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April 1, 2013

**PUBLIC DOCUMENT – SECURITY  
DATA HAS BEEN EXCISED**

Dr. Burl W. Haar  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7<sup>th</sup> Place East, Suite 350  
St. Paul, MN 55101-2147

**RE: In the Matter of Otter Tail Power Company 2012 Annual Safety, Reliability and Service Quality Report and Proposed SAIFI, SAIDI and CAIDI Reliability Standards for 2013  
Docket No. E017/M-13-\_\_\_\_\_**

Dear Dr. Haar:

Otter Tail Power Company (“Otter Tail”) submits the enclosed Annual Report pursuant to Minn. Rules 7826.0400, 7826.0500, and 7826.1300. This Annual Report presents our safety, reliability, and service quality performance for the year 2012 and reliability standards for 2013 pursuant to Minn. R. 7826.0600. Otter Tail’s reliability standards for 2013 are found in Section V of the attached 2012 Report.

Federal Regulations restrict the disclosure of Critical Energy Infrastructure Information (CEII). The Annual Report contains information regarding Otter Tail’s feeders and associated customers served and some information in the report is considered CEII under 18CFR§338.113(c), which defines CEII as:

- (1) Critical energy infrastructure information means specific engineering, vulnerability, or detailed design information about proposed or existing critical infrastructure that:*
- (i) Relates details about the production, generation, transportation, transmission, or distribution of energy;*
  - (ii) Could be useful to a person in planning an attack on critical infrastructure;*
  - (iii) Is exempt from mandatory disclosure under the Freedom of Information Act, 5 U.S.C. 552; and*
  - (iv) Does not simply give the general location of the critical infrastructure.*
- (2) Critical infrastructure means existing and proposed systems and assets, whether physical or virtual, the incapacity or destruction of which would negatively affect security, economic security, public health or safety, or any combination of those matters.*

Dr. Burl W. Haar

April 1, 2013

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This information is CEII and therefore considered “security data” as defined by Minn. Stat. § 13.37, subd. 1(a). Otter Tail believes the information could be combined and manipulated to reveal the location and size of facilities serving our customers. The public disclosure or use of this information creates an unacceptable risk that those who may want to disrupt the electrical grid for political or other reasons may learn which facilities to target to create the greatest disruption. We have excised the identified security data from the public version of our filing.

A Summary of the Filing, Certificate of Service and Service List are also enclosed.

We are available to provide any additional information or respond to any questions you may have. Feel free to contact me at (218) 739-8395 or email me at [jfyhrie@otpc.com](mailto:jfyhrie@otpc.com), should you have any questions with respect to this matter.

Sincerely,

/s/ JESSICA FYHRIE

Jessica Fyhrie

Tariff Specialist

Tariff Application and Compliance

jce

Enclosures

By electronic filing

c: Service List

**STATE OF MINNESOTA  
BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION**

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In the Matter of Otter Tail Power  
Company's 2012 Annual Safety,  
Reliability and Service Quality Report and  
Proposed SAIFI, SAIDI and CAIDI  
Reliability Standards for 2013

Docket No. E017/M-13-\_\_\_\_\_

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**2012 REPORT AND PROPOSED 2013 RELIABILITY STANDARDS**

**Summary of Filing**

Please take notice that on April 1, 2013, Otter Tail Power Company ("Otter Tail" or "the Company"), filed with the Minnesota Public Utilities Commission ("Commission") its annual Safety, Reliability and Service Quality Report for 2012 pursuant to Minnesota Rules 7826.0400, 7826.0500 and 7826.1300. Pursuant to Minnesota Rule 7826.0600, subp. 1, Otter Tail proposes SAIFI, SAIDI and CAIDI reliability standards for 2013. Otter Tail also provides additional information as ordered by the Commission Orders dated December 20, 2012 in Docket E017/M-12-325, January 12, 2012 in Docket E017/M-11-291 and June 5, 2009 in Docket E999/CI-08-948.

**STATE OF MINNESOTA  
BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION**

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In the Matter of Otter Tail Power  
Company's 2012 Annual Safety,  
Reliability and Service Quality Report and  
Proposed SAIFI, SAIDI and CAIDI  
Standards for 2013

Docket No. E017/M-13-\_\_\_\_\_

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**2012 REPORT AND PROPOSED 2013 RELIABILITY STANDARDS**

**I. INTRODUCTION**

Otter Tail Power Company ("Otter Tail" or "the Company"), submits this filing in compliance of Minnesota Rules 7826.0400, 7826.0500, 7826.0600, subp. 1, and Minnesota Rule 7826.1300. Otter Tail also provides additional information as ordered by the Minnesota Public Utilities Commission ("Commission") Orders dated December 20, 2012 in Docket E017/M-12-325, January 12, 2012 in Docket No. E017/M-11-291 and June 5, 2009 in Docket No. E999/CI-08-948.

**II. GENERAL FILING INFORMATION**

Pursuant to Minnesota Rule 7829.1300, subp. 4, Otter Tail provides the following general information.

**A. Name, Address, and Telephone Number of Utility**

Otter Tail Power Company  
215 South Cascade Street  
P. O. Box 496  
Fergus Falls, MN 56538-0496  
(218) 739-8200

**B. Name, Address, and Telephone Number of Utility Attorney**

Bruce Gerhardson  
Associate General Counsel  
Otter Tail Power Company  
215 South Cascade Street  
P. O. Box 496

Fergus Falls, MN 56538-0496  
(218) 739-8475

**C. Date of Filing and Effective Date**

This Report is being filed on April 1, 2013. The proposed reliability standards will be effective for the calendar year 2013.

**D. Title of Utility Employee Responsible for Filing**

Jessica Fyhrie  
Tariff Specialist  
Tariff Application and Compliance  
Otter Tail Power Company  
215 South Cascade Street  
P. O. Box 496  
Fergus Falls, MN 56538-0496  
(218) 739-8395

**III. MISCELLANEOUS INFORMATION**

**A. Service on Other Parties**

Pursuant to Minn. Rule 7829.1300, subp. 2 and Minn., Stat. §216.17, subd. 3, Otter Tail has electronically filed this Report and Proposed 2013 Reliability Standards. A summary of the filing has been served on all parties on the attached service list.

**B. Summary of Filing**

A one-paragraph summary of the Report is attached pursuant to Minnesota Rule 7829.1300, subp. 1.

**IV. DESCRIPTION AND PURPOSE OF FILING**

**A. Annual Reporting**

Minnesota Commission Rules 7826.0400, 7826.0500 and 7826.1300 require electric utilities to file reports on safety, reliability, and service quality performance for the prior year. Otter Tail's 2012 Safety, Reliability, and Service Quality Report is attached.

**B. Proposed reliability standards for 2013**

Minnesota Commission Rules 7826.0600 subp. 1, requires electric utilities to propose reliability performance standards for each of its work centers. The rule requires the performance

standards be filed on or before April 1 of each year. The utility is to propose standards for the following reliability indices:

1. System average interruption duration index or SAIDI
2. System average interruption frequency index or SAIFI
3. Customer average interruption duration index or CAIDI

In compliance with the Commission Rules 7826.0600 Subpart 1, Otter Tail’s proposed 2013 reliability performance standards are shown in Table 1 below. The development and support for these proposed standards are more fully described in Section V of the attached 2012 Report.

**Table 1**

<b>Proposed 2013 Standards by CSC</b>			
	<b>SAIDI</b>	<b>SAIFI</b>	<b>CAIDI</b>
Bemidji	70.64	1.26	56.06
Crookston	69.33	1.19	58.26
Fergus Falls	66.97	1.11	60.33
Milbank	75.49	1.82	41.48
Morris	55.78	1.01	55.23
Wahpeton	57.24	1.13	50.65
<b>MN Total</b>	<b>64.95</b>	<b>1.13</b>	<b>57.48</b>

**C. Additional Reporting Requirements**

In compliance with the Commission’s December 20, 2012 Order in Docket E017/M-12-325, Otter Tail provides the required information providing a description of policies, procedures and actions Otter Tail has implemented, and plans to implement, to assure reliability, including information demonstrating proactive management of the systems as a whole, increased reliability and active contingency planning in Section IV. Section II provides summary tables, supporting information throughout the report, that allow the reader to easily assess the overall reliability of the system and identify the main factors that affect reliability. Section VI provides the report on the major causes of outages for major event days.

In compliance with the Commission’s January 12, 2012 Order in Docket E017/M-11-291 and December 20, 2012 Order in Docket E017/M-12-325, Otter Tail provides the required comparison of results using the IEEE 2.5 beta method and Otter Tail’s former method of storm normalization, found in Section IV.

In compliance with the Commission’s June 5, 2009 Order in Docket E999/CI-08-948, Otter Tail provides in Attachment 2 to the Report the required information about Otter Tail’s smart grid projects.

**V. CONCLUSION**

Otter Tail hereby submits its annual Safety, Reliability, and Service Quality Report for 2012, proposed reliability standards for 2013, and additional information required by Commission orders in Docket No. E017/M-12-325, Docket No. E017/M-11-291 and Docket No. E999/CI-08-948.

Otter Tail respectfully requests the Commission accept Otter Tail's report and approve Otter Tail's proposed reliability standards for 2013.

Date: April 1, 2013

Respectfully submitted,

By: /s/ JESSICA FYHRIE

Jessica Fyhrie  
Tariff Specialist, Tariff Application and Compliance  
Otter Tail Power Company  
215 South Cascade St., PO Box 496  
Fergus Falls, MN 56537  
(218) 739-8395

**BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION**

**Docket No. E017/M-13-\_\_\_\_\_**

**Otter Tail Power Company's  
Safety, Reliability, and Service Quality  
Report for 2012,  
and  
Proposed SAIFI, SAIDI, and CAIDI  
Reliability Standards for 2013,**

**Including Additional Information Required  
by Commission Order**

**April 1, 2013**



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## I. OTTER TAIL EXECUTIVE MANAGEMENT'S VIEW OF RELIABILITY

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**This section provides the view of Otter Tail's executive management towards reliability and customer satisfaction.**

Management's view of reliability at Otter Tail Power Company (Otter Tail) continues to be best summarized in the Company's mission and value statement:

*"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 areas in which we do business."*

The integrity of Otter Tail's entire transmission and distribution system is directly related to interruption frequency; thus, the accountability lies within our Asset Management area. Otter Tail's Asset Management area is accountable for the quality, availability and delivery of materials and engineering associated with providing electric service to Otter Tail customers. Two of Asset Management's Key Performance Indicators (KPIs) are reliability indices dealing with interruption frequency. These two KPIs are Momentary Average Interruption Frequency Index (MAIFI) and System Average Interruption Frequency Index (SAIFI).

Otter Tail's Customer Service area is accountable for responding to all interruptions. Thus, Otter Tail's Customer Service area is accountable for the cost efficient and effective deployment of field personnel, trucks, and equipment as quickly and safely as possible, necessary for restoring service to customers when interruptions occur. One of the Customer Service area's KPIs is Customer Average Interruption Duration Index (CAIDI.) The Reliability indices, SAIDI, SAIFI, CAIDI, and MAIFI are companywide KPI's. These indices are communicated and reviewed with all employees, on a monthly basis, to ensure all are aware of our company's electricity delivery performance.

Asset Management and Customer Service areas have a common goal, which is to improve the overall system reliability. Each area recognizes the overall system improvement cannot be accomplished without collaboratively working with the other area. Each area also recognizes system reliability improvements are based on cost effective decisions and overall system improvements over longer periods of time.

