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May 4, 2016

Darrell Nitschke  
Executive Secretary/Director of Administration  
North Dakota Public Service Commission  
State Capitol - 600 East Boulevard  
Bismarck, ND 58505-0480

**RE: Otter Tail Power Company's Annual Report**

Dear Mr. Nitschke:

Enclosed is Otter Tail Power Company's ("Otter Tail's") 2015 Annual Report for North Dakota. As in past years, I am also enclosing a copy of Otter Tail Corporation's 2015 Annual Report to Shareholders and FERC Form 1. I am also forwarding an electronic copy of the North Dakota Annual Report in pdf format by email to you at [dnitschk@nd.gov](mailto:dnitschk@nd.gov) and to [ndpsc@nd.gov](mailto:ndpsc@nd.gov).

Pages 1-3 reflect operating statement, rate base and capital structure values which include Otter Tail's current base rate recoveries as well as recoveries through Otter Tail's renewable, transmission, and environmental cost recovery riders. The amounts reported in this annual report have been normalized to adjust for the impacts of anomalous items, including weather. This normalization is consistent with prior year's reporting. Otter Tail's actual 2015 earnings reflected a return on equity (ROE) of 10.94 percent. As shown on page 2 of the attached report, Otter Tail's normalized 2015 results reflected an 11.13 percent ROE.

If you have questions on the information provided, don't hesitate to contact me at (218) 739-8279 or [stommerdahl@otpc.com](mailto:stommerdahl@otpc.com).

Very truly yours,

*/s/ STUART TOMMERDAHL*  
Stuart Tommerdahl  
Manager, Regulatory Administration

jch  
Enclosures  
By electronic service and First Class mail

ANNUAL REPORT  
OF  
**OTTER TAIL POWER COMPANY**  
TO THE  
PUBLIC SERVICE COMMISSION OF NORTH DAKOTA  
FOR THE  
YEAR ENDED DECEMBER 31, 2015

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Otter Tail Power Company  
2015 North Dakota Annual Report

Operating Statement - With All Riders

	(A)	(B)	(C)	(D)	(E)	
Line No.	2015 Total Company	2015 North Dakota	N. D. % (B / A)	2014 North Dakota	Annual Change (B-D / D)	
	<b>Operating Revenues:</b>					
1	Residential	118,298,940	54,928,669	46.43%	54,046,144	1.63%
2	Small Commercial and Industrial	60,627,404	26,785,911	44.18%	27,873,224	-3.90%
3	Large Commercial and Industrial	178,356,754	63,031,833	35.34%	63,053,044	-0.03%
4	Other Retail	6,750,439	2,935,124	43.48%	2,827,313	3.81%
5	Total Retail Revenue	364,033,536	147,681,536	40.57%	147,799,725	-0.08%
6	Other Electric Revenue	38,089,562	10,969,135	28.80%	11,110,609	-1.27%
7	Total Revenue	402,123,098	158,650,672	39.45%	158,910,334	-0.16%
	<b>Operating Expenses:</b>					
8	Production Expenses	153,741,314	60,152,280	39.13%	65,140,028	-7.66%
9	Transmission Expenses	28,105,079	11,668,370	41.52%	10,806,906	7.97%
10	Distribution Expenses	15,514,291	7,131,180	45.97%	7,555,836	-5.62%
11	Customer Accounting Expenses	12,791,342	5,594,298	43.74%	5,820,262	-3.88%
12	Customer Service and Information Expenses	8,864,128	1,063,835	12.00%	1,107,060	-3.90%
13	Sales Expenses	252,498	17,928	7.10%	118,621	-84.89%
14	Administration and General Expenses	40,921,196	16,330,549	39.91%	17,011,747	-4.00%
15	Charitable Contributions	178,377	0	0.00%	0	N/A
16	Depreciation Expense	42,977,691	17,734,056	41.26%	18,338,728	-3.30%
17	General Taxes	13,504,765	5,147,634	38.12%	5,085,882	1.21%
18	Total Operating Expenses	316,850,680	124,840,130	39.40%	130,985,069	-4.69%
19	Net Operating Income Before Income Taxes	85,272,419	33,810,542	39.65%	27,925,265	21.08%
	<b>Income Tax Expense:</b>					
20	Investment Tax Credit	(8,840,083)	(3,597,032)	40.69%	(4,000,936)	-10.10%
21	Deferred Income Taxes	49,036,607	18,090,369	36.89%	4,768,756	279.35%
22	Income Taxes	(25,530,438)	(10,872,024)	42.58%	1,315,432	-926.50%
23	Total Income Tax Expense	14,666,086	3,621,313	24.69%	2,083,252	73.83%
24	Net Regulated Earnings	70,606,332	30,189,228	42.76%	25,842,012	16.82%

