
STAFF MEMORANDUM

TO: COMMISSIONERS AND ADVISORS
FROM: BRITTANY MEHLHAFF AND AMANDA REISS
RE: EL20-022 - In the Matter of the filing by Otter Tail Power Company regarding its 2021-2023 Energy Efficiency Partnership Triennial Plan
DATE: November 19, 2020

OVERVIEW

On July 1, 2020, Otter Tail Power Company (Otter Tail or Company) filed its proposed Energy Efficiency Plan (EEP) for the years 2021 through 2023. The Company's proposal updates its most recent EEP approved in Docket EL16-020 for the years 2017 through 2019 and subsequently extended through 2020.

Otter Tail's proposed plan is comprised of 11 projects, including 5 residential direct impact projects, 5 commercial direct impact projects, and one indirect impact project. Of these projects, 3 residential projects are new and 1 commercial project is new. Otter Tail estimates 4.6 million kWh in annual savings at an approximate cost of \$525,000 per year¹. The Company states that approximately 54 percent of the proposed budget is expected to be customer incentives. The Company proposes to launch the new EEP effective January 1, 2021.

Staff provides the following analysis and recommendation to the Commission regarding the proposed 2021-2023 EEP.

ANALYSIS

2021-2023 PROJECT PORTFOLIO

A. EXISTING DIRECT IMPACT PROJECTS

Residential

Otter Tail Proposes to continue its Residential Air Conditioning Control project (known as *CoolSavings*) and Residential Heat Pumps project. While these projects are currently included in Otter Tail's plan, the Company does propose some modifications for the upcoming plan years.

¹ 2021 also includes an additional \$250,000 associated with an industrial customer rebate, as approved in Docket EL16-020, for a total budget of \$775,000. 2021 is the final year associated with this industrial customer rebate.

Residential Air Conditioning Control

The Company's **CoolSavings** rider provides customers who enroll an \$8.25 monthly bill credit from June through September in return for allowing Otter Tail to cycle air conditioning systems on and off every 15 minutes during peak-demand periods. The Air Conditioning Control project also includes heat pump systems served through Otter Tail's dual fuel and deferred load rates, where customers receive a discounted price for energy.

Otter Tail notes that **CoolSavings** enrollment has been below goal in recent years. Therefore, Otter Tail proposes to offer a one-time direct incentive for eligible new project participants in the form of a \$50 gift card². In 2019, the project only had 2 new participants. Given the incentive has a direct impact to customers which the Company hopes will be more successful in attracting customers to participate rather than traditional advertising, Otter Tail projects 25 new participants annually during the three year plan.

Residential Heat Pumps

The Residential Heat Pump project provides rebates to customers for replacing standard efficiency electric systems with higher efficiency heat pump systems or for purchasing higher efficiency systems for new installations.

Otter Tail expects some challenges in the years to come due to up-front costs of heat pump systems and the reduction and eventual elimination of the federal tax credit for geothermal heat pump systems. Otter Tail has increased customer incentives over the last few years and proposes to increase customer incentives in order to maximize results of this project and maintain cost effectiveness. The following table³ depicts the changes to the incentives proposed as well as the incentives offered over the past few years.

Measure	Proposed Incentive	2020 Incentive	2019 Incentive	2018 Incentive
Air Source Heat Pump (ASHP)	\$400/ton	\$250/ton	\$250/ton	\$250/ton
Cold climate (CCHP) ASHP ducted	\$900/ton	\$900/ton	\$600/ton	\$250/ton
Cold climate (CCHP) ASHP ductless	\$700/ton	\$700/ton	\$600/ton	\$250/ton
Geothermal heat pump	\$1,200/ton	\$900/ton	\$600/ton	\$500/ton

² Refer to Otter Tail's response to Staff Data Request 1-1.

³ Refer to Otter Tail's response to Staff Data Request 2-4.