Customer Satisfaction is also one of Otter Tail's KPIs and has a direct relationship with the reliability of service to our customers. Otter Tail was the highest-rated utility among electric and gas investor-owned utilities (IOU) measured by the American Customer Satisfaction Index in 2012 with an overall customer satisfaction score of 85 (out of 100). The reliability portion of the survey was Otter Tail's highest score with a 91 compared to other IOU score of 85.

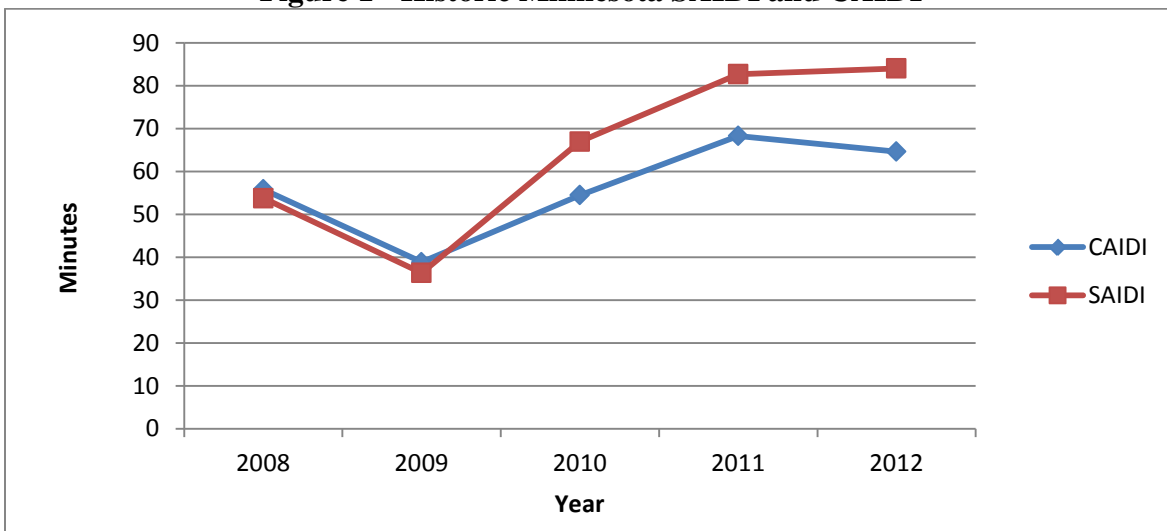
Otter Tail provides electricity to 423 communities and to rural areas in western Minnesota, northeastern South Dakota, and the eastern two-thirds of North Dakota. The average population of the communities we serve is approximately 400, and over one-half of the communities we serve have populations of fewer than 200. Only three of our communities have populations exceeding 10,000: Fergus Falls, Minnesota (pop. 13,138), Bemidji, Minnesota (pop. 13,431), and Jamestown, North Dakota (pop. 15,427). We operate 11 Customer Service Centers ("CSC")

throughout our service territory. Otter Tail is committed to utilizing proactive efforts to communicate, investigate, and resolve reliability issues across our approximately 70,000 square mile service territory. Which is roughly the size of North Dakota (70,704 square miles).

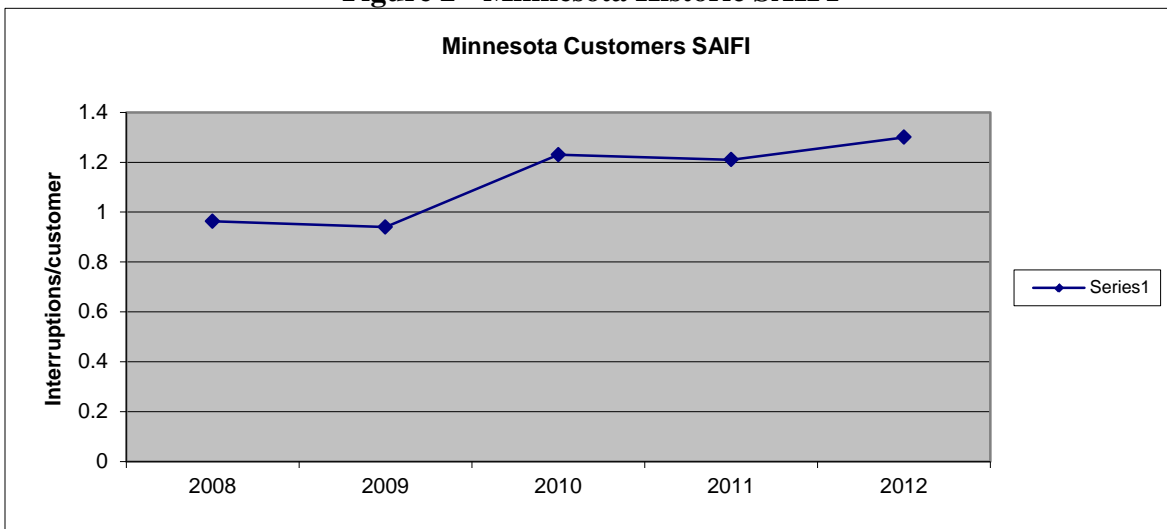
## II. OTTER TAIL 2012 SUMMARY GRAPHS

Minnesota Public Utilities Commission’s (“Commission”) Order dated December 20, 2012 in Docket No. E017/M-12-325, required Otter Tail to include in its next filing a summary table that allows the reader to more easily assess the overall reliability of the system and identify the main factors that affect reliability. Figure 1 through Figure 6 below provide a brief summary of Otter Tail’s overall reliability and service quality for the years 2008 through 2012.

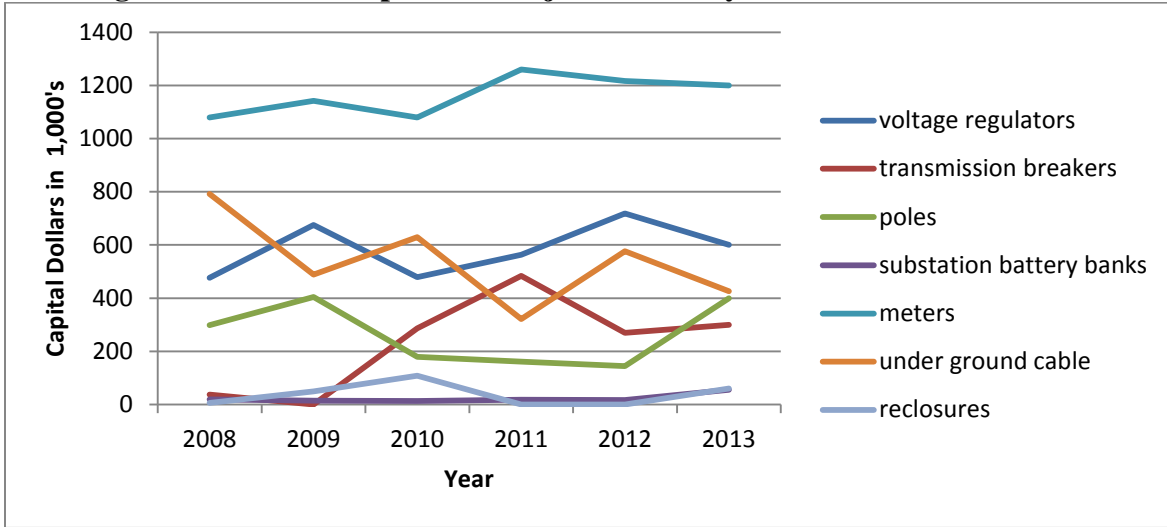
**Figure 1 - Historic Minnesota SAIDI and CAIDI**



