
Societal NPV	$288,079	$156,680	$334,039	$181,466	$355,123	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Commercial Design Assistance					
Status:	Discontinued					
Year:	**2017 Proposed**	**2017 Actual**	**2018 Proposed**	**2018 Actual**	**2019 Proposed**	**2019 Actual**
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$201,902	$72,760				
Administration	$7,500	$7,901				
Evaluation, Measurement & Verification	$500	$619				
Advertising & Promotion	$6,000	$1,654				
Incentives	$129,258	$96,940				
Other	$0	$0				
Total Utility Costs	$345,160	$179,873				
Total Participants	6	4				
% of Spending by Customer Segments						
Residential	0%	0%				
Commercial	100%	100%				
Industrial	0%	0%				
Farm	0%	0%				
Other	0%	0%				
Total % of Spending	100%	100%				
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	1,316,742	779,078				
Annual kWh Savings at Generator	1,425,663	843,523				
Cost per Annual kWh Saved at Generator	$0.2421	$0.2132				
Peak kW Savings at Meter	360.701	196.456				
Peak kW Savings at Generator	390.538	212.707				
Cost per Peak kW Saved at Generator	$883.81	$845.64				
Utility Ratio	3.84	4.31				
Utility NPV	$980,238	$596,169				
Ratepayer Ratio	0.78	0.84				
Ratepayer NPV	($372,689)	($150,118)				
Participant Ratio	0.53	1.72				
Participant NPV	($1,391,020)	$366,339				
Societal Ratio	0.79	2.27				
Societal NPV	($671,905)	$754,018				