Otter Tail Power Company  
2015 North Dakota Annual Report

Rate Base - With All Riders

	(A)	(B)	(C)	(D)	(E)
Line No.	2015 Total Company	2015 North Dakota	N. D. % (B / A)	2014 North Dakota	Annual Change
1	1,682,907,936	684,775,610	40.69%	638,267,270	7.29%
2	0	0	0.00%	0	0.00%
3	<u>(663,806,869)</u>	<u>(277,582,772)</u>	41.82%	<u>(275,334,109)</u>	0.82%
4	1,019,101,067	407,192,839	39.96%	362,933,160	12.19%
5	29,657	13,394	45.16%	13,441	-0.35%
6	151,972,276	42,712,703	28.11%	70,458,400	-39.38%
7	18,800,316	8,065,896	42.90%	7,910,306	1.97%
8	10,966,785	4,203,151	38.33%	3,787,073	10.99%
9	<u>(16,655,595)</u>	<u>(6,654,923)</u>	39.96%	<u>(10,707,331)</u>	-37.85%
10	<u>(1,019,407)</u>	<u>(407,315)</u>	39.96%	<u>(356,950)</u>	14.11%
11	10,570,347	3,005,393	28.43%	3,357,732	-10.49%
12	<u>(230,736,416)</u>	<u>(101,641,572)</u>	44.05%	<u>(102,740,569)</u>	-1.07%
13	<u>963,029,029</u>	<u>356,489,566</u>	37.02%	<u>334,655,263</u>	6.52%
<b>ACTUAL</b>					
14		7.33%	8.47%		
15		2.70%	2.70%		
16		<u>0.00%</u>	<u>0.00%</u>		
17		4.63%	5.77%		
18		<u>51.81%</u>	<u>51.81%</u>		
19		<u>8.94%</u>	<u>11.13%</u> <sup>1</sup>		

<sup>1</sup> Normalized ROE is 11.13%, Actual ROE is 10.94%

Otter Tail Power Company  
2015 North Dakota Annual Report

Average Weighted Cost of Capital - With All Riders

		(A)	(B)	(C)	(D)
Line No.	Description	Average Balance	Ratio	Cost	Weighted Cost
1	Long Term Debt	447,157,310	48.19%	5.61%	2.70%
2	Preferred Equity	0	0.00%	0.00%	0.00%
3	Common Equity	480,693,810	51.81%	11.13% <sup>1</sup>	5.77%
4	Total	927,851,121	100.00%		8.47%

<sup>1</sup> Normalized ROE is 11.13%, Actual ROE is 10.94%

Otter Tail Power Company  
2015 North Dakota Annual Report

## Miscellaneous

	(A)	(B)	(C)	(D)	(E)	(F)	(G)		
Line No.	Description	2015	2014	2013	2012	2011	2010	2009	2008
	Customer Related (ND):								
	Year End # of Customers								
1	Residential	45,689	45,379	45,191	44,951	44,554	44,424	44,340	44,222
2	Commercial	11,333	11,286	11,270	11,188	11,152	11,170	11,194	11,277
3	Industrial	984	947	950	952	918	896	878	843
4	Other	509	504	504	504	506	509	532	536
5	Total	58,515	58,116	57,915	57,595	57,130	56,999	56,944	56,878
	KWH's Sold								
6	Residential	609,253,548	669,563,374	652,328,505	583,154,678	620,333,270	588,526,166	600,554,154	568,278,543
7	Commercial	296,940,142	339,108,033	319,824,033	281,752,844	300,862,002	301,965,143	318,238,797	301,585,437
8	Industrial	852,769,327	899,948,129	867,335,225	841,489,786	849,256,868	823,343,090	751,574,603	709,550,579
9	Other	29,829,127	30,127,525	29,593,473	29,084,463	32,138,905	31,276,297	31,552,451	30,499,320
10	Subtotal	1,788,792,144	1,938,747,061	1,869,081,236	1,735,481,771	1,802,591,045	1,745,110,696	1,701,920,005	1,609,913,879
11	Unbilled sales	(9,116,877)	(5,251,688)	17,390,019	11,804,152	(6,735,687)	1,283,596	4,072,195	9,168,347
12	Total	1,779,675,267	1,933,495,373	1,886,471,255	1,747,285,923	1,795,855,358	1,746,394,292	1,705,992,200	1,619,082,226
13	Reliability Indices (1)								
14	SAIDI (total minutes)	100.6	72.8	99.7	84.1	105.6	92.9	62.1	68.1
15	SAIFI (frequency)	1.7	1.5	1.3	1.5	1.6	1.6	1.1	1.2
16	CAIDI (duration)	58.4	49.9	78.6	57.7	67.9	57.0	56.9	58.4