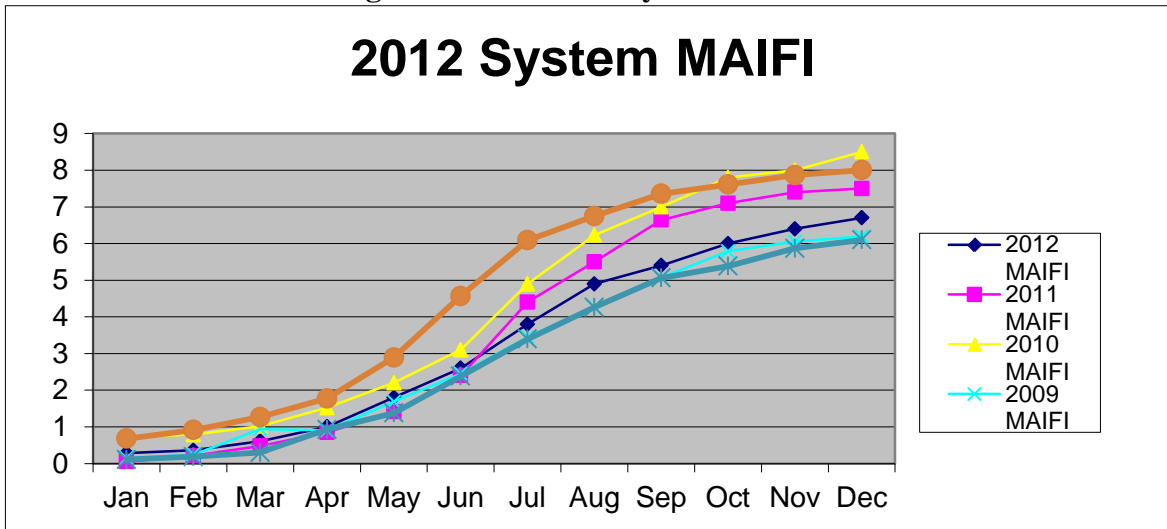
**Figure 2 - Minnesota Historic SAIFI**



**Figure 3 –Historic Expense of Major Critical System Infrastructure Items**



**Figure 4 - Otter Tail System MAIFI**

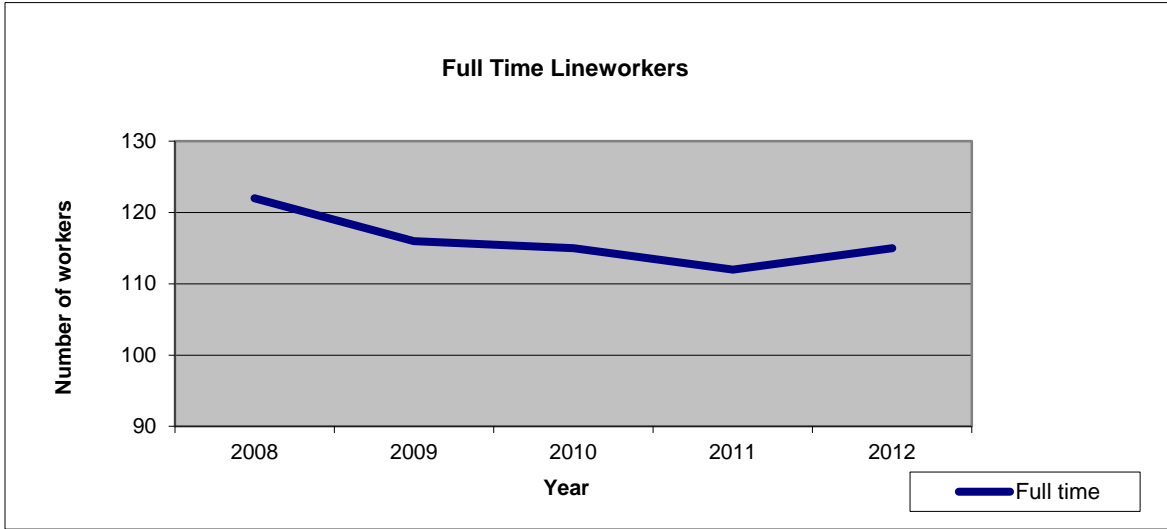


**Table 1**

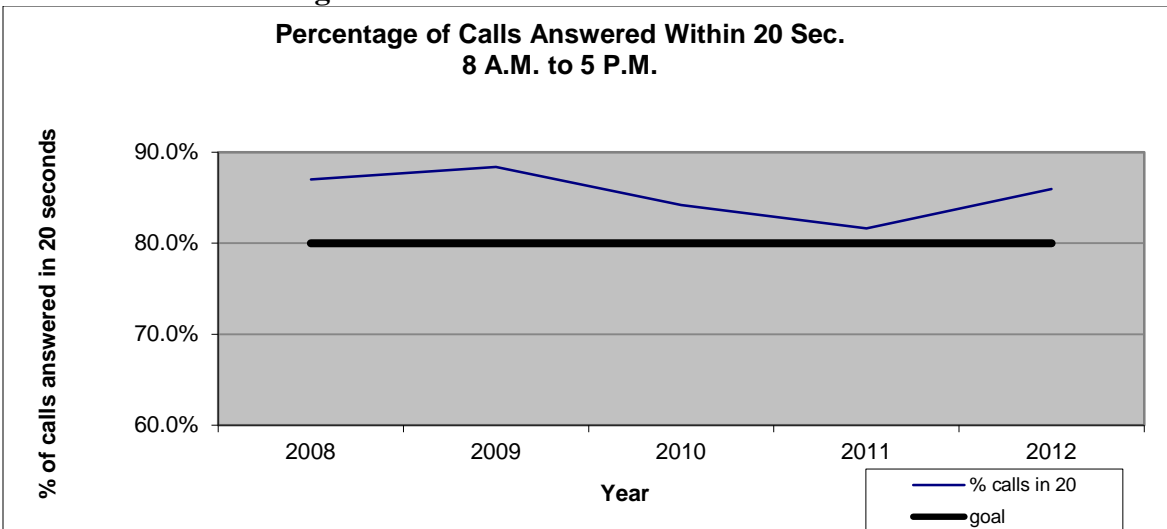
**MAIFI by MN Customer Service Center**

CSC	2012	MAIFI
Bemidji	Actual	4
Crookston	Actual	6.6
Fergus Falls	Actual	6.1
Milbank	Actual	8.7
Morris	Actual	3.7
Wahpeton	Actual	13
<b>MN Total</b>	<b>Actual</b>	<b>5.3</b>

**Figure 5 – Full Time Lineworkers available for trouble and for the operation and maintenance of Minnesota distribution lines**



**Figure 6 - Calls Answered within 20 Seconds**



### III. ANNUAL SAFETY REPORT 7826.0400

Pursuant to Minnesota Rule 7826.0400, ANNUAL SAFETY REPORT, each utility shall file a report on its safety performance during the last calendar year. This report shall include the following information.

- A. Summary of all reports filed with the United States Occupational Safety and Health Administration and the Occupational Safety and Health Division of the Minnesota Department of Labor and Industry during the Calendar year.

**Table 2**

<b>NUMBER OF CASES</b>				
Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases	
0	1	7	11	
<b>NUMBER OF DAYS</b>				
Total number of days of job transfer or restriction		Total number of days away from work		
6		39		
<b>INJURY AND ILLNESS TYPES</b>				
Injuries	Skin disorders	Respiratory conditions	Poisonings	All other illnesses
19	0	0	0	0

- B. A description of all incidents during the calendar year in which an injury requiring medical attention or property damage resulting in compensation occurred as a result of downed wires or other electric system failures and all remedial action taken as a result of any injuries or property damage described.

**Table 3**

<b>ANNUAL SAFETY REPORT</b>				
<b>Date</b>	<b>Cause</b>	<b>Type</b>	<b>Action Taken</b>	<b>Expense</b>
<i>There were no instances of personal injury due to system failures in 2012.</i>				

## IV. RELIABILITY REPORTING REQUIREMENTS 7826.0500

**Subpart 1. Annual reporting requirements.** On or before April 1 of each year, each utility shall file on its reliability performance during the last calendar year.

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### REPORT OF OTTER TAIL'S SAIDI, SAIFI, AND CAIDI FOR 2012 AND STORM NORMALIZATION OF RELIABILITY DATA

**Minnesota Rule 7826.0500, Subparts 1a, 1b, 1c, and 1d requires the utility to file a report on its SAIDI, SAIFI and CAIDI for the calendar year, by work center and for its assigned service area as a whole. Additionally, this rule requires the utility to provide an explanation of how the utility normalized its reliability data to account for major storms.**

Otter Tail's previous "storm-normalized data" process (2008 and prior) eliminated interruptions to feeders that exceeded 24 continuous hours when caused by weather.

As a review, in 2009, Otter Tail worked with Telemetric-Sensus, who is the provider of Otter Tail's Interruption Monitoring System (IMS) and the underlying software for the system, to make necessary changes to implement the IEEE 2.5 beta method process to normalizing reliability data. Otter Tail's 2.5 Beta process is based on the following assumptions:

- Telemetric-Sensus calculates annual system  $T_{med}$  (SAIDI/Day threshold) based on the previous three years of data.
- The system  $T_{med}$  is utilized to run our indices for Minnesota and individual Minnesota Customer Service Centers (CSCs) .

For 2012 data, the 2.5 beta parameters are as follows:

#### 2.5 Beta Parameters:

Alpha	Beta	Major Event Day
-2.076128527	1.874833326	13.612041263

After applying 2.5 Beta Parameters for 2012, July 2, 2012 met the criteria to be considered a Major Event Day and has been removed from the calculation of Otter Tail's 2012 reliability indices. The Commissions **December 20, 2012 Order in Docket E017/M-12-325** required Otter Tail report on the major causes of outages for the major event days. The July 2, 2012 outages were due to several large storm systems in which strong sustained straight line winds, heavy rain and lightning moved through central and northern portions of Otter Tail's service territory. These storm systems were very extreme and caused extensive damage to Otter Tail's electric delivery system. Other utilities in this region were also greatly impacted by these storms.

The Commission's January 12, 2012 Order in Docket E017/M-11-291 no longer required Otter Tail to provide SAIDI, SAIFI, and CAIDI results based on non-normalized data. In addition, that Order required Otter Tail to provide a comparison of the results of using the IEEE 2.5 beta method and its former method of storm normalization in its next two annual reports due April 2012 and April 2013. Table 4 below shows Otter Tail's 2012 SAIFI, CAIDI and SAIDI results

based on the IEEE 2.5 Beta Method and Otter Tail’s former method for each CSC and the entire Minnesota system.

**Table 4**

CSC		2.5 Beta Method			Former Method		
		SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI
Bemidji	2012 Standard	1.16	50.64	58.74	1.16	50.64	58.74
	Actual	1.12	96.78	108.81	1.48	250.94	371.22
Crookston	2012 Standard	0.93	52.24	48.58	0.93	52.24	48.58
	Actual	2.24	62.36	139.89	2.24	62.36	139.89
Fergus Falls	2012 Standard	1.17	59.11	69.16	1.17	59.11	69.16
	Actual	1.12	49.08	55.05	1.37	46.88	64.18
Milbank	2012 Standard	1.57	37.73	59.24	1.57	37.73	59.24
	Actual	1.26	64.65	81.25	1.26	64.65	81.25
Morris	2012 Standard	1.12	49.74	55.71	1.12	49.74	55.71
	Actual	1.03	65.38	67.12	1.03	65.38	67.12
Wahpeton	2012 Standard	1.15	49.57	57.00	1.15	49.57	57.00
	Actual	1.05	32.64	34.41	1.05	32.64	34.41
MN Total							
Actual		1.30	64.67	84.05	1.46	97.11	141.88

**ACTION PLAN FOR REMEDYING ANY FAILURE TO COMPLY WITH RELIABILITY STANDARDS**

**Minnesota Rule 7826.0500, Subpart 1e, requires utilities to file an action plan for remedying any failure to comply with reliability standards set forth in part 7826.0600 or an explanation as to why non-compliance was unavoidable under the circumstances.** Overall, Otter Tail Minnesota Customers experienced 384 sustained interruptions in 2012. Otter Tail provides the following information regarding its 2012 results.

**Otter Tail’s 2012 SAIDI standards** – Results for 2012, reveal that Bemidji, Crookston, Milbank, and Morris CSCs, did not meet the 2012 SAIDI reliability standards set by the Commission. Below Otter Tail provides a description of events that had the greatest impact and the actions Otter Tail has taken or will be taking to help minimize future impacts.

**Bemidji CSC:** The Bemidji CSC experienced 47 sustained interruptions in 2012. The 2012 storm normalization SAIDI was 108.81 minutes compared to the standard of 58.74. The greatest impact to SAIDI results in the Bemidji CSC was several large storm systems on July 2<sup>nd</sup> and 3<sup>rd</sup>. The Bemidji area experienced straight line winds in excess of 80 miles per hour. Subsequent storms followed with 60 mph winds. These winds caused many very large trees, located outside of Otter Tail’s easement area, to be up-rooted and come into contact with Otter Tail’s facilities. At one point, 6070 customers were without power due to downed distribution lines and poles. The 2.5 beta storm normalization process eliminated July 2<sup>nd</sup>. However, subsequent strong storms, the next day, continued to impact the system. The most impacting interruption came on July 3<sup>rd</sup>. The Cass Lake North Feeder, serving 407 customers, experienced a 23 hour and 51



minute interruption, accounting for 582,220 customer minutes. The extensive damages caused by these storm system required portions of the electric delivery system in this area to be rebuilt. The sustained very high winds and other effects of the storm systems were in some cases more severe than what the electric system was designed to withstand. Many of the interruptions caused by these storms were not within Otter Tail's control.

**Crookston CSC:** The Crookston CSC experienced 141 sustained interruptions in 2012 yielding a SAIDI of 139.89 minutes compared to the standard of 48.58. Two events were the main causes for not achieving the SAIDI standard. On October 2, 2012 Kittson, Marshall, Pennington, Beltrami, and other counties were impacted by wildfires, even forcing the evacuation of Karlstad and destroying several buildings. Due to this event, Otter Tail had to switch out the 69 KV transmission line serving the area at the height of the fire. The fire burned woods, grasslands, and peat bogs, and was accelerated due to very dry conditions and high winds. On October 4, 2012 a severe snow and ice storm hit the Crookston area. The fire impacted area received up to 15 inches of wet heavy snow. The snow caused multiple downed distribution lines. Heavy smoke debris along with damp conditions caused multiple insulator failures within the system in this area. Overall, 66 sustained interruptions occurred during this event, accounting for 971,972 customer minutes. Poor visibility, blizzard like conditions, and heavy wet snow made it extremely difficult for Otter Tail employees to safely travel to restore service to our customers. There were no actions Otter Tail could have taken to prevent the several interruptions caused by the events on October 2 - 4, 2012.

**Milbank CSC:** The Milbank CSC serves 724 Minnesota Customers from five distribution feeders. Those five Milbank CSC feeders, experienced four sustained interruptions in 2012, resulting in a SAIDI of 81.25 minutes compared to the standard of 59.24 minutes. On December 24, 2012, a car struck and knocked down a pole in Beardsley, Minnesota, accounting for two feeder interruptions totaling 40,916 customer minutes. Without this event, Minnesota Customers fed out the Milbank CSC would have had a SAIDI of 24.7 minutes, which would have resulted in meeting the standard of 59.24 minutes. CAIDI would have been 39.38 minutes and very close to the standard of 37.73 minutes. There is nothing Otter Tail could have done to prevent this car from hitting the pole.