Commercial/Industrial

In the Commercial/Industrial sector, Otter Tail proposes to continue its DrivePower, Commercial Lighting Project, Commercial Heat Pumps, and Custom Efficiency Projects. Each of these are discussed individually below.

DrivePower

With the Drive Power project, Otter Tail offers incentives to commercial customers for efficient motor and variable frequency drive installations. The Company proposes to continue offering a prescriptive rebate for VFDs and motors as part of a combined DrivePower project. However, Otter Tail proposes to change the structure for energy efficient motor incentives. Instead of the current prescriptive rebate, Otter Tail proposes an identical rebate for all totally enclosed fan-cooled (TEFC), open drip-proof (ODP), and explosion-proof motor installations with the amount dependent on motor horsepower for motors rated from one to 500 horsepower. The Company proposes this change in order to make participation simpler for customers, contractors, and dealers. In addition, Otter Tail proposes to decrease the incentives associated with HVAC or Seasonal Fan AS 15 hp, HVAC or Seasonal Pump ASD 15 hp, Process or Year-round Fan AS 25 hp, and Process or Year-round Fan ASD 30 hp due to increased market saturation and decreased participation. The proposed changes for non-prescriptive incentives are shown below⁴.

Measure	Proposed Incentive	Current Incentive
HVAC or Seasonal Fan ASD 15hp	\$20/hp	\$60/hp
HVAC or Seasonal Pump ASD 15 hp	\$20/hp	\$60/hp
Process or Year-round Fan ASD 25 hp	\$40/hp	\$100/hp
Process or Year-round Fan ASD 30 hp	\$40/hp	\$100/hp
TEFC 15 HP Motor New/Replace at failure 16 hours/day	\$550.00	\$315.00
TEFC 15 HP Motor New/Replace at failure 24 hours/day	\$550.00	\$315.00
TEFC 15 HP Motor Replace prior to failure 16 hours/day	\$550.00	\$675.00
TEFC 15 HP Motor Replace prior to failure 24 hours/day	\$550.00	\$675.00
ECM Motor, .125 HP	\$15.00	-
ECM Motor, .25 HP	\$30.00	-
ECM Motor, .33 HP	\$50.00	-
ECM Motor, .5 HP	\$70.00	-
ECM Motor, .75 HP	\$100.00	-
ECM Motor, 1.0 HP	\$125.00	-
ECM Motor, 1.5 HP	\$175.00	-
Explosion proof enclosure, 15 HP, 16 hours/day	\$450.00	-
Explosion proof enclosure, 15 HP, 24 hours/day	\$450.00	-

⁴ Refer to Otter Tail's Response to Staff's Data Request 1-4.

Commercial Lighting Project

The Commercial Lighting Project includes the previously approved existing lighting retrofit project and in addition adds new construction lighting. The Company currently offers incentives for efficient LED lighting as part of the Custom Efficiency project. Otter Tail states that providing the incentives through a prescriptive rebate is a more efficient process for both customers and Otter Tail. Proposed incentives are shown in Table 3 below⁵.

Measure	Proposed Incentive
Exit fixture retrofit	\$600/kw reduced
Hard wired LED indoor retrofit	\$600/kw reduced
LED hard wired outdoor retrofit	\$400/kw reduced
LED lamp linear retrofit	\$400/kw reduced
LED screw-in indoor retrofit	\$200/kw reduced
LED screw-in outdoor retrofit	\$100/kW reduced
Motion sensor/controls	\$200/connected kw
LED hardwired indoor new construction	\$322/project average
LED hardwired outdoor new construction	\$68/project average
LED screw-in lamps indoor new construction	\$128/project average
LED screw-in lamps outdoor new construction	\$65/project average
LED screw-in lamps outdoor new construction	\$189/project average

Commercial Heat Pumps

The Commercial Heat Pumps project is similar to the Residential Heat Pumps project. Similar to the residential project, Otter Tail proposes increases to current incentives to maximize participation and continued effectiveness of the project. The following table⁶ provides the proposed incentives and the incentives offered in 2018-2020.