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Commercial Direct Install					
Status:	New					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$9,191	$16,784	$12,076	$19,092	$12,076	
Administration	$2,000	$5,099	$5,000	$4,253	$5,000	
Evaluation, Measurement & Verification	$1,500	$0	$1,500	$877	$1,500	
Advertising & Promotion	$0	$0	$0	$2,000	$0	
Incentives	$16,050	$9,394	$22,425	$23,094	$22,425	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$28,740	$31,276	$41,000	$49,316	$41,000	
Total Participants	110	76	154	237	154	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	100%	100%	100%	100%	100%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	335,929	232,908	469,814	688,201	469,814	
Annual kWh Savings at Generator	363,717	252,174	508,677	745,128	508,677	0
Cost per Annual kWh Saved at Generator	$0.0790	$0.1240	$0.0806	$0.0662	$0.0806	$0.0000
Peak kW Savings at Meter	70.579	28.301	98.757	86.791	98.757	
Peak kW Savings at Generator	76.417	30.643	106.926	93.970	106.926	0.000
Cost per Peak kW Saved at Generator	$376.09	$1,020.69	$383.44	$524.80	$383.44	$0.00
Utility Ratio	2.06	1.63	2.16	3.13	2.27	
Utility NPV	$30,538	$19,637	$47,501	$105,016	$52,122	
Ratepayer Ratio	0.50	0.46	0.50	0.52	0.50	
Ratepayer NPV	($59,017)	($59,744)	($89,043)	($143,433)	($92,361)	
Participant Ratio	inf.	10.42	inf.	10.80	inf.	
Participant NPV	$109,742	$83,572	$165,277	$259,130	$173,583	
Societal Ratio	6.38	2.36	6.33	4.25	6.48	
Societal NPV	$68,228	$41,972	$98,977	$162,777	$101,801	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Compressed Air Efficiency					
Status:	New					
Year:	**2017 Proposed**	**2017 Actual**	**2018 Proposed**	**2018 Actual**	**2019 Proposed**	**2019 Actual**
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$21,500	$14,447	$21,600	$6,881	$21,600	
Administration	$5,000	$3,617	$5,000	$2,592	$5,000	
Evaluation, Measurement & Verification	$1,500	$0	$1,500	$605	$1,500	
Advertising & Promotion	$5,000	$754	$5,000	$339	$5,000	
Incentives	$106,900	$42,750	$106,900	$18,000	$106,900	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$139,900	$61,568	$140,000	$28,418	$140,000	
Total Participants	23	10	23	3	23	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	50%	50%	50%	50%	50%	
Industrial	50%	50%	50%	50%	50%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	954,031	186,415	954,031	72,974	954,031	
Annual kWh Savings at Generator	1,032,948	201,835	1,032,948	79,011	1,032,948	0
Cost per Annual kWh Saved at Generator	$0.1354	$0.3050	$0.1355	$0.3597	$0.1355	$0.0000
Peak kW Savings at Meter	145.079	35.742	145.079	14.032	145.079	
Peak kW Savings at Generator	157.080	38.698	157.080	15.193	157.080	0.000
Cost per Peak kW Saved at Generator	$890.63	$1,590.97	$891.27	$1,870.41	$891.27	$0.00
Utility Ratio	3.10	2.16	3.26	1.94	3.43	
Utility NPV	$293,378	$71,298	$317,064	$26,601	$339,527	
Ratepayer Ratio	0.72	0.66	0.71	0.62	0.68	
Ratepayer NPV	($167,258)	($69,243)	($182,663)	($33,354)	($225,147)	
Participant Ratio	3.63	1.74	3.88	1.26	4.30	
Participant NPV	$426,518	$80,534	$467,414	$16,525	$535,361	
Societal Ratio	3.31	1.64	3.42	1.15	3.53	
Societal NPV	$451,482	$82,201	$473,156	$11,491	$493,477	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Custom Efficiency Projects					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$96,000	$98,995	$96,500	$72,559	$96,500	
Administration	$2,500	$3,429	$2,500	$5,537	$2,500	
Evaluation, Measurement & Verification	$12,000	$8,303	$12,000	$8,144	$12,000	
Advertising & Promotion	$6,000	$2,752	$6,000	$1,797	$6,000	
Incentives	$180,000	$150,646	$222,000	$274,436	$222,000	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$296,500	$264,124	$339,000	$362,473	$339,000	
Total Participants	30	44	37	81	37	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	90%	90%	90%	90%	90%	
Industrial	10%	10%	10%	10%	10%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	1,800,000	2,056,128	1,800,000	3,329,805	2,220,000	
Annual kWh Savings at Generator	1,948,896	2,226,211	1,948,896	3,605,246	2,403,638	0
Cost per Annual kWh Saved at Generator	$0.1521	$0.1186	$0.1739	$0.1005	$0.1410	$0.0000
Peak kW Savings at Meter	274.962	1,205.957	339.119	717.881	339.119	
Peak kW Savings at Generator	297.706	1,305.713	367.171	777.264	367.171	0.000
Cost per Peak kW Saved at Generator	$995.95	$202.28	$923.28	$466.34	$923.28	$0.00
Utility Ratio	5.58	6.56	6.27	7.70	6.51	
Utility NPV	$1,358,707	$1,467,375	$1,787,549	$2,427,794	$1,869,027	
Ratepayer Ratio	1.01	0.83	0.99	1.07	0.85	
Ratepayer NPV	$8,587	($346,603)	($17,041)	$173,045	($379,962)	
Participant Ratio	1.33	3.03	1.43	2.06	1.74	
Participant NPV	$392,496	$1,374,050	$629,962	$1,373,857	$1,094,893	
Societal Ratio	2.20	3.34	2.31	3.27	2.37	
Societal NPV	$1,582,378	$1,842,852	$2,084,247	$3,123,840	$2,187,652	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Commercial Heat Pump					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$63,000	$95,308	$125,000	$71,615	$63,000	
Administration	$13,000	$10,300	$13,000	$6,902	$13,000	
Evaluation, Measurement & Verification	$4,000	$612	$4,000	$745	$4,000	
Advertising & Promotion	$11,000	$13,819	$11,000	$36,966	$11,000	
Incentives	$114,000	$494,300	$552,000	$785,005	$114,000	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$205,000	$614,339	$705,000	$901,233	$205,000	
Total Participants	84	294	157	123	84	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	90%	90%	90%	90%	90%	
Industrial	10%	10%	10%	10%	10%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	1,192,968	4,302,601	4,140,586	6,306,175	1,045,236	
Annual kWh Savings at Generator	1,291,651	4,658,512	4,483,094	6,827,820	1,131,698	0
Cost per Annual kWh Saved at Generator	$0.1587	$0.1319	$0.1573	$0.1320	$0.1811	$0.0000
Peak kW Savings at Meter	133.157	462.259	571.034	704.336	133.116	
Peak kW Savings at Generator	144.171	500.497	618.270	762.598	144.127	0.000
Cost per Peak kW Saved at Generator	$1,421.92	$1,227.46	$1,140.28	$1,181.79	$1,422.36	$0.00
Utility Ratio	4.10	4.55	5.61	5.75	3.96	
Utility NPV	$635,397	$2,183,658	$3,249,267	$4,282,260	$606,653	
Ratepayer Ratio	0.69	0.66	0.81	0.78	0.60	
Ratepayer NPV	($379,627)	($1,445,982)	($911,338)	($1,491,244)	($551,696)	
Participant Ratio	2.56	1.58	2.35	3.78	2.89	
Participant NPV	$717,218	$1,582,869	$2,818,225	$5,017,685	$867,165	
Societal Ratio	2.55	1.58	2.98	4.14	2.39	
