

TO: COMMISSIONERS AND ADVISORS
FROM: DARREN KEARNEY AND AMANDA REISS (STAFF)
SUBJECT: EL16-020 STAFF RECOMMENDATION
DATE: NOVEMBER 17, 2016

STAFF MEMORANDUM

OVERVIEW

With this filing, Otter Tail Power (OTP) submitted its proposed Energy Efficiency Plan (EEP) for years 2017 through 2019. The purpose of this memorandum is to provide Staff's analysis of the proposed 2017-19 EEP and support for Staff's recommendation. Ultimately, Staff recommends the Commission approve OTP's 2017-19 EEP subject to certain modifications as described below.

Analysis

Budget

Otter Tail proposes to increase its total EEP budget for 2017 through 2019 to \$449,000. This is an overall increase of \$96,000, or 27 percent, from the current EEP budget of \$353,000. The budget increase is mainly directed to the residential lighting and commercial lighting programs, as shown in Table 1.

Program	Actual Spending				EEP Budgets		
	2012	2013	2014	2015	2014-16	2017-19	Change
Res AC Control	\$ 7,695	\$ 9,760	\$ 7,184	\$ 7,772	\$ 14,000	\$ 14,000	0%
Res Air Source Heat Pumps	\$ 25,393	\$ 14,673	\$ 11,062	\$ 9,102	\$ 19,000	\$ 20,000	5%
Res Geothermal Heat Pumps	\$ 14,867	\$ 15,687	\$ 15,746	\$ 11,580	\$ 23,000	\$ 30,000	30%
Res Lighting	-	-	\$ 2,000	\$ 8,603	\$ 4,000	\$ 11,000	175%
Res Total	\$ 47,955	\$ 40,120	\$ 35,992	\$ 37,057	\$ 60,000	\$ 75,000	25%
C&I Air Source Heat Pumps	\$ 6,615	\$ 6,784	\$ 19,309	\$ 11,417	\$ 13,000	\$ 18,000	38%
C&I Custom Efficiency Projects	\$ 80,627	\$ 75,709	\$ 16,808	\$ 8,794	\$ 71,000	\$ 40,000	-44%
C&I Drive Power	\$ 12,930	\$ 5,435	\$ 162,105	\$ 173,902	\$ 63,000	\$ 79,000	25%
C&I Geothermal Heat Pumps	\$ 83,940	\$ 17,906	\$ 30,079	\$ 44,482	\$ 57,000	\$ 73,000	28%
C&I Lighting	\$ 43,189	\$ 76,983	\$ 61,632	\$ 61,099	\$ 54,000	\$ 127,000	135%
C&I Total	\$ 227,301	\$ 182,817	\$ 289,933	\$ 299,694	\$258,000	\$ 337,000	31%
Advertising and Education	\$ 8,380	\$ 7,838	\$ 8,084	\$ 12,843	\$ 10,000	\$ 12,000	20%
EEP Development	\$ 25,988	\$ 50,773	\$ 17,473	\$ 22,307	\$ 25,000	\$ 25,000	0%
All Programs	\$ 309,624	\$ 281,548	\$ 351,482	\$ 371,901	\$353,000	\$ 449,000	27%

Staff has no concerns regarding Otter Tail's proposed budget for the 2017-19 EEP. Staff supports the funding of all cost effective energy efficiency programs. Moreover, Table 2

demonstrates that the proposed budget increase will be mainly directed to incentives while reducing the administrative and implementation costs of the EEP.

Program	Admin/Implementation Costs			Incentives		
	2014-16	2017-19	Change	2014-16	2017-19	Change
Res AC Control	\$ 14,000	\$ 14,000	0%	\$ -	\$ -	0%
Res Air Source Heat Pumps	\$ 9,000	\$ 7,500	-17%	\$ 10,000	\$ 12,500	25%
Res Geothermal Heat Pumps	\$ 7,250	\$ 7,500	3%	\$ 15,750	\$ 22,500	43%
Res Lighting	\$ 3,046	\$ 4,250	40%	\$ 954	\$ 6,750	608%
Res Total	\$ 33,296	\$ 33,250	0%	\$ 26,704	\$ 41,750	56%
C&I Air Source Heat Pumps	\$ 7,000	\$ 5,500	-21%	\$ 6,000	\$ 12,500	108%
C&I Custom Efficiency Projects	\$ 28,500	\$ 15,500	-46%	\$ 42,500	\$ 24,500	-42%
C&I Drive Power	\$ 20,980	\$ 17,715	-16%	\$ 42,020	\$ 61,285	46%
C&I Geothermal Heat Pumps	\$ 17,625	\$ 13,000	-26%	\$ 39,375	\$ 60,000	52%
C&I Lighting	\$ 24,900	\$ 29,292	18%	\$ 29,100	\$ 97,708	236%
C&I Total	\$ 99,005	\$ 81,007	-18%	\$ 158,995	\$ 255,993	61%
Advertising and Education	\$ 10,000	\$ 12,000	20%	\$ -	\$ -	0%
EEP Development	\$ 25,000	\$ 25,000	0%	\$ -	\$ -	0%
All Programs	\$ 167,301	\$ 151,257	-10%	\$ 185,699	\$ 297,743	60%

2017-19 Benefit/Cost Tests

Staff reviews energy efficiency programs for cost effectiveness using the Total Resource Cost Test (TRC). Table 3 provides Otter Tail’s forecasted TRC scores for the 2017-19 EEP. Staff believes the TRC scores are inflated since Otter Tail used a discount factor of 2.28 percent in its models. Staff recommends the models use a discount factor of the utility’s weighted average cost of capital (WACC), or 8.5 percent in Otter Tail’s case. Staff calculated the TRC scores using an 8.5 percent discount factor and determined that all programs, except for the Commercial Custom Efficiency program, were still greater than 1.0 (i.e. benefits exceeded costs).