**Morris CSC:** The Morris CSC experienced 89 sustained interruptions in 2012, resulting in a SAIDI of 67.12 minutes compared to the standard of 55.71 minutes. A devastating storm, on June 17, 2012, hit the region with wind gusts in excess of 75 miles an hour recorded at the Appleton Municipal Airport. Nine sustained interruptions occurred in the Appleton and Holloway areas. The most impactful was an eight hour and three minute interruption on the Appleton East Feeder, interrupting 742 customers. In addition to causing extensive damage to overhead distribution facilities, excessive winds and reported funnels knocked down ten 41.6 KV transmission poles and lines with distribution under build. Excluding this event from 2012 performance produces a SAIDI of 36.5 minutes which is within the standard of 55.71 minutes. Winds of this scale exceed our design requirements for pole and line loadings based on NECS 2012 250C and 234A2. Therefore the interruptions caused by this event were beyond Otter Tail's control.

**Otter Tail 2012 SAIFI standards** – The Crookston CSC was the only CSC to not meet the 2012 SAIFI reliability standards set by the Commission.

**Crookston CSC:** The Crookston CSC experienced 141 sustained interruptions in 2012, resulting in a SAIFI of 2.24 interruptions, compared to the standard of 0.93 interruptions. Back to back events on October 2<sup>nd</sup> - 4<sup>th</sup> (wildfire and heavy wet snow and blizzard conditions) caused 66 sustained interruptions along with 83 momentary interruptions to the northern Crookston CSC. Had the events of October 2-4, 2012 not occurred, the Crookston CSC would have achieved a SAIFI value of 1.07 interruptions per customer.

**Otter Tail 2012 CAIDI standards** – Bemidji, Crookston, Milbank, and Morris Customer Service Centers did not meet the 2012 CAIDI reliability standards set by the Commission.

**Bemidji CSC:** As previously indicated, the Bemidji CSC experienced 47 sustained interruptions in 2012. One of those was a 23 hour and 50 minute interruption on the Cass Lake North Feeder as a result of the devastating storm on the July 2, 2012. The storm normalization process identified July 2, 2012 as a “major event day”, thus, interruptions for that day were not included in the indices. However the interruption on the Cass Lake North Feeder occurring on July 3<sup>rd</sup> was the second of two very long interruptions, the first one, occurring on July 2<sup>nd</sup>, was normalized. The interruption on July 3<sup>rd</sup> was 23 hours and 51 minutes, and was a result of the continuing restoration process. As described earlier, the sustained very high winds and other effects of the storm systems were in some cases more severe than what the electric system was designed to withstand. Many of the interruptions caused by these storms were not within Otter Tail’s control.

**Crookston CSC:** The Crookston CSC experienced 141 sustained interruptions in 2012. Fifty-one of those interruptions had durations greater than the standard set of 52.24 minutes. Thirty of the 51 interruptions were the result of the events occurring on October 2 – 4 (wildfire and heavy wet snow and blizzard conditions) and were the main contributors to the year-end CAIDI result of 62.4 minutes. Had the events on October 2-4 not occurred, Otter Tail’s CAIDI for Crookston CSC would have been 47.76, well below the standard of 52.24 minutes. There were no actions Otter Tail could have taken to prevent the several interruptions caused by the events on October 2 - 4, 2012.

**Milbank CSC:** As previously described, Minnesota customers served by the Milbank CSC experienced four sustained interruption during 2012. The two interruptions with the most impact to the results were due to the distribution pole hit by a car in Beardsley on December 24, 2012. Interruptions occurred on both feeders out of the Browns Valley Distribution Substation. One interruption was 2 hours and 21 minutes and the other was a 33 minutes. Without this event, Minnesota Customers served by the Milbank CSC would have had a CAIDI of 39.38 minutes, which slightly exceeds the 37.73 minute standard.

**Morris CSC:** The Morris CSC experienced 89 sustained interruptions in 2012. Thirty of those interruptions had durations greater than the standard of 49.74 minutes set by the Commission. These 30 interruptions were the main contributors to the year-end CAIDI result of 65.65 minutes. Like other areas in Otter Tail’s system, during 2012 the Morris CSC was hit by very extreme storm systems with very high winds, rain and lighting. Otter Tail has completed repairs and rebuilding of several structures within the Morris CSC. The current snow conditions have slowed down the line inspection and investigation process in this area. As the snow continues to

melt, access to the lines will improve and allow for faster investigation and identification of problems that may need to be addressed. At this time we have not been able to identify actions that may need to be taken to improve reliability performance in the Morris CSC.

**Reliability Standard Summary:**

When compared to 2011, Otter Tail’s 2012 Minnesota reliability performance realized an improvement in SAIDI, CAIDI remained mostly constant, and SAIFI saw a slight increase. In 2012, Otter Tail’s Minnesota customers experienced 416 sustained interruptions throughout our CSC’s. Otter Tail believes that the inability to achieve the 2012 reliability standards, as set by the Commission, was largely due to events beyond our control. Reliable service is one of our top priorities and we are cognizant that improvements in reliability will happen over longer periods of time and must be done cost effectively.

**Table 5** provides a summary identifying the different types of interruptions causes that affect overall system reliability.

**Table 5**

**2012 MN Sustained Interruption Summary by CSC and cause**

	Bemidji	Crookston	Fergus Falls	Milbank	Morris	Wahpeton	Work Center Totals
Bulk Power Loss	0	0	0	0	0	0	0
Flood	0	0	0	0	0	0	0
Animal	2	0	2	0	3	0	7
Vehicle Accident	0	1	5	2	0	0	8
Equipment Failure	7	12	21	0	7	4	51
Vandalism	0	0	0	0	0	0	0
Trees	3	4	3	0	0	0	10
Overload	0	0	0	0	0	0	0
Human error	0	0	0	0	2	0	2
Underground	2	0	4	0	5	0	11
Bird	8	0	5	0	0	0	13
Arrestor/Insulator failure	0	12	18	0	11	0	41
weather related	29	99	57	2	53	1	241
investigated and unknown	8	11	4	0	4	0	27
Other	0	0	0	0	3	0	3
Unknown	1	1	0	0	0	0	2
<b>TOTAL</b>	<b>60</b>	<b>140</b>	<b>119</b>	<b>4</b>	<b>88</b>	<b>5</b>	<b>416</b>

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## INTERRUPTION OF BULK POWER SUPPLY FACILITY

**Pursuant to Minnesota Rule 7826.0500, Subpart 1f, to the extent feasible, a report on each interruption of a bulk power supply facility during the calendar year, including the reasons for interruption, duration of interruption, and any remedial steps that have been taken or will be taken to prevent future interruption.** For the 2012 calendar year Otter Tail reports that it did not have any sustained interruptions to a Minnesota Bulk Power Supply Facility.

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## REPORTING MAJOR SERVICE INTERRUPTIONS

**Minnesota Rule 7826.0500, Subpart 1g, requires utilities to file a copy of each report filed under part 7826.0700, reporting major service interruptions.**

Pursuant to Minnesota Rule 7826.0500, Subpart 1g, Otter Tail provides as Attachment 1, a copy of each report filed under part 7826.0700, reporting major service interruptions.

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## CIRCUIT INTERRUPTION DATA

**Minnesota Rule 7826.0500, Subparts 1h, requires utilities, to the extent technically feasible, to file circuit interruption data, including identifying the worst performing circuit in each work center, stating the criteria the utility used to identify the worst performing circuit, stating the circuit's SAIDI, SIAFI, and CAIDI, explaining the reasons that the circuit's performance is in last place, and describing any operational changes the utility has made, is considering, or intends to make to improve its performance.** In compliance with this rule, **Table 6** below shows the worst performing circuit for each of Otter Tail's six CSC's. For the purpose of identifying the worst performing circuit, we defined a circuit as a distribution feeder and the criterion that was used to identify the worst performing circuit was total customer minutes. **Table 7** below shows the interruptions that contributed to the feeders being the worst performing circuit for each CSC. Below Table 7, Otter Tail provides a description of the operational changes we have made, we are considering or intend to make to improve each feeder's performance.

**Table 6**  
**MN Worst Performing Feeders**

Service Center	Substation Name	Feeder Description	Customer Count	Total Sustained Customer Minutes	SAIFI	CAIDI	SAIDI
<b>[SECURITY DATA BEGINS...</b>							
<b>...SECURITY DATA ENDS]</b>							

**Table 7**  
**MN Worst Performing Feeders Details**

Interruption Date	State	Service Center	Substation Name	Feeder	Cause	Duration
<b>[SECURITY DATA BEGINS...</b>						
<b>...SECURITY DATA ENDS]</b>						

Interruption Date	State	Service Center	Substation Name	Feeder	Cause	Duration
[SECURITY DATA BEGINS...]						
...SECURITY DATA ENDS]						

**Bemidji:** The worst performing feeder in the Bemidji CSC was the North feeder fed from the Cass Lake Substation. This feeder experienced one sustained interruption, impacting 407 customers, for a duration of 23 hours and 51 minutes. This interruption was due to the devastating storm systems during July 2<sup>nd</sup> and 3<sup>rd</sup> described earlier. This distribution feeder was damaged to the extent that a significant portion had to be rebuilt. Also, along this feeder a significant amount of the trees were damaged to the extent natural vegetation clearing took place. We believe the rebuild of portions of this feeder and the natural vegetation clearing that occurred will improve future performance of this feeder.

**Crookston:** The worst performing feeder in the Crookston CSC was the South Feeder fed out of the Hallock Northwest Substation. This feeder experienced six interruptions, impacting 256 customers, due to two separate events. The most impactful interruption occurred on December 23, 2012 when a tree fell into the 41.6 KV transmission system feeding the area. Two phases burned down as a result causing an 8 hours and six minutes interruption.

The five other sustained interruptions occurred on October 2 - 4, 2012 as a result of the wildfire, heavy snow, and blizzard conditions described above. Due to the multiple momentary interruptions experienced during these events, the 41.6 KV transmission line that provides service to this feeder, is scheduled for a detailed line patrol in 2013.

**Fergus Falls:** The worst performing feeder in the Fergus Falls CSC was the North Feeder fed out of the Ottertail substation. This feeder experienced five sustained interruptions which impacted 549 customers, due to four separate events.

On March 15, 2012 the transmission breaker providing service to the Ottertail North Feeder opened causing a 53 minute interruption. After inspecting the line, Otter Tail discovered a failed lightning arrestor in the downstream distribution substation caused the event.

On July 2 and 3, 2012, the feeder experienced two interruptions lasting two hour and 33 minutes and 47 minutes respectively. These two interruptions were due to severe weather including multiple lightning strikes. Following these two interruptions, Otter Tail replaced all high side lightning arrestors, which we believe will help contribute to improve performance of this feeder.

On November 7, 2012, a dump truck with a raised bucket came into contact with the distribution line causing two interruptions. After Otter Tail representatives helped clear the dump truck and repair the distribution line, they tried to reset the breaker, which tripped a second time. The line was patrolled and inspected again and no issues were identified so the breaker was reset again and held. The first interruption was for 38 minutes and the second interruption was 51 minutes.

After completion of the line patrols on the Ottertail North Feeder, Otter Tail has initiated the post inspection process of graphically mapping the interruption locations on the transmission line providing service to the Ottertail North Feeder. The graphical map of the interruptions will help identify specific transmission line sections where more detailed inspections may need to be completed and any follow-up action to be taken. In addition, all the lightning arrestors have been replaced in the Ottertail substation.

**Milbank:** The worst performing feeder in the Milbank CSC was the South Feeder fed from the Browns Valley substation. This feeder experienced two interruptions affecting 241 customers. One interruption occurred on December 24, 2012, when a car struck and knocked down a pole in Beardsley, Minnesota. The duration of this interruption was two hour and 21 minutes. The other interruption occurred on June 17, 2012, as a result of severe weather in the area, causing a 39 minute interruption. The nature of these two events and due to the fact we had no other events in 2012, Otter Tail believes no further action is required on this feeder at this time.