(1) Beginning in 2006, Otter Tail began using a new interruption monitoring system. The new IMS allows use of the more common definition of a service interruption (longer than 5 minutes). With the changed definition, the frequency of measured interruptions decreases while the length of recorded interruptions increases. Total minutes of interruptions is generally comparable with historic measures.

**BEFORE THE  
NORTH DAKOTA PUBLIC SERVICE COMMISSION**

**Case No. PU-16-\_\_**

**Otter Tail Power Company's  
Report on Status of Smart Metering  
and Smart Grid Technologies**

**May 4, 2016**

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## Otter Tail Power Company 2015 Annual Report to North Dakota

### Report on Status of Smart Metering

In its Order dated August 8, 2007, Case No. PU-06-290, the North Dakota Public Service Commission, at ordering paragraph no. 2, required that:

**"Each jurisdictional electric utility shall include in its annual reports to the Commission, beginning with reports filed for 2007, a discussion of progress towards the feasibility of making smart metering available for all customers."**

References to smart grid and smart metering have been used interchangeably as the utility industry moves to adopt changes that make sense for each of the utilities service areas. Otter Tail's response to this Commission's Order in May 2008 and May 2009 has been to review the status of technology available for smart metering. Since then the Company has annually filed an update on our smart grid applications as our response to this requirement. This year, the company has included an update on rates and meter/customer specific applications rather than covering other smart grid related activities.

Otter Tail has used technology to improve employee productivity and customer service for many years. Smart grid investments occur in many aspects of our work and our mission, which is to produce and deliver electricity as reliably, economically, and environmentally responsibly as possible to the balanced benefit of customers, shareholders, and employees and to improve the quality of life in the area in which we do business.

The following is a list of some of the smart grid type applications that are in use at Otter Tail and are further described in the following sections.

- Peak-Shaving Technologies
- Energy Storage Systems
- Time-varying Rates
- Electricity Metering
- Power Profiler
- Interruption Monitoring System
- Bill Analyzer
- Customer Information System (CIS)

## **Peak-Shaving Technologies**

Otter Tail has a long history of installing peak-shaving technologies at customer premises. This legacy started with electric water heaters back in the 1940s that were controlled with time-clocks set to avoid energy usage during the morning and evening highest load periods each day. In the 1980s this legacy system was updated with a radio control system. Beginning in 2003, Otter Tail began to replace the radio control system with an updated radio control system. This update was completed in 2007. The updated system allows Otter Tail to send a signal out to groups of customers during periods of high demand, which includes capacity constraints or high energy prices. When the signal is received by a radio typically near the customer's meter socket, the customer's system automatically reduces their controllable load.

Several peak-shaving tariff options are available to work with various technologies installed by customers and controlled by Otter Tail. Technologies include: electric storage water heaters, dual fuel heating systems, thermal storage systems, heat pumps, air conditioning systems, and whole-house residential demand controllers, and commercial demand control.

The system and supporting tariff that allows the most flexibility for the customer is the Residential Demand Controller (RDC). A radio receiver mounted near the customer meter socket receives the signal when system demand is high. A demand controller installed in the home reacts to this signal by reducing the customer demand to a level preselected by the customer. A set station installed in the living area identifies that the customer is being controlled, shows the demand level that is being maintained by the demand controller, and in cases where the connected load does not reduce home demand to the preselected level, the set station signals to the customer that further action is required to reduce non-controlled load. At this point the customer has the choice to either increase their preselected demand or reduce demand by turning off lights, electric appliances, or any heating equipment that may not be connected to the demand controller. Customers are billed based on their highest winter-season demand level measured during a control event.

Otter Tail has approximately 42,227 meters installed associated with demand response tariffs and has demonstrated over 105 MW of control during the coldest days in the winter. Winter demand response total capacity is based on the load management events and system tests and varies by month and season. Otter Tail is a transmission owner in Midcontinent Independent System Operator (MISO). Since MISO is a summer peaking Regional Transmission Operator, Otter Tail accredited 33 MW of demand response capacity for the 2015 planning year.