Program	As Filed (2.28% df)			Staff Revised (8.50% df)
	2017	2018	2019	2017
Res Air Source Heat Pumps	2.9	3.01	3.11	1.66
Res Geothermal Heat Pumps	2.55	2.62	2.68	1.49
Res Lighting	10.62	11.04	11.44	6.56
Res A/C Control	3.38	3.98	4.33	3.38
Res Total	2.86	2.98	3.08	1.73
C&I Custom Efficiency Projects	1.07	1.12	1.16	0.66
C&I Drive Power	4.45	4.63	4.79	2.74
C&I Lighting	2.39	2.49	2.59	1.5
C&I Air Source Heat Pumps	2.4	2.5	2.59	1.49
C&I Geothermal Heat Pumps	1.99	2.05	2.12	1.24
C&I Total	2.4	2.49	2.58	1.49
All Programs	2.42	2.51	2.6	1.47

After discussing with Otter Tail, the company agreed to use the WACC in future TRC test calculations. Otter Tail also identified that individual projects in the Commercial Custom Efficiency program will be evaluated with the WACC as a discount factor. Since Custom Efficiency projects are individually reviewed for cost effectiveness and Otter Tail agreed

to using the WACC as the discount factor during project review, it is Staff's opinion that the Commercial Custom Efficiency program will be cost effective upon implementation.

2017-19 Program Changes

Otter Tail's 2017-19 EEP is consistent with previous plans approved by the Commission¹. However, the company does propose a new lighting pilot project to be included in the residential lighting program and to increase geothermal heat pump (GHP) and air source heat pumps (ASHP).

LED Light Bulbs for Students

For the proposed lighting pilot project, Otter Tail plans to hand out 4 LED light bulbs to each student that participates in its energy conservation education programs. The education program is not new (and is part of the Advertising and Education program); however, giving out LED light bulbs during the education seminars is new. Also, Otter Tail identifies that not all students that attend the education programs will live in Otter Tail's service territory. Otter Tail requests that all energy savings associated with the LED light bulbs be captured in its EEP, regardless of the utility company that serves the students family. Staff believes there are four options for this pilot lighting program:

- 1) Approve the pilot lighting program as requested: that is, hand out LED bulbs to students and Otter Tail claims all energy savings;
- 2) Approve the pilot lighting program, however adjust the energy savings captured in the plan based on an estimated number of students that reside in Otter Tail's service territory: that is, hand out LED bulbs to students and Otter Tail claims partial energy savings;
- 3) Approve the pilot lighting program, however move the cost of the LED bulbs to the Advertising and Education program: that is, hand out LED bulbs and Otter Tail claims no energy savings; or
- 4) Deny the pilot lighting program.

Staff's recommendation is to adopt option number 2, where Otter Tail hands out LED bulbs to students and then adjusts the claimed energy savings based on an estimate of how many students receive light bulbs that live in the company's service territory. Staff believes this option allows for Otter Tail to reach consumers with LED lighting technologies to drive adoption of the technology while at the same time only claiming electric system benefits that other Otter Tail customers would receive. Staff reviewed

¹ See Otter Tail's response to Staff DR 1-3 that identifies EEP rebates offered.

the Residential Lighting program for cost effectiveness with adjusted energy savings and believes the program will still be cost effective.

Air Source Heat Pump and Geothermal Heat Pump Rebates

Otter Tail proposes to increase both the ASHP and GHP rebates. Air Source Heat Pump rebates will increase to \$250/ton from \$160/ton and GHP rebates will increase to \$500/ton from \$350/ton. Otter Tail provides support for the rebate increases in response to Staff's data requests 2-7. Due to declining participation in the programs, it is Staff's opinion that the rebate increases are reasonable in order to drive program participation. Moreover, the programs remain cost effective with the higher rebates.

2017-19 EEP Financial Incentive

Otter Tail proposes to continue the fixed percentage incentive set at 30% of actual expenses, with a cap set at 30% of the approved budget. The cap for the 2017-19 EEP would be \$134,700 per program year. Staff has no concerns regarding the fixed percentage incentive proposed by Otter Tail.

STAFF RECOMMENDATION

Staff recommends that the Commission approve Otter Tail's proposed Energy Efficiency Plan for 2017-19, subject to the following conditions:

- 1) Otter Tail shall use an 8.5 percent discount factor when calculating the Total Resource Cost test;
- 2) Otter Tail shall estimate the number of students receiving LED light bulbs that reside within Otter Tail's service territory and only claim energy savings for those students;
- 3) 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
- 4) Actual spending shall not exceed 10 percent above the approved budget, unless approved by the Commission.