**Morris:** The worst performing feeder in the Morris CSC was the East Feeder fed from the Appleton Substation. This feeder experienced four interruptions due to three separate events and affected 742 customers.

On July 9, 2012, the feeder experienced two interruptions due to an underground fault totaling two hours and 20 minutes. On June 17, 2012, the feeder experienced an eight hour and three minute interruption due to transmission and distribution damage due to the storm in the Appleton area that was described earlier. On January 11, 2012, the feeder experienced an eight minute and 3 second interruption. This interruption was caused during a transformer change out involving a large customer.

After completion of the line patrols on the Appleton East Feeder, Otter Tail has initiated the post inspection process of graphically mapping the interruption locations on the transmission line providing service to the Appleton East Feeder. The graphical map of the interruptions will help identify specific transmission line sections where more detailed inspections may need to be completed and any follow-up action to be taken.

**Wahpeton:** The worst performing feeder in the Wahpeton CSC was the Main Feeder fed from the Dumont Substation which serves 83 customers. This feeder experienced three interruptions due to three events.

On June 17, 2012, the feeder was interrupted for one hour and 24 minutes due to straight line winds that were part of the weather system that caused extensive damage in both Morris and Milbank areas. On June 14, 2012, a transformer failed in the Dumont Distribution Substation causing a three hour and 31 minute interruption. On April 22, 2012, a 115 KV conductor failed between Ortonville and Johnson Junction, causing a 14 minute interruption. The transformer that failed on June 14 was replaced and the conductor failure on April 22 was repaired. Due to the repairs being completed and the nature of the other event, Otter Tail believes no further action is required at this time.

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## REPORT OF NOMINAL ELECTRIC SERVICE VOLTAGES

**Minnesota Rule 7826.0500, Subpart 1i, requires that utilities shall file a report providing data on all known instances in which nominal electric service voltages on the utility's side of the meter did not meet the stands of the American National Standards Institute for nominal system voltages greater or less than voltage range B.** Otter Tail provides, in **Table 8** below, the feeders and number of occurrences where the voltage fell outside the ANSI voltage range B. All of the feeders with numerous occurrences are feeders with a single large customer that has a very large load and are mostly pipelines.



**Table 8**  
**Feeders and Number of Occurrences – Voltage fell outside the ANSI Voltage Range**

<b>Unit ID</b>	<b>Area</b>	<b>Service Center</b>	<b>Sub Station Name</b>	<b>Feeder Description</b>	<b>Low OV Count</b>	<b>Mid UV Count</b>
[SECURITY DATA BEGINS...						

... SECURITY DATA ENDS]

<b>Unit ID</b>	<b>Area</b>	<b>Service Center</b>	<b>Sub Station Name</b>	<b>Feeder Description</b>	<b>Low OV Count</b>	<b>Mid UV Count</b>
[SECURITY DATA BEGINS...						

... SECURITY DATA ENDS]

**STAFFING LEVELS AT EACH WORK CENTER**

**Minnesota Rule 7826.0500, Reliability Reporting Requirements, Subpart 1j, requires utilities to file a report providing data on staffing levels at each work center, including the number of full-time equivalent positions held by field employees responsible for responding to trouble and for the operation and maintenance of distribution lines.** In compliance with this rule, Otter Tail reports staffing levels by CSC including the number of full-time equivalent positions held by field employees responsible for responding to trouble and for the operation and maintenance of distribution lines. The staffing levels of Otter Tail’s Minnesota CSC’s as of December 31, 2012 are shown in **Table 9** below.

**Table 9**

Month-Year	Department	Type	Total
December-12	Bemidji	Field	14
		Office	5
	Bemidji Total		19
	Crookston	Field	17
		Office	5
	Crookston Total		22
	Delivery Maintenance*	Field	8
	Delivery Maintenance Total		8
	Fergus Falls	Field	25
		Office	8
	Fergus Falls Total		33
	Milbank**	Field	15
		Office	6
	Milbank Total		21
	Morris	Field	18
		Office	4
	Morris Total		22
	Operations Support***	Field	4
		Office	1
	Operations Support Total		5
Wahpeton****	Field	14	
	Office	4	
Wahpeton Total		18	
<b>12/31/12 Total</b>			<b>148</b>

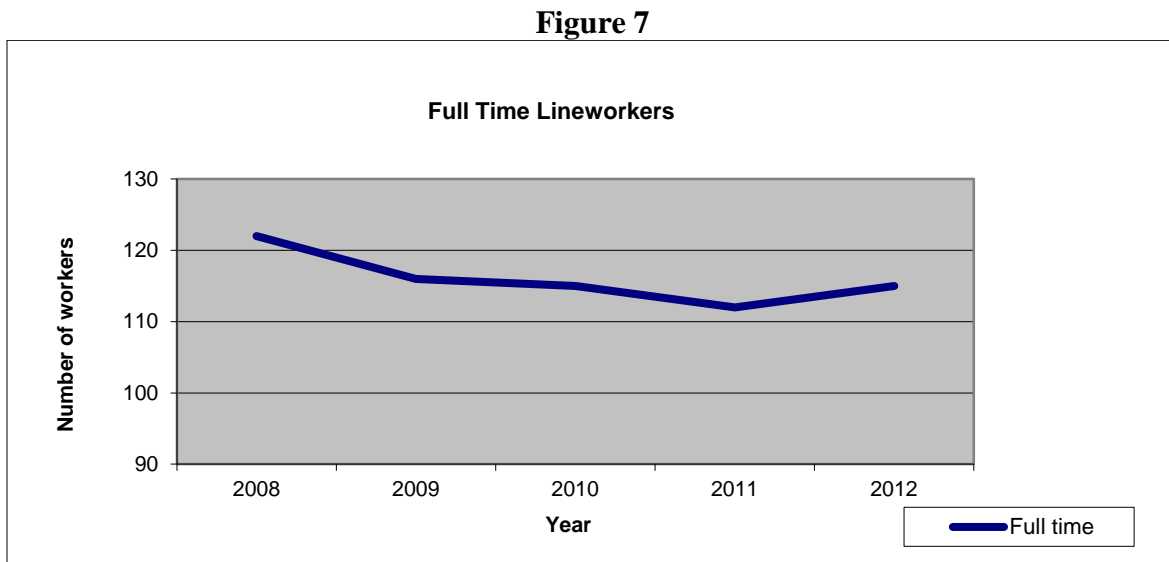
\*Delivery Maintenance is a department with employees that work in substations and with substation related equipment. During trouble, they are dispatched to do switching and other work associated with substation equipment.

\*\*The Milbank CSC serves customers in both Minnesota and South Dakota and the number of employees indicated represents all employees located in the CSC.

\*\*\*Operations Support is based in Fergus Falls and the field employees are dispatched to assist CSC's in need throughout the entire system. The office employees coordinate resources.

\*\*\*\*The Wahpeton CSC serves customers in Minnesota, North Dakota, and South Dakota and the number of employees indicated represents all employees located in the CSC.

**Figure 7** below depicts by year the number of full time line workers available for trouble and for the operation and maintenance of distribution lines.



Otter Tail also has a reliability engineer who supports system reliability related functions. This individual is not included in the above staffing level information. Otter Tail also has other engineers in its Asset Management area who, due to the very nature of their roles, support and impact reliability on a daily, weekly, monthly, and annual basis.

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## OTHER INFORMATION RELEVANT IN EVALUATING RELIABILITY PERFORMANCE

**Minnesota Rule 7826.0500, Subpart 1k, requires utilities to file any other information the utility considers relevant in evaluating its reliability performance over the calendar year.**

Otter Tail reports that it continues to optimize usage of its IMS. In 2012, the Company implemented a requirement that more detailed information regarding the primary cause of all sustained interruptions at the feeder level and above be entered into the IMS. This has and continues to provide more meaningful information for identifying specific problem areas and engineering analysis. In 2013, the company is making even a greater commitment in utilizing the IMS for interruption primary cause analysis and analysis of the date to help identify potential problem areas. Since the implementation of the IMS in 2005, subsequent upgrades and enhancements to the system have increased its capabilities. Otter Tail provides the following information relating to its IMS and overall reliability.

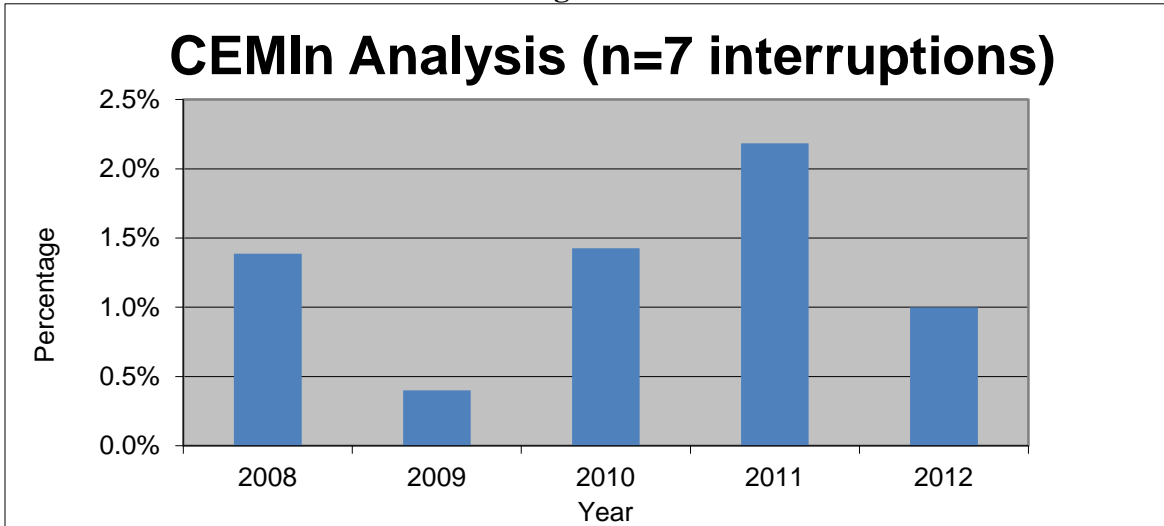
- 1. Interruption Monitoring System Improvements:** Otter Tail continues to increase its use of the IMS and its capabilities. Internal employees can view interruption activity on a graphical map of our entire service territory. The addition of our interruption mapping capability has greatly increased employee awareness (at all levels) of our reliability as it relates to customer interruptions.

In 2013, Otter Tail will continue to investigate the integration of our real time Interruption Monitoring System data into our Geographic Information System (GIS) system.

In 2013, the system has grown to two hundred users and over 250 alarm event based actions, triggering on both momentary and sustained interruptions, and in some cases, voltage alarms. The system is now set up to alarm appropriate service personnel on all interruptions for those circuits they are responsible for.