## **Energy Storage Systems**

As noted above, Otter Tail's Peak-Shaving Technologies include Energy Storage Systems which are most commonly known as "Thermal Storage" or "Deferred Load" systems. These include water heating, under floor heating, brick storage furnaces, and brick storage room heaters. Customers and contractors are advised to size storage systems to heat or cool adequately during the maximum control period allowed by the tariff on which it is installed (14-16 continuous hours depending on the tariff used). These systems store energy by charging during off-peak periods, and heat is available for discharge into the home or business as needed. Otter Tail continues to explore opportunities associated with distributed energy storage systems.

### Time-varying rates

Otter Tail's definition of time-varying rates includes any tariff that charges based on when electricity is used and/or controlled. Table 1 below presents the rates, tariff sections, and average number of meters by state currently provided by Otter Tail. As shown, there are on average 1,200 meters on Time of Use Rates and 396 of these are served in North Dakota.

<b>Time of Use Rate</b>	<b>Tariff Section</b>	<b>MN Average Meter Count</b>	<b>ND Average Meter Count</b>	<b>SD Average Meter Count</b>	<b>Total Average Meter Count</b>	<b>Program Started</b>
General Service Time-of-Use	10.03 MN, SD; 10.04 ND	44	1	0	45	1978
Large General Service - Time of Day	10.05	28	3	2	33	1993
Standby Service - Option A Firm	11.01	4	1	0	5	1993
Irrigation Service	11.02	141	34	27	202	1974
Real Time Pricing Rider	14.02	0	1	1	2	1996
Fixed Time of Delivery Service	14.07	530	356	94	980	1996
<b>Total Time of Use</b>		<b>743</b>	<b>396</b>	<b>124</b>	<b>1,267</b>	<b>NA</b>

Demand response tariffs require the customers to limit or stop usage during peaking periods in response to an automated control system signal provided by Otter Tail. Otter Tail may require a control period in response to capacity, economic, or reliability conditions. Table 2 below presents tariffs that are part of Otter Tail's accredited demand response and the meter count by state that for each tariff. Otter Tail's direct control demand response consists of 42,227 meters across the Company's service territory, of which 18,350 are in North Dakota.

<b>Direct Control Rate</b>	<b>Tariff Section</b>	<b>MN Average Customer Count</b>	<b>ND Average Customer Count</b>	<b>SD Average Customer Count</b>	<b>Total Average Customer Count</b>	<b>Program Started</b>
Water Heating - Controlled Service (Off-Peak)	14.01	8,255	5,973	2,106	16,389	Before 1970 – with subsequent revisions
Controlled Service, Interruptible Load, CT Metering Rider (“Large Dual Fuel”)	14.04	185	263	31	479	1980s – with subsequent revisions
Controlled Service, Interruptible Load, Self Contained Metering Rider (“Small Dual Fuel”)	14.05	6,372	7,397	1,004	14,755	
Controlled Service Deferred Load Rider (“Thermal Storage”)	14.06	852	727	191	1,770	
Residential Service-Controlled Demand	9.02	2,365	3,480	412	6,257	
Air Conditioning Control Rider	14.08	1,260	357	124	1,741	2006
<b>Total Direct Control</b>		<b>19,289</b>	<b>18,197</b>	<b>3,868</b>	<b>41,391</b>	<b>NA</b>

### **Electricity Meters**

As of December 31, 2015, Otter Tail had 171,927 active retail electricity meters across a three state area that includes Minnesota, North Dakota and South Dakota. Nearly all of the meter readings are collected by Otter Tail employees or contracted meter readers by entering meter readings into a handheld meter reading processor. The handheld processor also has a probe that allows the meter reader to collect time of day meter readings electronically by attaching the probe to a port on the face of the meter.

Otter Tail has installed 60 meters with an encoder receiver transmitter (ERT) register that allows the handhelds with a special transmitter receiver module to read meters as the meter reader walks by the area, which is an example of a mobile Automated Meter Reading (AMR) application. These special meters have been installed in areas where access to the customers meter was difficult and time consuming.

<sup>1</sup> With the exception of Residential Demand Control, all customer counts shown in Table 2 are based on meter counts for direct control rates.