Societal NPV	$852,384	$1,643,593	$4,440,059	$6,042,293	$766,573	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Commercial and Industrial Focused Efficiency					
Status:	Existing					
Year:	**2017 Proposed**	**2017 Actual**	**2018 Proposed**	**2018 Actual**	**2019 Proposed**	**2019 Actual**
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$63,000	$48,135	$63,000	$90,362	$63,000	
Administration	$13,000	$10,868	$13,000	$16,750	$13,000	
Evaluation, Measurement & Verification	$2,000	$2,331	$2,000	$2,479	$2,000	
Advertising & Promotion	$2,000	$554	$2,000	$0	$2,000	
Incentives	$140,000	$148,989	$140,000	$234,610	$140,000	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$220,000	$210,877	$220,000	$344,202	$220,000	
Total Participants	1	2	1	4	1	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	10%	10%	10%	10%	10%	
Industrial	90%	90%	90%	90%	90%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	1,500,000	1,636,203	1,500,000	1,970,553	1,500,000	
Annual kWh Savings at Generator	1,624,080	1,771,550	1,624,080	2,133,556	1,624,080	0
Cost per Annual kWh Saved at Generator	$0.1355	$0.1190	$0.1355	$0.1613	$0.1355	$0.0000
Peak kW Savings at Meter	363.250	271.702	355.604	277.215	355.604	
Peak kW Savings at Generator	393.298	294.177	385.020	300.146	385.020	0.000
Cost per Peak kW Saved at Generator	$559.37	$716.84	$571.40	$1,146.78	$571.40	$0.00
Utility Ratio	4.63	4.08	4.62	4.84	4.85	
Utility NPV	$797,953	$649,151	$797,011	$1,322,359	$846,847	
Ratepayer Ratio	0.86	0.80	0.88	0.76	0.83	
Ratepayer NPV	($165,900)	($217,279)	($139,499)	($536,036)	($221,530)	
Participant Ratio	2.70	2.91	2.63	3.75	2.96	
Participant NPV	$723,382	$692,883	$694,777	$1,598,138	$832,737	
Societal Ratio	2.98	2.84	3.09	2.85	3.19	
Societal NPV	$1,000,401	$782,755	$1,055,128	$1,275,363	$1,106,621	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Lighting					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$262,961	$321,296	$294,534	$269,319	$294,346	
Administration	$8,000	$9,520	$8,000	$11,203	$8,000	
Evaluation, Measurement & Verification	$2,500	$1,443	$2,500	$870	$2,500	
Advertising & Promotion	$8,000	$5,101	$8,000	$3,514	$8,000	
Incentives	$669,139	$1,556,728	$1,756,966	$2,207,657	$773,154	
Other	$0	$0	$0	$55	$0	
Total Utility Costs	$950,600	$1,894,087	$2,070,000	$2,492,618	$1,086,000	
Total Participants	495	797	#REF!	1,214	560	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	70%	70%	70%	70%	70%	
Industrial	30%	30%	30%	30%	30%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	5,362,212	15,661,895	12,400,926	22,267,643	6,074,052	
Annual kWh Savings at Generator	5,805,773	16,957,443	13,426,728	24,109,618	6,576,496	0
Cost per Annual kWh Saved at Generator	$0.1637	$0.1117	$0.1542	$0.1034	$0.1651	$0.0000
Peak kW Savings at Meter	1,381.733	2,424.100	3,206.074	3,251.429	1,566.583	
Peak kW Savings at Generator	1,496.030	2,624.621	3,471.280	3,520.387	1,696.170	0.000
Cost per Peak kW Saved at Generator	$635.42	$721.66	$596.32	$708.05	$640.27	$0.00
Utility Ratio	3.12	4.92	4.01	5.61	3.46	
Utility NPV	$2,011,672	$7,425,329	$6,231,037	$11,491,241	$2,671,836	
Ratepayer Ratio	0.69	0.71	0.73	0.69	0.63	
Ratepayer NPV	($1,300,343)	($3,893,820)	($3,120,559)	($6,292,923)	($2,168,547)	
Participant Ratio	1.40	2.54	1.44	2.45	1.71	
Participant NPV	$1,190,427	$8,114,414	$3,520,106	$12,334,107	$2,415,222	
Societal Ratio	1.44	2.63	1.55	2.50	1.54	
Societal NPV	$1,427,201	$9,162,181	$4,604,464	$13,181,900	$1,998,599	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Lighting New Construction					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$22,693	$14,185	$22,957	$33,894	$22,957	
Administration	$3,000	$5,238	$3,000	$5,656	$3,000	
Evaluation, Measurement & Verification	$1,000	$407	$1,000	$1,329	$1,000	
Advertising & Promotion	$6,000	$2,551	$6,000	$1,601	$6,000	
Incentives	$133,307	$109,078	$178,043	$314,264	$178,043	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$166,000	$131,459	$211,000	$356,745	$211,000	
Total Participants	193	264	241	586	241	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	70%	70%	70%	70%	70%	
Industrial	30%	30%	30%	30%	30%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	3,368,297	2,746,622	3,368,297	6,254,598	3,368,297	
Annual kWh Savings at Generator	3,646,922	2,973,822	3,646,922	6,771,977	3,646,922	0
Cost per Annual kWh Saved at Generator	$0.0455	$0.0442	$0.0579	$0.0527	$0.0579	$0.0000
Peak kW Savings at Meter	383.959	373.836	840.067	818.689	840.067	
Peak kW Savings at Generator	415.720	404.760	909.558	886.411	909.558	0.000
Cost per Peak kW Saved at Generator	$399.31	$324.78	$231.98	$402.46	$231.98	$0.00
Utility Ratio	8.80	11.42	10.31	10.90	10.75	
Utility NPV	$1,294,814	$1,369,285	$1,964,926	$3,532,700	$2,056,893	
Ratepayer Ratio	0.76	0.73	0.78	0.73	0.70	
Ratepayer NPV	($472,653)	($559,283)	($600,880)	($1,470,627)	($978,448)	
Participant Ratio	5.53	4.91	6.89	5.69	8.08	
Participant NPV	$1,623,919	$1,693,497	$2,447,093	$4,574,381	$2,938,322	
Societal Ratio	6.44	5.24	7.69	6.09	7.91	
Societal NPV	$2,126,706	$1,930,497	$2,999,839	$5,178,363	$3,099,133	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Midstream Commercial Kitchen Equipment					
Status:	Discontinued					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$51,000	$57,946		$6,700		
Administration	$5,000	$3,927		$276		
Evaluation, Measurement & Verification	$1,000	$64		$210		
Advertising & Promotion	$3,500	$0		$0		
Incentives	$27,700	$0		$0		
Other	$0	$0		$0		
Total Utility Costs	$88,200	$61,936		$7,186		
Total Participants	100	0		0		
% of Spending by Customer Segments						
Residential	0%	0%				
Commercial	100%	100%				
Industrial	0%	0%				
Farm	0%	0%				
Other	0%	0%				
Total % of Spending	100%	100%				
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	516,369	0				
Annual kWh Savings at Generator	559,083	0				
Cost per Annual kWh Saved at Generator	$0.1578	$0.0000				
Peak kW Savings at Meter	92.800	0.000				
Peak kW Savings at Generator	100.476	0.000				
Cost per Peak kW Saved at Generator	$877.82	$0.00				
Utility Ratio	3.66	0.00		0.00		
Utility NPV	$234,242	($61,936)		($7,186)		
Ratepayer Ratio	0.75	0.00		0.00		
Ratepayer NPV	($109,648)	($61,936)		($7,186)		
Participant Ratio	4.00	inf.		inf.		
Participant NPV	$290,678	$0		$0		
Societal Ratio	3.40	0.00		0.00		
Societal NPV	$377,955	($61,936)		($7,186)		