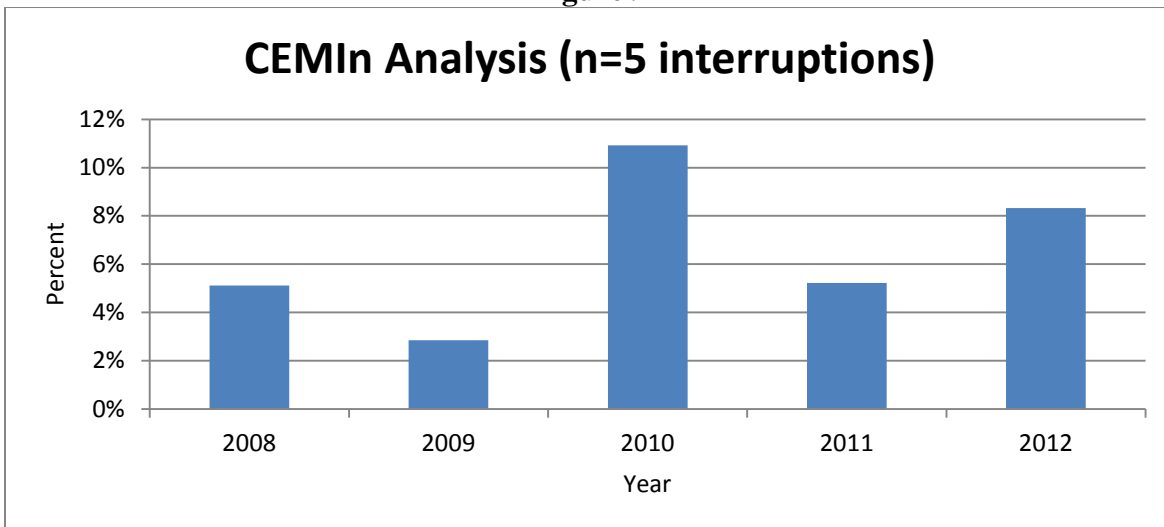
- 2. Challenges in achieving reliability:** Otter Tail has the unique challenge of delivering reliable services to its customers across a large rural service territory. Which has tremendous exposure to hazards such as vegetation, lightning, wind, and other weather related issues. Our IMS continues to provide optimized and focused deployment of our vegetation management resources to specific areas that are identified by the outage data collected within the IMS.
- 3. Measuring reliability:** Otter Tail continues to calculate the Customers Experiencing Multiple Interruptions (CEMIn) index. The CEMIn index is an excellent indicator of how system improvements directly affect customer service. Deployment of resources on worst performing circuits has direct effects on the reliability indices and customer reliability. **Figure 8** shows the CEMIn results from 2008 to 2012. This graph shows how many customers on a company-wide basis experienced seven or more interruptions. For example in 2012 the percentage of customers experiencing seven or more interruptions was 0.99 percent.

**Figure 8**



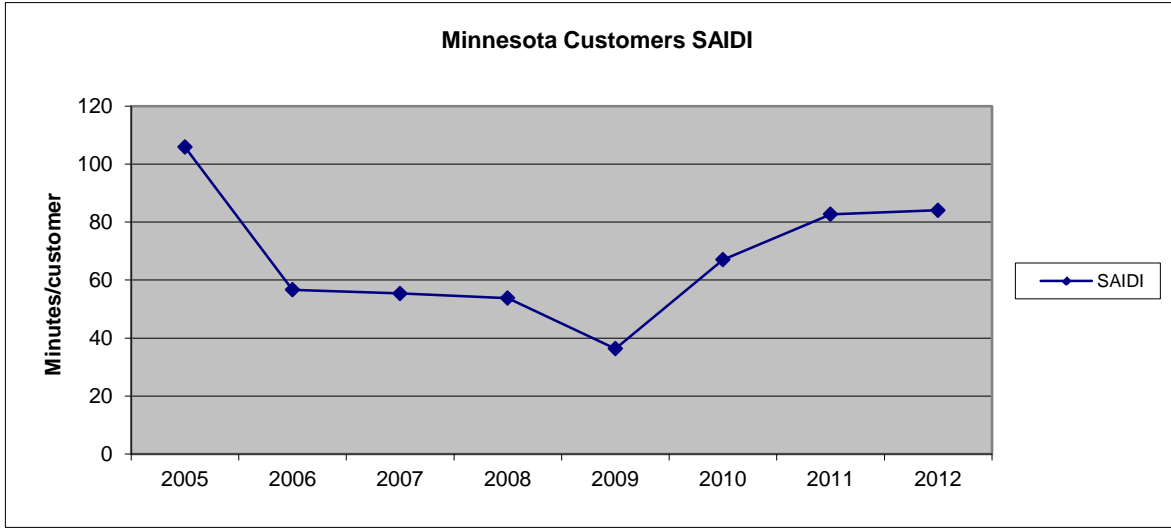
During 2012, Otter Tail began to track and analyze CEMI5 data. We believe the threshold of five allows us to better identify and consider actions to be taken to improve performance of transmission and distribution line sections. **Figure 9** below shows the percentage of customers on a company-wide basis who have experienced five or more sustained interruptions.

**Figure 9**

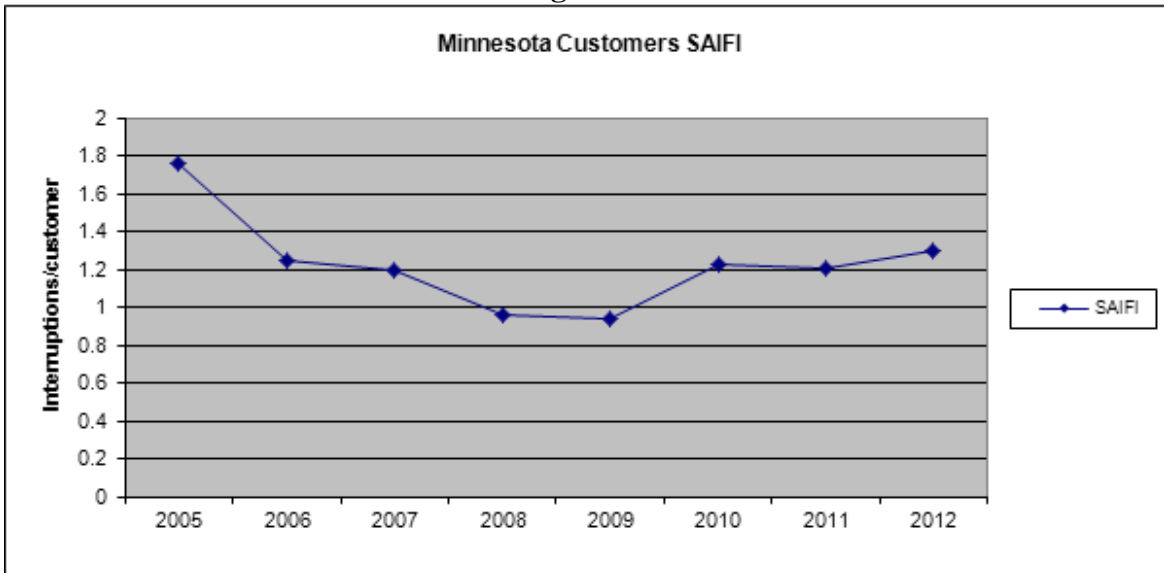


**Figures 10, 11, and 12** The following graphs show Otter Tail’s SAIDI, SAIFI and CAIDI for the period of 2005 through 2012. When compared to 2011, on a Minnesota system basis Otter Tail customers experienced a very slight increase in overall SAIDI and SAIFI and a slight decrease in CAIDI.

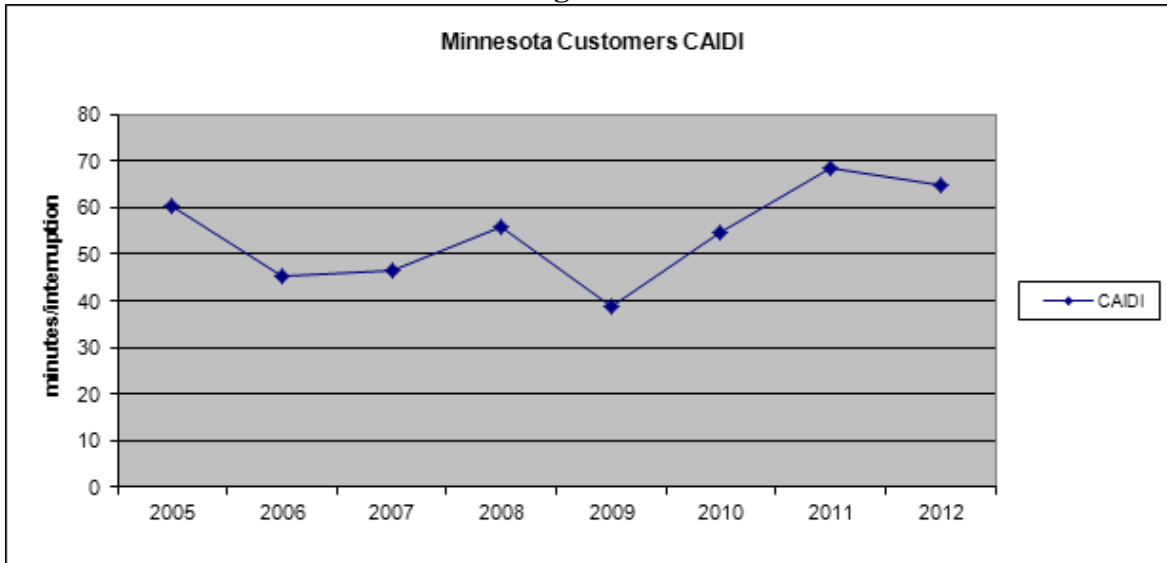
**Figure 10**



**Figure 11**



**Figure 12**



- 4. Geographic Information System (“GIS”):**  
As Otter Tail describes in its April 1, 2013 Smart Grid filing in **Docket E999/CI-08-948**, Otter Tail is in the development stages of implementation of a new GIS. Full implementation is expected to take several years. The new GIS implementation is part of Otter Tail’s efforts to enhance internal processes and utilize available technology to improve employee efficiencies. Initial GIS applications relating to reliability will include, but are not limited to vegetation management, ground line inspection, and line patrol and inspections.

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## OTTER TAIL POLICIES, PROCEDURES, AND ACTIONS

**In Compliance with the Commission's Order dated December 20, 2012 in Docket No. E017/M-12-325**, Otter Tail provides the following description of the policies, procedures, and actions that it has previously implemented, and continues to utilize to improve reliability.

The following is a list of reports that continue to be distributed internally. These reports ensure that Otter Tail employees are aware of issues in the system on a timely basis and can respond quickly to maintain and improve overall system reliability.

1. Internal Reporting:
  - a. **Weekly feeder reports:** Otter Tail publishes weekly feeder reports to area engineering and customer service staff that indicate worst performing circuits in relation to both momentary and sustained interruptions. The report classifies circuits by CSC and identifies worst performing feeders by week, month, 6-month, and one-year intervals. Area Engineering and Operations Management departments review these reports to determine what steps should be taken. Some cases require immediate action and others require a line patrol to determine the cause of an outage and the problem to be addressed. If an upgrade is required, Area Engineering will gather data and follow through with a capital budget request. The ultimate goal is to remove the worst performing circuits from future lists of reoccurring incidents.
  - b. **Monthly Transmission breaker operations report:** Otter Tail publishes and circulates to Area Engineering and CSC operations personnel on a monthly basis a list of the worst performing line sections determined by the number of circuit breaker operations. Area Engineering and Operations Management departments review these reports to determine whether any follow-up action is required. If the cause of the breaker operation is not known, a line patrol will be initiated.
  - c. **Monthly Reliability Report:** Otter Tail distributes to all transmission and distribution management and supervisors an overall summary of system performance as compared to internal KPI's. This report shows SAIDI, SAIFI, CAIDI, and MAIFI for the system, as well as CAIDI by CSC.
  - d. **Additional reporting:** Otter Tail also tracks CEMI on an annual basis and has internal KPI's that are reported and published to Otter Tail's Asset Management department.
2. Proactive Inspections and Testing:
  - a. **Field Inspections:** Otter Tail conducts several periodic patrols and inspections throughout the transmission and distribution system. Transmission substations and lines are inspected and patrolled on an annual basis and more often when issues are identified. Distribution substations are inspected for safety and equipment concerns on a periodic basis. The oil in substation transformers are sampled and tested for dissolved gas. Transformers greater than 10 MVA are tested annually and transformers less than 10 MVA are tested every three years.
  - b. **Pole integrity testing:** Otter Tail currently contracts for ground line inspections and treatment work of aged transmission poles for replacement identification. In 2008, we began inspection and treatment of distribution poles as well.