Over several years, Otter Tail has developed a group of AMR type meters that can be read remotely using cell phones or land lines to collect interval kWh and demand meter information. These meter installations allow Otter Tail to contact the meter and download meter interval data on a daily, weekly or monthly basis. There are approximately 460 meters that are read remotely and, of these, approximately 100 meters are used for billing data. The remaining meters are for measuring other loads such as generation, substation, and tie metering. The data is used for calculating and reporting Otter Tail's load to MISO, as well as tracking voltage data at Company substations, observing anomalies in load behavior, and forecasting day-ahead loads. The cost to support these AMR devices in 2015 was \$68,894 for software and labor.

Approximately 0.30 percent of Otter Tail electricity metering is operating in a way that Otter Tail would describe as AMR. Table 3 below presents the category of meters based on how they are read, the number of meters in each category, and the corresponding percentage that each category is of the total meters. Through the end of 2015, Otter Tail had no Advanced Metering Infrastructure (AMI) or two-way capable meters. However, the company is in the middle of replacing the Interruption Monitoring System (IMS) with cellular AMI meters. That is described in more detail in the IMS section.

In addition, the Company is continuing to investigate AMR/AMI technology and evaluating the potential costs and benefits of a system-wide investment.

<b>Category of Meters</b>	<b>Number of Meters</b>	<b>% of Total Meters</b>
Automated Meter Reading (AMR) - read from general office using landline, cellular, or TCP/IP communications	466	0.26%
AMR – drive or walk by (mobile)	60	0.03
Manually read meters	171,401	99.70%
Total Meters	171,927	100%

In 2014, and completed in 2015, Otter Tail conducted a pilot of 10 AMI meters. The purpose of the pilot is to explore new business skillsets needed, the reliability of cellular coverage for meter reading, understand the customer portal and tools related to usage, trial the head-end AMI and back-end Meter Data Management (MDM) systems, perform load management measurement and verification, and assess reliability measurement and reporting capabilities. The cost of the pilot was paid by the vendor.

### **Power Profiler**

The Power Profiler is a fee-based on-line program offered to customers with interval metering. Commercial or industrial customers are the main users of this program.

The program allows “day after”, “week after” or “month after” 15-minute interval energy and demand usage to be displayed in a variety of graphical formats. Otter Tail’s larger customers have found this data to be valuable to identify and reduce demand peaks by fine-tuning equipment operation and altering work schedules.

The Power Profiler has nine detailed reports as bar graphs, line graph or data output.

- Peak day demand
- 24 hour profile
- kVA / power factor
- Daily peaks
- Detail profile
- Daily totals
- Peaks report
- Statistics report
- Comparison graph

Customers using Power Profiler are learning how to manage their energy and demand profiles based on information from this online tool. Otter Tail’s ongoing charge by the software vendor for system maintenance and updating Power Profiler was \$10,124 for 2015 actuals and are budgeted to be \$10,983 for 2016.

### **Interruption Monitoring System**

In order to monitor and improve the reliability of Otter Tail’s electrical system, an Interruption Monitoring System (IMS) was installed and commissioned in mid-2004. Voltage and interruption monitoring devices manufactured by Sensus have been installed on each of the approximately 730 distribution feeders in the Otter Tail system. These intelligent field devices report interruptions, over and under voltage alarms and power reliability status using the commercial cellular networks (GSM and 1XRTT).

The current IMS communication platform utilizes 2G commercial cellular network. The two cellular networks described above (GSM and 1XRTT) each have separate life expectancies due to planned shutdown of 2G service. The devices using GSM will no longer be useable by the end of 2016 and the devices using 1XRTT by the end of 2017 or 2018. The supplier (Sensus) has no plans for upgrading the current monitors to 3G or 4G networks and discontinued manufacturing the devices in 2015.

With the known shutdown dates, Otter Tail has begun replacement plans for this system through cellular AMI meters. In late 2015, Otter Tail solicited feedback from approximately a dozen potential IMS vendors. After a comparison of alternatives, Otter Tail selected an AMI meter solution. In addition to being least cost, the other benefits the company will see from this solution include AMI experience and added features. The solution will have hosted head end systems for reading meter data that will be used for billing or reliability analytics. Otter Tail is currently finalizing a contract with the selected vendor.

The replacement plan for the existing IMS will follow a two year schedule with ND feeders converted first in 2016. All usable 1XRTT devices from ND will be harvested to utilize elsewhere in the system until the system conversion is complete. The harvesting of 1XRTT

devices from ND is nearly complete at the time of this report. The number of feeders in ND is around 350 and the deployment in ND as a whole will be around 400 meters. This deployment will give Otter Tail better reliability coverage than the old Sensus IMS as it will cover all three phases of each feeder (through either three single phase meters or one three-phase meter) whereas the Sensus solution was only deployed on one phase of each feeder. This replacement project will also include software design to create/modify a system that will allow Otter Tail to continue to run similar reliability metrics as the company has done historically.