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Motors					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$28,175	$25,132	$28,080	$28,975	$28,080	
Administration	$5,000	$6,225	$5,000	$4,443	$5,000	
Evaluation, Measurement & Verification	$1,000	$636	$1,000	$650	$1,000	
Advertising & Promotion	$4,000	$2,686	$4,000	$3,233	$4,000	
Incentives	$94,825	$70,820	$98,920	$241,985	$98,920	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$133,000	$105,500	$137,000	$279,285	$137,000	
Total Participants	205	139	215	397	215	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	30%	30%	30%	30%	30%	
Industrial	70%	70%	70%	70%	70%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	707,468	378,669	707,468	1,217,693	707,468	
Annual kWh Savings at Generator	765,990	409,993	765,990	1,318,420	765,990	0
Cost per Annual kWh Saved at Generator	$0.1736	$0.2573	$0.1789	$0.2118	$0.1789	$0.0000
Peak kW Savings at Meter	131.882	56.492	135.606	231.708	135.606	
Peak kW Savings at Generator	142.791	61.165	146.823	250.875	146.823	0.000
Cost per Peak kW Saved at Generator	$931.43	$1,724.84	$933.09	$1,113.25	$933.09	$0.00
Utility Ratio	2.85	2.31	3.20	3.27	3.34	
Utility NPV	$245,604	$137,778	$301,626	$634,137	$319,932	
Ratepayer Ratio	0.63	0.63	0.66	0.68	0.60	
Ratepayer NPV	($222,794)	($144,722)	($227,795)	($423,715)	($306,399)	
Participant Ratio	1.76	2.96	1.92	4.09	2.22	
Participant NPV	$252,813	$242,486	$313,485	$1,019,261	$414,874	
Societal Ratio	1.77	2.47	1.86	3.90	1.91	
Societal NPV	$285,259	$232,531	$323,602	$1,063,540	$343,317	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Recommissioning					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$95,600	$65,899	$95,600	$68,261	$95,600	
Administration	$1,900	$7,875	$1,900	$6,101	$1,900	
Evaluation, Measurement & Verification	$500	$712	$500	$927	$500	
Advertising & Promotion	$3,000	$3,163	$3,000	$2,741	$3,000	
Incentives	$87,000	$81,362	$87,000	$157,647	$87,000	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$188,000	$159,012	$188,000	$235,677	$188,000	
Total Participants	4	5	4	9	4	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	10%	10%	10%	10%	10%	
Industrial	90%	90%	90%	90%	90%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	2,020,000	701,628	2,020,000	3,048,181	2,020,000	
Annual kWh Savings at Generator	2,187,094	759,667	2,187,094	3,300,326	2,187,094	0
Cost per Annual kWh Saved at Generator	$0.0860	$0.2093	$0.0860	$0.0714	$0.0860	$0.0000
Peak kW Savings at Meter	0.000	3.813	0.000	408.634	0.000	
Peak kW Savings at Generator	0.000	4.128	0.000	442.436	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$38,516.52	$0.00	$532.68	$0.00	$0.00
Utility Ratio	2.42	0.91	2.66	4.48	2.81	
Utility NPV	$267,533	($14,318)	$311,336	$819,085	$339,878	
Ratepayer Ratio	0.53	0.38	0.61	0.68	0.61	
Ratepayer NPV	($408,953)	($238,161)	($313,268)	($493,966)	($334,967)	
Participant Ratio	4.03	1.71	3.76	4.21	4.03	
Participant NPV	$597,739	$130,540	$543,461	$1,167,786	$596,023	
Societal Ratio	2.36	0.85	2.41	3.26	2.46	
Societal NPV	$403,972	($40,541)	$420,631	$998,448	$436,442	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Refrigeration					
Status:	Existing					
Year:	**2017 Proposed**	**2017 Actual**	**2018 Proposed**	**2018 Actual**	**2019 Proposed**	**2019 Actual**
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$34,860	$47,348	$34,775	$24,358	$34,775	
Administration	$4,000	$6,775	$4,000	$3,846	$4,000	
Evaluation, Measurement & Verification	$1,000	$252	$1,000	$468	$1,000	
Advertising & Promotion	$5,000	$2,887	$5,000	$2,858	$5,000	
Incentives	$85,225	$110,892	$85,225	$50,228	$85,225	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$130,085	$168,155	$130,000	$81,757	$130,000	
Total Participants	86	127	86	59	86	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	90%	90%	90%	90%	90%	
Industrial	10%	10%	10%	10%	10%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	1,155,485	1,255,933	1,155,485	569,379	1,155,485	
Annual kWh Savings at Generator	1,251,067	1,359,824	1,251,067	616,478	1,251,067	0
Cost per Annual kWh Saved at Generator	$0.1040	$0.1237	$0.1039	$0.1326	$0.1039	$0.0000
Peak kW Savings at Meter	182.133	180.919	182.133	84.168	182.133	
Peak kW Savings at Generator	197.199	195.885	197.199	91.130	197.199	0.000
Cost per Peak kW Saved at Generator	$659.66	$858.44	$659.23	$897.15	$659.23	$0.00
Utility Ratio	3.27	2.40	3.46	1.98	3.64	
Utility NPV	$294,659	$235,090	$319,997	$79,950	$342,978	
Ratepayer Ratio	0.71	0.61	0.70	0.56	0.68	
Ratepayer NPV	($175,274)	($259,541)	($189,972)	($126,881)	($224,451)	
Participant Ratio	4.20	3.43	4.51	3.24	4.95	
Participant NPV	$439,589	$452,221	$481,474	$187,265	$541,589	
Societal Ratio	3.40	2.52	3.52	2.06	3.63	
Societal NPV	$437,693	$353,944	$459,474	$117,249	$479,120	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Roof Top Unit Efficiency (Pilot)					
Status:	Discontinued					
Year:	**2017 Proposed**	**2017 Actual**	**2018 Proposed**	**2018 Actual**	**2019 Proposed**	**2019 Actual**
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$26,325	$31,194		$9,440		
Administration	$2,000	$5,228		$892		
Evaluation, Measurement & Verification	$2,000	$0		$0		
Advertising & Promotion	$1,000	$0		$0		
Incentives	$20,560	$0		$0		
Other	$0	$0		$0		
Total Utility Costs	$51,885	$36,422		$10,332		
Total Participants	20	0		0		
% of Spending by Customer Segments						
Residential	0%	0%		0%		
Commercial	90%	90%		0%		
Industrial	10%	10%		0%		
Farm	0%	0%		0%		
Other	0%	0%		0%		
Total % of Spending	100%	100%		0%		
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	489,540	0		0		
Annual kWh Savings at Generator	530,035	0		0		
Cost per Annual kWh Saved at Generator	$0.0979	$0.0000		$0.0000		
Peak kW Savings at Meter	74.780	0.000		0.000		
Peak kW Savings at Generator	80.966	0.000		0.000		
Cost per Peak kW Saved at Generator	$640.82	$0.00		$0.00		
Utility Ratio	2.19	0.00		0.00		
Utility NPV	$61,942	($36,422)		($10,332)		
Ratepayer Ratio	0.52	0.00		0.00		
Ratepayer NPV	($105,110)	($36,422)		($10,332)		
Participant Ratio	0.90	inf.		inf.		
Participant NPV	($21,669)	$0		$0		
Societal Ratio	0.66	0.00		0.00		
Societal NPV	($84,164)	($36,422)		($10,332)		