- c. **Underground Replacement:** Otter Tail continues its focus on replacing outdated and failing underground conductors. Area Engineering proactively identifies areas of concern and budgets for replacement during the following year.

Additionally, on February 4, 2013 Pursuant to the Commission's **December 20, 2012 Order in Docket No. E017/M-12-325**, Otter Tail submitted its compliance filing describing Otter Tail's action plans to address not meeting the 2011 reliability standards set by the Commission. In that filing, Otter Tail described several enhanced or new processes adopted by the Company that we believe will contribute to overall improved system reliability performance over longer periods of time. The enhanced or new processes include the following:

1. A Reliability Improvement Initiative where a cross functional group of employees meet monthly with the purpose of having a comprehensive overview and discussion of all current and ongoing issues and related factors that affect overall system reliability.
2. Implemented and enhanced processes related to tracking transmission patrol reports and maintenance activity. This will allow the Company to more effectively schedule and manage maintenance activities based on historic and current maintenance data and allow for more efficient prioritization of resources.
3. Purchased a license to use a lightning tracking system to track of lightning activity within Otter Tail's service territory. With the future enhancement of lightning tracking alert messages, in some cases this system will help reduce response times to addresses interruptions that may have been caused by lightning strikes.
4. Implemented a requirement that more detailed information regarding the primary cause of all sustained interruptions at the feeder level and above be entered into the IMS.
5. Implemented a process to graphically map interruption locations. This process consists of manually gathering all historic interruption data for worst performing line section and graphically plotting the interruption data on a map of Otter Tail's transmission lines.
6. Began a three year pilot where a sample of Otter Tail fleet vehicles has been equipped with a tracking device to provide real time geospatial information on Company vehicles.

Otter Tail believes the enhanced current processes or adopted new processes will help contribute to the cost effective improvement of the Company's overall system reliability over longer periods of time. Improvement will come through new technology, improved efficiencies, disciplined primary cause investigation and analysis, situational awareness, and attention to overall cross functional accountabilities.

## V. RELIABILITY STANDARDS 7826.0600

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### PROPOSED RELIABILITY PERFORMANCE STANDARDS

**Minnesota Rule 7826.0600, Subpart 1, requires utilities to file proposed reliability performance standards in the form of proposed numerical values for the SAIDI, SAIFI, and CAIDI for each of its work centers.** Otter Tail submits its proposed reliability standards for 2013.

For Otter Tail's 2013 reliability standards, Otter Tail proposes to use a 5-year average for SAIDI and SAIFI, and the resultant calculation for CAIDI for all CSC's that serve Minnesota customers.

Otter Tail's 5-year history of reliability results and 2013 proposed reliability standards are provided in the **Table 10** below.

**Table 10**

<b>Bemidji</b>			
	<b>SAIDI</b>	<b>SAIFI</b>	<b>CAIDI</b>
2008	71.76	1.46	49.06
2009	46.26	1.65	28.04
2010	54.5	0.99	55.01
2011	71.86	1.08	66.61
2012	108.81	1.12	97.15
<b>Five year average</b>	<b>70.64</b>	<b>1.26</b>	<b>59.1</b>
<b>2013 Proposed standards</b>	<b>70.64</b>	<b>1.26</b>	<b>56.06</b>

<b>Crookston</b>			
	<b>SAIDI</b>	<b>SAIFI</b>	<b>CAIDI</b>
2008	40.05	0.81	49.47
2009	25.75	0.78	32.91
2010	45.97	0.92	49.76
2011	94.99	1.18	80.49
2012	139.89	2.24	62.45
<b>Five year average</b>	<b>69.33</b>	<b>1.19</b>	<b>55</b>
<b>2013 Proposed standards</b>	<b>69.33</b>	<b>1.19</b>	<b>58.26</b>

<b>Fergus Falls</b>			
	<b>SAIDI</b>	<b>SAIFI</b>	<b>CAIDI</b>
2008	61.39	0.89	69.37
2009	34.25	0.74	46.05
2010	91.04	1.37	66.45
2011	93.11	1.45	64.35
2012	55.05	1.12	49.15
<b>Five year average</b>	<b>66.97</b>	<b>1.11</b>	<b>59.06</b>
<b>2013 Proposed standards</b>	<b>66.97</b>	<b>1.11</b>	<b>60.33</b>

<b>Milbank</b>			
	<b>SAIDI</b>	<b>SAIFI</b>	<b>CAIDI</b>
2008	60.57	1.58	38.27
2009	54.99	0.78	70.85
2010	105.9	3.26	32.49
2011	74.73	2.21	33.79
2012	81.25	1.26	64.48
<b>Five year average</b>	<b>75.49</b>	<b>1.82</b>	<b>48.01</b>
<b>2013 Proposed standards</b>	<b>75.49</b>	<b>1.82</b>	<b>41.48</b>

<b>Morris</b>			
	<b>SAIDI</b>	<b>SAIFI</b>	<b>CAIDI</b>
2008	43.73	0.92	47.63
2009	42.72	0.95	45.03
2010	52.74	1.27	41.6
2011	72.61	0.91	79.75
2012	67.12	1.03	65.17
<b>Five year average</b>	<b>55.78</b>	<b>1.01</b>	<b>55.88</b>
<b>2013 Proposed standards</b>	<b>55.78</b>	<b>1.01</b>	<b>55.23</b>

<b>Wahpeton</b>			
	<b>SAIDI</b>	<b>SAIFI</b>	<b>CAIDI</b>
2008	48.45	0.22	218.44
2009	29.83	0.26	114.73
2010	108.93	2.48	43.93
2011	64.59	1.65	39.11
2012	34.41	1.05	32.77
<b>Five year average</b>	<b>57.24</b>	<b>1.13</b>	<b>89.77</b>
<b>2013 Proposed standards</b>	<b>57.24</b>	<b>1.13</b>	<b>50.65</b>

<b>Minnesota System</b>			
	<b>SAIDI</b>	<b>SAIFI</b>	<b>CAIDI</b>
2008	53.78	0.96	55.86
2009	36.35	0.94	38.85
2010	67.02	1.23	54.51
2011	83.54	1.21	69
2012	84.05	1.3	64.65
<b>Five year average</b>	<b>64.95</b>	<b>1.13</b>	<b>56.58</b>
<b>2013 Proposed standards</b>	<b>64.95</b>	<b>1.13</b>	<b>57.48</b>

<b>Five year Average by CSC</b>			
	<b>SAIDI</b>	<b>SAIFI</b>	<b>CAIDI</b>
Bemidji	70.64	1.26	59.1
Crookston	69.33	1.19	55
Fergus Falls	66.97	1.11	59.06
Milbank	75.49	1.82	48.01
Morris	55.78	1.01	55.88
Wahpeton	57.24	1.13	89.77
<b>MN Total</b>	<b>65.9</b>	<b>1.25</b>	<b>52.72</b>

## VI. REPORTING METER-READING PERFORMANCE 7826.1400

**Minnesota Rule 7826.1400, Reporting Meter Reading Performance, requires utilities to provide a detailed report on the utility's meter-reading performance.** In compliance with this rule, Otter Tail provides the following for its meter reading performance for 2012.

### A. The number and percentage of customer meters ready by utility personnel.

**Table 11**

Otter Tail Power Company Meter Reading Performance  
 January 1, 2012 to December 31, 2012  
 Utility Personnel Read Meters - MN

	RESIDENTIAL	SMALL COMMERCIAL	INDUSTRIAL	TOTAL	TOTAL ESTIMATE READS	TOTAL SELF- READ	OTP System Total	% read by utility personnel
January	59,264	13,327	1,360	73,951	1,530	1,639	77,120	95.89%
February	58,921	13,358	1,358	73,637	1,724	1,521	76,882	95.78%
March	59,325	13,362	1,359	74,046	1,375	1,639	77,060	96.09%
April	58,927	13,383	1,363	73,673	1,854	1,642	77,169	95.47%
May	59,945	13,978	1,368	75,291	1,078	1,648	78,017	96.51%
June	60,535	14,031	1,358	75,924	2,111	1,654	79,689	95.28%
July	60,883	14,069	1,360	76,312	1,749	1,653	79,714	95.73%
August	61,436	14,202	1,366	77,004	1,127	1,653	79,784	96.52%
September	61,653	14,189	1,365	77,207	991	1,654	79,852	96.69%
October	60,219	14,147	1,370	75,736	1,850	1,653	79,239	95.58%
November	59,913	13,685	1,361	74,959	1,308	1,645	77,912	96.21%
December	58,935	13,549	1,374	73,858	2,217	1,646	77,721	95.03%

**B. The number and percentage of customer meters self-read by customer.**

**Table 12**

Otter Tail Power Company Meter Reading Performance  
 January 1, 2012 to December 31, 2012  
 Customer Self Read Meters - MN

	RESIDENTIAL	SMALL COMMERCIAL	INDUSTRIAL	TOTAL	OTP System Total	% read by customer
January	1,113	526	.	1,639	77,120	2.47%
February	1,006	515	.	1,521	76,882	2.76%
March	1,123	516	.	1,639	77,060	2.30%
April	1,136	506	.	1,642	77,169	2.88%
May	1,144	504	.	1,648	78,017	1.91%
June	1,147	507	.	1,654	79,689	2.98%
July	1,146	507	.	1,653	79,714	2.53%
August	1,145	508	.	1,653	79,784	1.87%
September	1,145	509	.	1,654	79,852	1.65%
October	1,143	510	.	1,653	79,239	2.76%
November	1,139	506	.	1,645	77,912	2.07%
December	1,141	505	.	1,646	77,721	3.24%

**C. The number and percentage of customer meters that have not been read by utility personnel for periods of 6 to 12 months and for periods of longer than 12 months, and an explanation as to why they have not been read.**

In 2012, Otter Tail had three small general service customers' accounts, which were not read for a period of 6-12 months. One of the small general service meters is located in the basement of a former business, in which gaining access depends on the customer's willingness to come to the business and allow the service rep access to read the meter. This arrangement has been challenging as the customer has been inflexible in meeting the service rep to gain access. The second small general service meter was removed in September 2012 as the building is only being used for cold storage. The third small general service customer has a meter inside the building, in which Otter Tail did not have access to, however in November 2012, the customer provided Otter Tail with a key therefore going forward Otter Tail will have access when necessary to read the meter. There were no meters that were not read for a time period of greater than 12 months.

**D. Data on monthly meter-reading staffing levels, by work center or geographical area.**

**Table 13**

<b>CSC</b>	<b>Title</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
Bemidji	Service Rep	6	6	6	6	6	6	6	6	6	6	6	6
Crookston	Service Rep	11	11	11	11	11	11	11	11	11	11	11	11
Fergus Falls	Service Rep	16	16	16	16	16	16	16	16	16	16	16	16
*Milbank	Service Rep	9	9	9	9	9	9	9	9	9	9	9	9
Morris	Meter Reader	1	1	1	1	1	1	1	1	1	1	1	1
	Service Rep	14	14	14	14	14	14	14	14	14	14	14	14
**Wahpeton	Service Rep	10	10	10	10	11	10	10	10	10	10	10	10
<b>Grand Total</b>		<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>68</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>	<b>67</b>

Otter Tail utilizes its Service Representatives to read its meters on a monthly basis except in the following towns where a third party reads the Company's meters:

Bemidji, MN	Battle Lake, MN	Clearbrook, MN
Campbell, MN	Climax, MN	Crookston, MN
Doran, MN	Eldred, MN	Gonvick, MN
Fergus Fall, MN	Fisher, MN	Gully, MN
Kent, MN	Frazee, MN	Clitherall, MN
Oklee, MN	Mahnomen, MN	Shevlin, MN
Solway, MN	Tenney, MN	Trail, MN
Twin Valley, MN	Ulen, MN	Vergas, MN
Vining, MN	Waubun, MN	Wilton, MN

\*The Milbank CSC serves customers in both Minnesota and South Dakota and the number of employees represents all employees for the CSC.