In addition to the reliability analysis and application tools, the current IMS also contains alarm notifications and graphical status updates. The graphical status updates are displayed for both internal and external use. The current IMS provides data to Otter Tail's Geographical Information System (GIS) to display outage information to all customers on Otter Tail's web site. Further, all field personnel receive interruption alarms (and some specific large industrial customers) when feeders they are responsible for (or fed from) experience an outage. During the conversion from the Sensus system to the AMI system, some feeder coverage will be lost as expected until the conversion is complete. The new system will still maintain the outage notification capability and export to the company GIS for external viewing of outage information.

Operating costs associated with the existing IMS for 2015 were for maintenance and communications. Maintenance dollars dealt with the replacement of defective devices as well as GPRS device replacement with 1XRTT. Costs totaled \$151,000 and are detailed below. The O&M costs associated with the AMI solution are expected to be around half of the existing IMS costs.

2015 IMS Maintenance:	\$40,000
2015 IMS Communications:	\$96,000
2015 IMS Software maintenance and updates:	\$15,000

### **Bill Analyzer**

Bill Analyzer is a program that is available to residential customers through the Otter Tail website, which allows customers to analyze their energy usage and billing, input home profile data, and compare their usage with other comparable customers. The purpose of this tool is to help residential customers, who have the desire to better understand their energy bill, to understand what steps they could take to reduce energy use and manage cost.

After a simple registration process a customer can review 25 months of billing history, provide personal information about their home, appliances, and living habits, and review payment information. The analytic engine uses weather data and customer provided information to calculate probable reasons for changes in usage. By entering their home profile, the customer can determine how their usage is broken out by applications and see how their usage compares to other customers with comparable size homes. Bill analyzer is an Aclara tool and features include:

Bill center - Customer account with amount due, due date, last payment, and graphs to compare energy use.

Bill highlights - Factors that may have contributed to a change in the electric bill. If customers need more details they can dig deeper with bill analysis.

Bill history and analysis - Provides 25 months of history and allows customers to compare statements from any two billing cycles.

My energy center - Includes an energy audit for the home. After the audit is complete, customers can create a plan to save energy.

A counterpart to the Bill Analyzer web self-service tool is a version used by Customer Service employees to answer customer questions about energy use and billing.

### Results

From 2010 to 2015, Otter Tail has contracted with Integral Analytics to conduct measurement and verification of energy savings associated with the Bill Analyzer program.

- The 2010 evaluation indicated that Bill Analyzer saved an average 296 kWh per year per participant overall, or approximately 1.5 to 2 percent of their energy usage.
- The 2012 evaluation refined participation levels and indicates savings of 529 kWh per participant or approximately 3 percent of their energy use.
- The 2013 evaluation indicates Bill Analyzer saved an average of 715 kWh per year per participant, or approximately 4 percent of a customer's annual energy usage .
- The 2014 evaluation indicates Bill Analyzer saved an average of 692 kWh per year per participant, or just under 4 percent of a customer's annual energy usage.
- The 2015 evaluation indicates Bill Analyzer saved an average of 664 kWh per year per participant, or approximately 4.5 percent of a customer's annual energy usage.

### Customer Information System (CIS)

Otter Tail has developed and maintained a mainframe Customer Information System (CIS) over the past 30 years. The system has served the company well over the years, however its capabilities and features and are in need of updating to meet expected future company and customer needs and desires. In 2015 (and early 2016), Otter Tail selected Cayenta to replace the CIS and Meter Information System (MIS) with its product labeled Cayenta Utilities. The new CIS, branded CISone, is scheduled to be in service in Q1 of 2018. The new system will not give up any existing functionality and will greatly expand functionality to both the company and customers. Some examples are; rates/billing management, customer interfaces and connections, service order management, and business intelligence.

A significant benefit of CISone will be its ability to connect and integrate with other Otter Tail systems. This would include any systems deployed with an Advanced Metering Infrastructure (AMI) or smart meter deployment. For example, the current CIS does not have the capabilities or features needed to take billing determinates for real-time rates thus eliminating this potential benefit of an AMI deployment. In order to achieve the benefits of AMI, we first need a billing system that is able to handle those aforementioned billing determinants. In conclusion, CISone

will offer many benefits to customers and the company; one of which is providing the necessary foundation for a successful smart meter deployment.