Measure	Proposed Incentive	2020 Incentive	2019 Incentive	2018 Incentive
Air Source Heat Pump	\$400/ton	\$250/ton	\$250/ton	\$250/ton
CCHP ducted	\$900/ton	\$900/ton	\$600/ton	\$250/ton
CCHP ductless	\$700/ton	\$700/ton	\$600/ton	\$250/ton
Geothermal heat pump	\$1000/ton	\$900/ton	\$600/ton	\$500/ton

⁵ Refer to Otter Tail's Response to Staff's Data Request 1-4.

⁶ Refer to Otter Tail's Response to Staff's Data Request 1-4.

Custom Energy Efficiency Project

The Custom Energy Efficiency Project is designed to cover energy-saving equipment installations and process changes that are not served by the Company's other prescriptive rebate projects. No changes are proposed for this project.

B. NEW DIRECT IMPACT PROJECTS

Residential

Home Lighting

Otter Tail's previous Residential Lighting Project included an extension of the Commercial Lighting Project and distributing LED bulbs to students as part of the Energy Connection Program. This year, the Company proposes to implement a new residential home lighting project. The proposed project consists of LED lighting sold by participating retailers located in Otter Tail's service territory. Price discounts will be provided at the point of purchase and will be available to any shopper, regardless of whether or not they are an Otter Tail customer. While Staff is concerned about retail shoppers who are not Otter Tail customers receiving such rebates paid for through Otter Tail's EEP, there are also benefits to implementing the program in this manner. The structure of this incentive is more customer and business friendly as it does not require customers to send in rebate forms and it does not require businesses to check if a shopper is an Otter Tail customer prior to receiving the rebate⁷. Furthermore, Otter Tail is not the first utility in South Dakota to implement such a program.

However, Staff does believe there should be a limit in the number of bulbs each customer can receive. Otter Tail proposed a limit of 12 LED lamps per customer⁸. Staff agrees that this limit allows for conversion of a significant portion of lamps in a typical home while at the same time deters customers from buying more than they need. The average proposed incentive for LED lamps is about \$2.00. Table 5 found on the following page shows each individual proposed incentive per lamp type⁹. In addition, the Company will continue providing incentives through requested rebates for hard-wired retrofits and new construction applications. These rebates require customers to provide invoices, receipts, and product specifications to receive the rebate.

⁷ Refer to Otter Tail's Response to Staff's Data Request 1-3.

⁸ Refer to Otter Tail's Response to Staff's Data Request 2-1.

⁹ Refer to Otter Tail's Response to Staff's Data Request 2-2.

Table 5. Residential Home Lighting Incentives	
Measure	Proposed Incentive
100-watt equivalent 3-way 15	\$2.00
150-watt equivalent 3-way 23	\$2.00
60-watt equivalent A-line 8.8	\$1.40
75-watt equivalent A-line 11.4	\$1.88
100-watt equivalent A-line 15.7	\$2.01
150-watt equivalent A-line 28	\$2.00
40-watt equivalent globe 4.2	\$1.71
60-watt equivalent globe 5.1	\$1.89
65-watt equivalent BR30 8.5	\$1.98
85-watt equivalent BR30 12	\$2.00
90-watt equivalent PAR38 12.1	\$2.05
120-watt equivalent PAR38 15.9	\$2.03
60-watt equivalent LED fixture 9.6	\$2.00
90-watt equivalent LED fixture 19.4	\$2.00
100-watt equivalent LED fixture 21.2	\$2.00
120-watt equivalent LED fixture 18.9	\$2.00
125-watt equivalent LED fixture 38	\$2.00
150-watt equivalent LED fixture 29.25	\$2.00
Hardwired LED retrofits	\$600/kW reduced
Hardwired LED new construction	\$103/project average