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Commercial Advertising and Education					
Status:	Existing					
Year:	**2017** **Proposed**	**2017** **Actual**	**2018** **Proposed**	**2018** **Actual**	**2019** **Proposed**	**2019** **Actual**
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$22,500	$23,220	$64,500	$75,401	$64,500	
Administration	$1,500	$780	$1,500	$2,009	$1,500	
Evaluation, Measurement & Verification	$500	$0	$500	$33	$500	
Advertising & Promotion	$500	$615	$500	$0	$500	
Incentives	$0	$0	$0	$0	$0	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$25,000	$24,615	$67,000	$77,443	$67,000	
Total Participants	100	76	100	237	100	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	100%	100%	100%	100%	100%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	0	0	0	0	0	
Annual kWh Savings at Generator	0	0	0	0	0	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	0.00	0.00	0.00	0.00	0.00	
Utility NPV	($25,000)	($24,615)	($67,000)	($77,443)	($67,000)	
Ratepayer Ratio	0.00	0.00	0.00	0.00	0.00	
Ratepayer NPV	($25,000)	($24,615)	($67,000)	($77,443)	($67,000)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$0	$0	$0	$0	$0	
Societal Ratio	0.00	0.00	0.00	0.00	0.00	
Societal NPV	($25,000)	($24,615)	($67,000)	($77,443)	($67,000)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Commercial Compressed Air Audits					
Status:	Existing					
Year:	**2017 Proposed**	**2017 Actual**	**2018 Proposed**	**2018 Actual**	**2019 Proposed**	**2019 Actual**
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$3,000	$187	$3,000	$36	$3,000	
Administration	$500	$97	$500	$62	$500	
Evaluation, Measurement & Verification	$500	$61	$500	$173	$500	
Advertising & Promotion	$1,000	$554	$1,000	$0	$1,000	
Incentives	$0	$4,940	$0	$0	$0	
Other	$15,000	$0	$15,000	$0	$15,000	
Total Utility Costs	$20,000	$5,839	$20,000	$270	$20,000	
Total Participants	4	1	4	0	4	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	10%	10%	10%	10%	10%	
Industrial	90%	90%	90%	90%	90%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	0	0	0	0	0	
Annual kWh Savings at Generator	0	0	0	0	0	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	0.00	0.00	0.00	0.00	0.00	
Utility NPV	($20,000)	($5,839)	($20,000)	($270)	($20,000)	
Ratepayer Ratio	0.00	0.00	0.00	0.00	0.00	
Ratepayer NPV	($20,000)	($5,839)	($20,000)	($270)	($20,000)	
Participant Ratio	inf.	0.80	inf.	inf.	inf.	
Participant NPV	$0	($1,235)	$0	$0	$0	
Societal Ratio	0.00	0.00	0.00	0.00	0.00	
Societal NPV	($20,000)	($7,074)	($20,000)	($270)	($20,000)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Integrated Building Design Plus					
Status:	New					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery			$195,000	$107,023	$195,000	
Administration			$10,000	$9,268	$10,000	
Evaluation, Measurement & Verification			$1,000	$411	$1,000	
Advertising & Promotion			$6,000	$1,814	$6,000	
Incentives			$0	$0	$0	
Other			$22,000	$0	$22,000	
Total Utility Costs			$234,000	$118,516	$234,000	
Total Participants			6	6	6	
% of Spending by Customer Segments						
Residential			0%	0%	0%	
Commercial			0%	0%	0%	
Industrial			0%	0%	0%	
Farm			0%	0%	0%	
Other			0%	0%	0%	
Total % of Spending			0%	0%	0%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter			0	0	0	
Annual kWh Savings at Generator			0	0	0	0
Cost per Annual kWh Saved at Generator			$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter			0.000	0.000	0.000	
Peak kW Savings at Generator			0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator			$0.00	$0.00	$0.00	$0.00
Utility Ratio			0.00	0.00	0.00	
Utility NPV			($234,000)	($118,516)	($234,000)	
Ratepayer Ratio			0.00	0.00	0.00	
Ratepayer NPV			($234,000)	($118,516)	($234,000)	
Participant Ratio			0.00	inf.	0.00	
Participant NPV			($234,000)	$0	($234,000)	
Societal Ratio			0.00	0.00	0.00	
Societal NPV			($234,000)	($118,516)	($234,000)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Commercial Financing					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$28,500	$1,497	$28,500	$1,582	$28,500	
Administration	$3,500	$6,223	$3,500	$2,848	$3,500	
Evaluation, Measurement & Verification	$1,000	$250	$1,000	$532	$1,000	
Advertising & Promotion	$8,000	$1,891	$8,000	$3,514	$8,000	
Incentives	$0	$5,475	$0	$7,937	$0	
Other	$9,000	$0	$9,000	$0	$9,000	
Total Utility Costs	$50,000	$15,336	$50,000	$16,412	$50,000	
Total Participants	5	0	5	0	5	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	90%	90%	90%	90%	90%	
Industrial	10%	10%	10%	10%	10%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	0	0	0	0	0	
Annual kWh Savings at Generator	0	0	0	0	0	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	0.00	0.00	0.00	0.00	0.00	
Utility NPV	($50,000)	($15,336)	($50,000)	($16,412)	($50,000)	
Ratepayer Ratio	0.00	0.00	0.00	0.00	0.00	
Ratepayer NPV	($50,000)	($15,336)	($50,000)	($16,412)	($50,000)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$0	$5,475	$0	$7,937	$0	
Societal Ratio	0.00	0.00	0.00	0.00	0.00	