Smart Thermostats

Otter Tail also proposes to offer a Smart Thermostats project. Otter Tail proposes¹⁰ to offer a \$100 incentive for Tier II smart thermostat installations and a \$150 incentive for Tier III smart thermostat installations. Tier II smart thermostats provide users with the ability to set points and schedule using a smart phone, tablet, or computer. Tier III thermostats offer additional energy savings features including coaching, HVAC diagnostics, comparative information, and geofencing. Both Tiers have demand response capabilities and customer engagement features. Otter Tail states that while it does not currently propose any company-initiated control projects, incentivizing these smart thermostats will pave the way for supporting additional project services in the future.

Appliance Recycling

A third new offering for residential customers Otter Tail proposes is the Appliance Recycling project. Otter Tail will provide incentives for customers who recycle inefficient refrigerators, freezers, dehumidifiers, and window air conditioners. In order receive an incentive for recycling window air

¹⁰ Refer to Otter Tail's Response to Staff's Data Request 1-4.

conditioners and dehumidifiers, customers will be required to also recycle a refrigerator or freezer. The Company will contract with a third-party to assist with the eligibility, scheduling, pickup, removal, and processing of the recycled units. Proposed incentives are as follows¹¹:

Table 6. Residential Appliance Recycling Incentives	
Measure	Proposed Incentive
Refrigerator recycle	\$50.00
Freezer recycle	\$50.00
Window AC recycle	\$20.00
Dehumidifier recycle	\$10.00

In response to Staff’s inquiry regarding the third-party handling the recycled units¹², Otter Tail stated that while it did not complete a cost/benefit analysis, Otter Tail believes the third party is best prepared to provide the service since they have the equipment, expertise, and recycling channels available, whereas Otter Tail does not have these resources available. Staff agrees the Company’s approach is reasonable and very likely produces more cost-effective results than Otter Tail adding these responsibilities in-house.

Commercial/Industrial

Direct Install

For participating small to mid-sized commercial customers, Otter Tail proposes to provide free installation of low-cost energy efficiency measures through its new Direct Install project. Measures to be installed include: Cold-beverage vending machine controllers, faucet aerators, pre-rinse spray valves, domestic water heater pipe insulation, and reduced water heater temperature set-points in businesses with electric water heating, LED spot lamps, A-lamps, T8 lamp replacements, and exit sign retrofit kits.

C. ADVERTISING & EDUCATION AND DEVELOPMENT & PLANNING

In addition to direct impact projects, Otter Tail’s EEP also includes advertising and education as well as development and planning.

Advertising and Education

Otter Tail states the primary purpose of its Advertising and Education project is educational outreach targeting residential customers, commercial customers, and school-age children across economic groups from within its customer base. The Advertising and Education project includes

¹¹ Refer to Otter Tail’s Response to Staff’s Data Request 1-4.

¹² Refer to Otter Tail’s Response to Staff’s Data Request 1-2.

presenting educational assemblies to students and teachers, providing informational literature, and providing web-based educational information about energy use and energy conservation options. The Company's proposed 2021-2023 EEP also includes the addition of energy assessments for small to midsize businesses.

Educational Assemblies

The Minnesota Science Museum offers the Energy Connection Program production and tour. Otter Tail offers this program as a free service to selected schools in South Dakota. Schools can sign up on a first come first serve basis on a three-year rotation. This allows all students in fourth through sixth grades an opportunity to participate in the program. The assembly offers students an opportunity to develop an understanding of energy, alternative fuels and energy resources used to generate electricity, and energy conservation methods through interactive displays and activities. Teachers are also provided with supplemental materials to meet energy education requirements. Otter Tail proposes to continue this program, offering the assembly to the selected area schools in Spring 2021, 2022, and 2023. Otter Tail hopes to enhance the education of approximately 400 students through this program each year.