Societal NPV	($50,000)	($9,861)	($50,000)	($8,476)	($50,000)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Commercial Implementation and Training					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$54,000	$31,078	$54,000	$41,457	$54,000	
Administration	$2,000	$2,717	$2,000	$2,938	$2,000	
Evaluation, Measurement & Verification	$2,000	$2,559	$2,000	$11,140	$2,000	
Advertising & Promotion	$2,000	$780	$2,000	$1,406	$2,000	
Incentives	$0	$0	$0	$0	$0	
Other	$0	$0	$0	$5,620	$0	
Total Utility Costs	$60,000	$37,134	$60,000	$62,561	$60,000	
Total Participants	250	507	250	537	250	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	90%	90%	90%	90%	90%	
Industrial	10%	10%	10%	10%	10%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	0	0	0	0	0	
Annual kWh Savings at Generator	0	0	0	0	0	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	0.00	0.00	0.00	0.00	0.00	
Utility NPV	($60,000)	($37,134)	($60,000)	($62,561)	($60,000)	
Ratepayer Ratio	0.00	0.00	0.00	0.00	0.00	
Ratepayer NPV	($60,000)	($37,134)	($60,000)	($62,561)	($60,000)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$0	$0	$0	$0	$0	
Societal Ratio	0.00	0.00	0.00	0.00	0.00	
Societal NPV	($60,000)	($37,134)	($60,000)	($62,561)	($60,000)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Company-Owned Street & Area Lighting					
Status:	New					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$0	$0	$432,803	$155,302	$432,803	
Administration	$0	$0	$125,000	$0	$125,000	
Evaluation, Measurement & Verification	$0	$0	$3,000	$2,941	$3,000	
Advertising & Promotion	$0	$0	$0	$5,532	$0	
Incentives	$0	$0	$178,572	$222,552	$178,572	
Other	$0	$0	$36,108	$0	$71,620	
Total Utility Costs	$0	$0	$775,483	$386,327	$810,995	
Total Participants	0	0	3,892	3,831	3,892	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	100%	100%	100%	100%	100%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	0	0	2,188,655	2,727,926	2,213,413	
Annual kWh Savings at Generator	0	0	2,369,700	2,953,580	2,396,506	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.3272	$0.1308	$0.3384	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	inf.	inf.	1.17	2.88	1.16	
Utility NPV	$0	$0	$133,431	$725,806	$132,028	
Ratepayer Ratio	inf.	inf.	0.31	1.91	0.27	
Ratepayer NPV	$0	$0	($2,044,171)	$528,898	($2,581,832)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$0	$0	$2,456,763	$428,557	$3,017,796	
Societal Ratio	inf.	inf.	2.99	13.38	2.90	
Societal NPV	$0	$0	$1,187,200	$2,027,671	$1,199,467	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Publicly-Owned Property Solar					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$8,000	$4,186	$4,000	$5,990	$8,000	
Administration	$3,000	$5,529	$3,000	$3,004	$3,000	
Evaluation, Measurement & Verification	$2,000	$184	$2,000	$256	$2,000	
Advertising & Promotion	$1,000	$62	$1,000	$188	$1,000	
Incentives	$215,625	$0	$103,125	$220,247	$215,625	
Other	$95	$0	$1,735	$0	$95	
Total Utility Costs	$229,720	$9,961	$114,860	$229,685	$229,720	
Total Participants	16	0	16	2	16	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	100%	100%	100%	100%	100%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	0%	0%	0%	0%	0%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	224,250	0	224,254	81,638	224,254	
Annual kWh Savings at Generator	242,800	0	242,805	88,391	242,805	0
Cost per Annual kWh Saved at Generator	$0.9461	$0.0000	$0.4731	$2.5985	$0.9461	$0.0000
Peak kW Savings at Meter	86.432	0.000	86.432	35.797	86.432	
Peak kW Savings at Generator	93.582	0.000	93.582	38.758	93.582	0.000
Cost per Peak kW Saved at Generator	$2,454.74	$0.00	$1,227.37	$5,926.17	$2,454.74	$0.00
Utility Ratio	1.01	0.00	1.06	0.44	1.12	
Utility NPV	$1,169	($9,961)	$14,304	($128,399)	$26,878	
Ratepayer Ratio	0.52	0.00	0.53	0.30	0.50	
Ratepayer NPV	($212,293)	($9,961)	($217,034)	($232,183)	($261,429)	
Participant Ratio	0.69	inf.	0.72	1.86	0.81	
Participant NPV	($199,301)	$0	($180,600)	$152,491	($120,999)	
Societal Ratio	0.62	0.00	0.64	1.04	0.67	
Societal NPV	($247,937)	($9,961)	($231,696)	$7,760	($216,104)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Planning - Regulatory Affairs					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$0	$75,828	$0	$67,626	$0	
Administration	$0	$73,967	$0	$136,038	$0	
Evaluation, Measurement & Verification	$0	$32,175	$0	$17,874	$0	
Advertising & Promotion	$0	$0	$0	$0	$0	
Incentives	$0	$0	$0	$0	$0	
Other	$300,000	$250	$300,000	$0	$300,000	
Total Utility Costs	$300,000	$182,220	$300,000	$221,538	$300,000	
Total Participants	0	0	0	0	0	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	100%	100%	100%	100%	100%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	0	0	0	0	0	
Annual kWh Savings at Generator	0	0	0	0	0	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	0.00	0.00	0.00	0.00	0.00	
Utility NPV	($300,000)	($182,220)	($300,000)	($221,538)	($300,000)	
Ratepayer Ratio	0.00	0.00	0.00	0.00	0.00	