General Informational Literature

Otter Tail develops bill inserts and educational materials to support the projects and technologies offered in the EEP.

Internet Based Resources

Otter Tail's "Home Energy Analyzer" tool is an online energy audit and bill analysis tool available to help residential customers understand their energy consumption patterns, identify causes for changes in consumption, compare use to other similar households, and receive guidance regarding actions they can do to reduce personal energy use. The Company's goal is to have 75 residential customers utilize in the online tool annually.

On-site Energy Assessments

A new proposed offering in the 2021-2023 EEP is on-site energy assessments for small commercial customers. Customers choosing to participate will receive a free energy assessment and a follow-up report that summarizes the most cost-effective opportunities for improving energy efficiency. The report will be unique to each participant's business and will provide estimated savings, costs, and paybacks for the recommended energy efficiency measures. Otter Tail seeks to provide 50 small to mid-size commercial customers with the energy assessment.

Development and Planning

This portion of Otter Tail's EEP involves analyzing new trends and technologies, conducting EEP-related strategic planning, and EEP-related regulatory coordination and compliance.

2021-2023 BUDGET

Otter Tail proposes a budget of \$775,000 for 2021 and \$525,000 for 2022 and 2023. The additional \$250,00 included for 2021 is a continuation of the three-year budget increase approved in December 2018 for rebates to a single large industrial customer. The table below excludes the \$250,000 budget increase for 2019-2021 in order to more clearly identify the other changes proposed for the new plan.

Table 7. Proposed EEP Budget Comparison						
Program	Actual Spending			EEP Budgets		
	2017	2018	2019*	2017-2020**	2021-2023***	Change
<i>Residential</i>						
Air Conditioning Control	\$9,326.00	\$3,476.00	\$3,476.00	\$14,000.00	\$12,000.00	-14.29%
Appliance Recycling					\$28,000.00	
Home Lighting	\$14,652.00	\$6,724.00	\$4,180.00	\$11,000.00	\$35,000.00	218.18%
Residential Heat Pumps	\$32,494.00	\$24,223.00	\$40,832.00	\$50,000.00	\$91,000.00	82.00%
Smart Thermostats					\$17,000.00	
Total Residential	\$56,472.00	\$34,423.00	\$48,488.00	\$75,000.00	\$183,000.00	144%
<i>Commercial</i>						
Drive Power	\$78,878.00	\$158,374.00	\$112,263.00	\$79,000.00	\$69,000.00	-12.66%
Custom Efficiency Grants	\$60,171.00	\$77,252.00	\$21,716.00	\$40,000.00	\$42,000.00	5.00%
Commercial Direct Install					\$26,000.00	
Commercial Heat Pumps	\$26,045.00	\$26,783.00	\$34,473.00	\$91,000.00	\$45,000.00	-50.55%
Commercial Lighting	\$217,741.00	\$170,651.00	\$222,895.00	\$127,000.00	\$110,000.00	-13.39%
Total Commercial	\$382,835.00	\$433,060.00	\$391,347.00	\$337,000.00	\$292,000.00	-13.35%
Advertising and Education	\$11,937.00	\$13,227.00	\$13,667.00	\$12,000.00	\$35,000.00	191.67%
EEP Development	\$12,114.00	\$12,644.00	\$12,482.00	\$25,000.00	\$15,000.00	-40.00%
Total All Programs	\$463,358.00	\$493,354.00	\$465,984.00	\$449,000.00	\$525,000.00	16.93%
Note:						
* Excludes additional \$250,000 Commercial Drive Power						
** Does not include additional \$250,000 Commercial Custom Efficiency/Drive Power for 2019 and 2020.						
*** The 2021 Budget includes \$250,000 of additional Commercial Drive Power, not included in this table.						

Staff has no concerns regarding Otter Tail's proposed budget for the 2021-2023 EEP.

2021-2023 BENEFIT/COST TESTS

Staff reviewed the Company's cost effectiveness test results associated with the proposed 2021-2023 EEP. The test primarily relied upon for Staff's review is the Total Resource Cost (TRC) test. Table 8 below provides Otter Tail's forecasted TRC scores for the 2021-2023 EEP. As shown, Otter Tail expects all programs to be cost effective, with TRC scores greater than 1.0. Note that the TRC scores for Residential Air Conditioning Control were revised from those included in Otter Tail's initial filing¹³.

Table 8. Total Resource Cost Test			
Program	2021	2022	2023
<i>Residential</i>			
Air Conditioning Control	1.55	1.62	1.69
Appliance Recycling	1.43	1.49	1.55
Home Lighting	1.37	1.43	1.48
Residential Heat Pumps	1.12	1.17	1.21
Smart Thermostats	1.01	1.06	1.11
Total Residential	1.23	1.28	1.33
<i>Commercial</i>			
Drive Power	3.02	2.66	2.75
Custom Efficiency Grants	1.84	1.9	1.96
Commercial Direct Install	2.61	2.77	2.9
Commercial Heat Pumps	1.02	1.07	1.11
Commercial Lighting	3.72	3.88	4.01
Total Commercial	2.82	2.39	2.47
Total All Direct Impact Programs	2.55	1.97	2.03

2021-2023 EEP FINANCIAL INCENTIVE

Otter Tail proposes to continue the fixed percentage incentive of 30 percent of actual EEP expenses, capped at 30 percent of the proposed budget. The cap for the 2021-2023 EEP as proposed is \$232,500 for 2021 and \$157,500 for each of the remaining two plan years. Staff has no concerns with continuing the current financial incentive.

APPROVAL OF INCENTIVE AMOUNTS

When reviewing the proposed plan, Staff was surprised to find little information on the incentive/rebate amounts proposed. Review of the Company's response to Staff's data request regarding residential heat

¹³ Refer to Otter Tail's Responses to Staff Data Requests 1-1, 2-3, and 3-2.

pump rebates¹⁴ caused Staff to question why rebate amounts were changed mid-plan without approval from the Commission. In response to Staff's Data Request 3-1, the Company explained that it has operated with the understanding it must manage the programs within its Commission approved budget to achieve the approved savings goals, while maintaining cost-effectiveness and that it has not sought Commission approval of rebate amounts. Otter Tail states that the heat pump offerings transitioned during the 2017-2020 EEP plan as the marketplace transitioned to more advanced and energy efficient technologies.

It is Staff's understanding that the Commission's approval of the plan does include approval of incentive amounts. For instance, in Docket EL15-001, the Commission specifically limited a rebate amount proposed by MidAmerican Energy Company. Staff's view is the rebate amount impacts the cost-effectiveness of the plan and therefore the Commission should have an opportunity to provide input. Staff does recognize that seeking approval of the rebates does impact the speed at which Otter Tail is able to react to changes in the marketplace. Otter Tail does offer to describe any customer rebate changes in its annual Status Report and the reasons leading to the rebate changes. Staff appreciates Otter Tail's willingness to provide such information in the future and at least this would provide transparency. However, this would not allow the Commission the opportunity to approve the new incentive amounts before they are changed and make any changes the Commission deems necessary.

Staff has included all proposed and current rebate amounts in this memo for transparency. Staff requests clarification from the Commission on whether or not changes in rebate amounts need to be approved by the Commission.

RECOMMENDATION

Staff recommends the Commission approve Otter Tail's proposed 2021-2023 EEP, subject to the conditions that the fixed percentage incentive shall be calculated as 30 percent of actual expenses, with a cap set at 30 percent of the approved budget and actual spending shall not exceed 10 percent above the approved budget, unless approved by the Commission.

Staff also requests the Commission provide clarification on whether or not changes in rebate amounts need to be approved by the Commission.

¹⁴ Refer to the Company's response to Staff's Data Request 2-4.