Ratepayer NPV	($300,000)	($182,220)	($300,000)	($221,538)	($300,000)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$0	$0	$0	$0	$0	
Societal Ratio	0.00	0.00	0.00	0.00	0.00	
Societal NPV	($300,000)	($182,220)	($300,000)	($221,538)	($300,000)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Research and Deveopment					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$0	$80,754	$0	$155,176	$0	
Administration	$0	$40,092	$0	$14,391	$0	
Evaluation, Measurement & Verification	$0	$0	$0	$0	$0	
Advertising & Promotion	$0	$0	$0	$0	$0	
Incentives	$0	$0	$0	$0	$0	
Other	$180,000	$0	$180,000	$1,500	$180,000	
Total Utility Costs	$180,000	$120,845	$180,000	$171,066	$180,000	
Total Participants	0	0	0	0	0	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	100%	100%	100%	100%	100%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	0	0	0	0	0	
Annual kWh Savings at Generator	0	0	0	0	0	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	0.00	0.00	0.00	0.00	0.00	
Utility NPV	($180,000)	($120,845)	($180,000)	($171,066)	($180,000)	
Ratepayer Ratio	0.00	0.00	0.00	0.00	0.00	
Ratepayer NPV	($180,000)	($120,845)	($180,000)	($171,066)	($180,000)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$0	$0	$0	$0	$0	
Societal Ratio	0.00	0.00	0.00	0.00	0.00	
Societal NPV	($180,000)	($120,845)	($180,000)	($171,066)	($180,000)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	NGEA - Regulatory Assessments					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$0	$0	$0	$0	$0	
Administration	$0	$0	$0	$0	$0	
Evaluation, Measurement & Verification	$0	$0	$0	$0	$0	
Advertising & Promotion	$0	$0	$0	$0	$0	
Incentives	$0	$0	$0	$0	$0	
Other	$110,000	$108,516	$110,000	$101,237	$110,000	
Total Utility Costs	$110,000	$108,516	$110,000	$101,237	$110,000	
Total Participants	0	0	0	0	0	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	100%	100%	100%	100%	100%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	0	0	0	0	0	
Annual kWh Savings at Generator	0	0	0	0	0	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	0.00	0.00	0.00	0.00	0.00	
Utility NPV	($110,000)	($108,516)	($110,000)	($101,237)	($110,000)	
Ratepayer Ratio	0.00	0.00	0.00	0.00	0.00	
Ratepayer NPV	($110,000)	($108,516)	($110,000)	($101,237)	($110,000)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$0	$0	$0	$0	$0	
Societal Ratio	0.00	0.00	0.00	0.00	0.00	
Societal NPV	($110,000)	($108,516)	($110,000)	($101,237)	($110,000)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	PUC Assessments					
Status:	Existing					
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$0	$0	$0	$0	$0	
Administration	$0	$0	$0	$0	$0	
Evaluation, Measurement & Verification	$0	$0	$0	$0	$0	
Advertising & Promotion	$0	$0	$0	$0	$0	
Incentives	$0	$0	$0	$0	$0	
Other	$20,000	$5,618	$20,000	$22,071	$20,000	
Total Utility Costs	$20,000	$5,618	$20,000	$22,071	$20,000	
Total Participants	0	0	0	0	0	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	100%	100%	100%	100%	100%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	0	0	0	0	0	
Annual kWh Savings at Generator	0	0	0	0	0	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	0.00	0.00	0.00	0.00	0.00	
Utility NPV	($20,000)	($5,618)	($20,000)	($22,071)	($20,000)	
Ratepayer Ratio	0.00	0.00	0.00	0.00	0.00	
Ratepayer NPV	($20,000)	($5,618)	($20,000)	($22,071)	($20,000)	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$0	$0	$0	$0	$0	
Societal Ratio	0.00	0.00	0.00	0.00	0.00	
Societal NPV	($20,000)	($5,618)	($20,000)	($22,071)	($20,000)	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Transmission & Distribution Cost Study					
Status:						
Year:	2017 Proposed	2017 Actual	2018 Proposed	2018 Actual	2019 Proposed	2019 Actual
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery	$0	$13,374	$0	$0	$0	
Administration	$0	$7,367	$0	$1,304	$0	
Evaluation, Measurement & Verification	$0	$11,327	$0	$957	$0	
Advertising & Promotion	$0	$0	$0	$0	$0	
Incentives	$0	$0	$0	$0	$0	
Other	$0	$0	$0	$0	$0	
Total Utility Costs	$0	$32,067	$0	$2,261	$0	
Total Participants	0	0	0	0	0	
% of Spending by Customer Segments						
Residential	0%	0%	0%	0%	0%	
Commercial	0%	0%	0%	0%	0%	
Industrial	0%	0%	0%	0%	0%	
Farm	0%	0%	0%	0%	0%	
Other	100%	100%	100%	100%	100%	
Total % of Spending	100%	100%	100%	100%	100%	
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter	0	0	0	0	0	
Annual kWh Savings at Generator	0	0	0	0	0	0
Cost per Annual kWh Saved at Generator	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000
Peak kW Savings at Meter	0.000	0.000	0.000	0.000	0.000	
Peak kW Savings at Generator	0.000	0.000	0.000	0.000	0.000	0.000
Cost per Peak kW Saved at Generator	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Utility Ratio	inf.	0.00	inf.	0.00	inf.	
Utility NPV	$0	($32,067)	$0	($2,261)	$0	
Ratepayer Ratio	inf.	0.00	inf.	0.00	inf.	
Ratepayer NPV	$0	($32,067)	$0	($2,261)	$0	
Participant Ratio	inf.	inf.	inf.	inf.	inf.	
Participant NPV	$0	$0	$0	$0	$0	
Societal Ratio	inf.	0.00	inf.	0.00	inf.	
Societal NPV	$0	($32,067)	$0	($2,261)	$0	

* Percentage derived from 2010 Census data.

Electric Conservation Project Information Sheet
Otter Tail Power Company

Category:	Town Energy Challenge & Accounting Adjustments					
Status:						
Year:	**2017 Proposed**	**2017 Actual**	**2018 Proposed**	**2018 Actual**	**2019 Proposed**	**2019 Actual**
kWh Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
kW Line Loss Factor	7.640%	7.640%	7.640%	7.640%	7.640%	7.640%
Utility Costs						
Delivery				$0		
Administration				$0		
Evaluation, Measurement & Verification				$0		
Advertising & Promotion				$0		
Incentives				$0		
Other				$11,156		
Total Utility Costs				$11,156		
Total Participants						
% of Spending by Customer Segments						
Residential						
Commercial						
Industrial						
Farm						
Other						
Total % of Spending						
Low-Income Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Renter Participation*						
Participants % (% of Total Participants)						
Budget % (% of Total Utility Costs)						
Energy Savings						
Annual kWh Savings at Meter						
Annual kWh Savings at Generator						
Cost per Annual kWh Saved at Generator						
Peak kW Savings at Meter						
Peak kW Savings at Generator						
Cost per Peak kW Saved at Generator						
Utility Ratio				0.00		
Utility NPV				($11,156)		
Ratepayer Ratio				0.00		
Ratepayer NPV				($11,156)		
Participant Ratio				#REF!		
Participant NPV				#REF!		
Societal Ratio				0.00		
Societal NPV				($11,156)		

* Percentage derived from 2010 Census data.

CERTIFICATE OF SERVICE

RE: In the Matter of Otter Tail Power Company's 2018 Demand Side Management Financial Incentive Project, Annual Filing to Update the Conservation Improvement Project Rider, and 2018 CIP Status Report
Docket Nos. E017/M-19-___, E017/CIP-16-116.02

I, Jana Hrdlicka, hereby certify that I have this day served a copy of the following, or a summary thereof, on Daniel P. Wolf and Sharon Ferguson by e-filing, and to all other persons on the attached service list by electronic service or by First Class mail.

Otter Tail Power Company
Initial Filing

Dated this **1st** day of **April**, **2019**

/s/ JANA HRDLICKA
Jana Hrdlicka
Regulatory Filing Coordinator
Otter Tail Power Company
215 South Cascade Street
Fergus Falls MN 56537
(218) 739-8879

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Tom	Balster	tombalster@alliantenergy.com	Interstate Power & Light Company	PO Box 351 200 1st St SE Cedar Rapids, IA 524060351	Electronic Service	No	OFF_SL_16-116_E017.CIP-16-116
Lisa	Beckner	lbeckner@mnpower.com	Minnesota Power	30 W Superior St Duluth, MN 55802	Electronic Service	No	OFF_SL_16-116_E017.CIP-16-116
William	Black	bblack@mmua.org	MMUA	Suite 400 3025 Harbor Lane North Plymouth, MN 554475142	Electronic Service	No	OFF_SL_16-116_E017.CIP-16-116
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Charlie	Buck	charlie.buck@oracle.com	Oracle	760 Market St FL 4 San Francisco, CA 94102	Electronic Service	No	OFF_SL_16-116_E017.CIP-16-116
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Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1800 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_16-116_E017.CIP-16-116
George	Crocker	gwillc@nawo.org	North American Water Office	PO Box 174 Lake Elmo, MN 55042	Electronic Service	No	OFF_SL_16-116_E017.CIP-16-116
Ian	Dobson	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_16-116_E017.CIP-16-116

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Pat	Green	N/A	N Energy Dev	City Hall 401 E 21st St Hibbing, MN 55746	Paper Service	No	OFF_SL_16-116_E017.CIP-16-116

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Tina	Koecher	tkoecher@mnpower.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	OFF_SL_16-116_E017.CIP-16-116
Kelly	Lady	kellyl@austinutilities.com	Austin Utilities	400 4th St NE Austin, MN 55912	Electronic Service	No	OFF_SL_16-116_E017.CIP-16-116
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Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1800 St. Paul, MN 55101	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
George	Crocker	gwillc@nawo.org	North American Water Office	PO Box 174 Lake Elmo, MN 55042	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
Ian	Dobson	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
Steve	Downer	sdowner@mmua.org	MMUA	3025 Harbor Ln N Ste 400 Plymouth, MN 554475142	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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Deborah	Knoll	dknoll@mnpower.com	Minnesota Power	30 W Superior St Duluth, MN 55802	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST

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John	McWilliams	jmm@dairynet.com	Dairyland Power Cooperative	3200 East Ave SPO Box 817 La Crosse, WI 54601-7227	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
Brian	Meloy	brian.meloy@stinson.com	Stinson,Leonard, Street LLP	50 S 6th St Ste 2600 Minneapolis, MN 55402	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST

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Audrey	Partridge	apartridge@mncee.org	Center for Energy and Environment	212 3rd Ave. N. Suite 560 Minneapolis, Minnesota 55401	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
Joyce	Peppin	joyce@mrea.org	Minnesota Rural Electric Association	11640 73rd Ave N Maple Grove, MN 55369	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
Lisa	Pickard	lseverson@minnkota.com	Minnkota Power Cooperative	5301 32nd Ave S Grand Forks, ND 58201	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
Bill	Poppert	info@technologycos.com	Technology North	2433 Highwood Ave St. Paul, MN 55119	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
Kathleen A	Prestidge	Kathy.Prestidge@stoel.com	Stoel Rives LLP	33 S 6th St Ste 4200 Minneapolis, MN 55402	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
Dave	Reinke	dreinke@dakotaelectric.com	Dakota Electric Association	4300 220th St W Farmington, MN 55024-9583	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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Ken	Smith	ken.smith@districtenergy.com	District Energy St. Paul Inc.	76 W Kellogg Blvd St. Paul, MN 55102	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
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Robyn	Woeste	robynwoeste@alliantenergy.com	Interstate Power and Light Company	200 First St SE Cedar Rapids, IA 52401	Electronic Service	No	SPL_SL__CIP SPECIAL SERVICE LIST
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First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1800 St. Paul, MN 55101	Electronic Service	No	GEN_SL_Otter Tail Power Company_GEN_SL_Otter Tail Power Company_GENERAL SERVICE LIST
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