\*\*The Wahpeton CSC Center serves customers in Minnesota, North Dakota and South Dakota and the number of employees represents all employees for the CSC.

## VII. REPORTING INVOLUNTARY DISCONNECTIONS 7826.1500

Minnesota Rule 7826.1500, Reporting Involuntary Disconnections, requires utilities to provide a detailed report on involuntary disconnections of service. In compliance with this rule, Otter Tail provides its report of involuntary disconnections of service.

### A. Number of customers who received disconnection notices.

Table 14

<u>Month</u>	<u>Large Commercial</u>	<u>Residential</u>	<u>Small Commercial</u>	<u>Grand Total</u>
January	22	3,239	375	3,636
February	26	3,184	428	3,638
March	26	3,051	447	3,524
April	28	3,270	450	3,748
May	32	3,385	417	3,834
June	24	2,928	369	3,321
July	30	3,199	362	3,591
August	26	4,042	395	4,463
September	26	3,670	355	4,051
October	25	3,946	404	4,375
November	24	2,774	348	3,146
December	30	3,224	381	3,635
<b>Grand Total</b>	319	39,912	4,731	44,962

### B. Number of customers who sought cold weather rule protection under Minnesota Statutes §216B.096 and §216B.097 and the number who were granted cold weather rule protection.

Table 15

<u>Month</u>	<u>Customers who sought Cold Weather Rule Protection</u>	<u>Number Granted Cold Weather Protection</u>
January	455	455
February	313	313
March	213	213
April	75	75
May		
June		
July		
August		
September		
October	347	347
November	411	411
December	325	323

**C. Total number of customers whose service was disconnected involuntarily and the number of these customers restored to service within 24 hours.**

**Table 16**

<b>7826.1500 Subpart C - Customers involuntarily disconnected 2012</b>				
<b>Month</b>	<b>Customer Class</b>	<b>Disconnected For more than 24 hours</b>	<b>Service Restored within 24 hours</b>	<b>Grand Total</b>
<b>January</b>	Residential	49	57	106
	Small Commercial	4	0	4
<b>January Total</b>		<b>53</b>	<b>57</b>	<b>110</b>
<b>February</b>	Residential	65	90	155
	Small Commercial	2	1	3
<b>February Total</b>		<b>67</b>	<b>91</b>	<b>158</b>
<b>March</b>	Residential	59	80	139
	Small Commercial	1	2	3
<b>March Total</b>		<b>60</b>	<b>82</b>	<b>142</b>
<b>April</b>	Residential	65	59	124
	Small Commercial	6	1	7
<b>April Total</b>		<b>71</b>	<b>60</b>	<b>131</b>
<b>May</b>	Residential	79	72	151
	Small Commercial	4	0	4
<b>May Total</b>		<b>83</b>	<b>72</b>	<b>155</b>
<b>June</b>	Residential	72	4	76
	Small Commercial	36	2	38
<b>June Total</b>		<b>108</b>	<b>6</b>	<b>114</b>
<b>July</b>	Residential	58	26	84
	Small Commercial	2	2	4
<b>July Total</b>		<b>60</b>	<b>28</b>	<b>88</b>
<b>August</b>	Residential	94	41	135
	Small Commercial	2	2	4
<b>August Total</b>		<b>96</b>	<b>43</b>	<b>139</b>
<b>September</b>	Residential	90	42	132
	Small Commercial	9	0	9
<b>September Total</b>		<b>99</b>	<b>42</b>	<b>141</b>
<b>October</b>	Residential	62	32	94
	Small Commercial	3	4	7
<b>October Total</b>		<b>65</b>	<b>36</b>	<b>101</b>
<b>November</b>	Residential	22	16	38
	Small Commercial	2	0	2
<b>November Total</b>		<b>24</b>	<b>16</b>	<b>40</b>
<b>December</b>	Residential	30	39	69
	Small Commercial	0	0	0
<b>December Total</b>		<b>30</b>	<b>39</b>	<b>69</b>
<b>Grand Total</b>		<b>816</b>	<b>572</b>	<b>1388</b>



**D. Number of disconnected customers restored to service by entering into a payment plan.**

**Table 17**

<b>Month</b>	<b>Residential</b>	<b>Small Commercial</b>	<b>Large Commercial</b>	<b>Total</b>
<b>January</b>	3	0	0	3
<b>February</b>	4	0	0	4
<b>March</b>	9	0	0	9
<b>April</b>	0	0	0	0
<b>May</b>	0	0	0	0
<b>June</b>	1	0	0	1
<b>July</b>	0	1	0	1
<b>August</b>	2	0	0	2
<b>September</b>	3	0	0	3
<b>October</b>	2	1	0	3
<b>November</b>	2	0	0	2
<b>December</b>	3	0	0	3
<b>Totals</b>	29	2	0	31

## VIII. REPORTING SERVICE EXTENSION REQUEST RESPONSE TIMES 7826.1600

Minnesota Rule 7826.1600, Reporting Service Extension Request Response Times, requires utilities to provide a report on service extension request response times. In compliance with this rule, Otter Tail provides in Table 18 below its report of service extension request response times by customer class for each calendar month, in the following categories:

- A. The number of customers requesting service to a location not previously served by Otter Tail and the intervals between the date service was installed and the later of the in-service date requested by the customer or the date the premises were read for service.
- B. The number of customers requesting service to a location previously served by the utility but not served at the time of the request, and the intervals between the date service was installed and the later of the in-service date requested by the customer or the date the premises were ready for service.

**Table 18**

**7826.1600 - Otter Tail Power Company Service Extension Request Response Time report - 2012**

		Days	Large Commercial	Residential	Small Commercial	Grand Total
<b>January</b>	Locations not previously served	0		5	9	14
	Locations previously served	0		105	13	118
<b>January Total</b>				<b>110</b>	<b>22</b>	<b>132</b>
<b>February</b>	Locations not previously served	0		1	3	4
	Locations previously served	0		86	12	98
<b>February Total</b>				<b>87</b>	<b>15</b>	<b>102</b>
<b>March</b>	Locations not previously served	0		5	7	12
	Locations previously served	0		116	22	138
<b>March Total</b>				<b>121</b>	<b>29</b>	<b>150</b>
<b>April</b>	Locations not previously served	0	1	30	12	43
	Locations previously served	0		168	31	199
<b>April Total</b>			<b>1</b>	<b>198</b>	<b>43</b>	<b>242</b>
<b>May</b>	Locations not previously served	0		26	11	37
	Locations previously served	0	1	294	47	342
<b>May Total</b>			<b>1</b>	<b>320</b>	<b>58</b>	<b>379</b>
<b>June</b>	Locations not previously served	0	1	26	14	41
	Locations previously served	0		257	24	281
<b>June Total</b>						

<b>7826.1600 - Otter Tail Power Company Service Extension Request Response Time report - 2011</b>						
		<b>Days</b>	<b>Large Commercial</b>	<b>Residential</b>	<b>Small Commercial</b>	<b>Grand Total</b>
<b>July</b>	<b>Locations not previously served</b>	<b>0</b>	2	32	11	45
	<b>Locations previously served</b>	<b>0</b>		198	24	222
		<b>1</b>		2		2
		<b>3</b>		1		1
<b>July Total</b>			<b>2</b>	<b>233</b>	<b>35</b>	<b>270</b>
<b>August</b>	<b>Locations not previously served</b>	<b>0</b>		18	20	38
	<b>Locations previously served</b>	<b>0</b>		246	26	272
<b>August Total</b>				<b>264</b>	<b>46</b>	<b>310</b>
<b>September</b>	<b>Locations not previously served</b>	<b>0</b>		13	7	20
	<b>Locations previously served</b>	<b>0</b>		118	16	134
<b>September Total</b>				<b>131</b>	<b>23</b>	<b>154</b>
<b>October</b>	<b>Locations not previously served</b>	<b>0</b>	1	30	16	47
	<b>Locations previously served</b>	<b>0</b>	1	144	13	158
<b>October Total</b>			<b>2</b>	<b>174</b>	<b>29</b>	<b>205</b>
<b>November</b>	<b>Locations not previously served</b>	<b>0</b>		9	14	23
	<b>Locations previously served</b>	<b>0</b>	1	146	9	156
<b>November Total</b>			<b>1</b>	<b>155</b>	<b>23</b>	<b>179</b>
<b>December</b>	<b>Locations not previously served</b>	<b>0</b>	1	6	11	18
	<b>Locations previously served</b>	<b>0</b>		72	6	78
<b>December Total</b>			<b>1</b>	<b>78</b>	<b>17</b>	<b>96</b>
<b>Grand Total</b>			<b>9</b>	<b>2,154</b>	<b>378</b>	<b>2,541</b>

## IX. REPORTING CALL CENTER RESPONSE TIMES 7826.1700

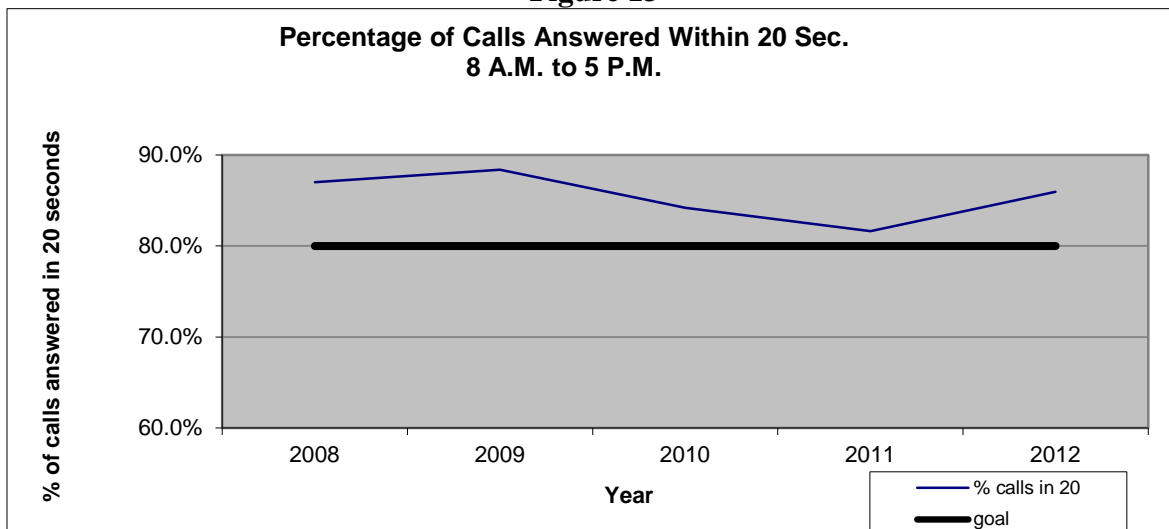
**Minnesota Rule 7826.1700, Reporting Call Center Response Times, requires utilities to provide a detailed report on call center response times, including calls to the business office and calls regarding service interruptions. The report must include a month-by-month breakdown of information.** In compliance with this rule, Otter Tail provides its report of call center response times for 2012 in **Table 19**. **Figure 13** shows a historical graph showing the percent of calls answered within 20 seconds.

**Table 19**

Month	(A) Offered	(B) Calls Abandoned	(C) Calls Answered after 20 Seconds	(D) Answered within 20 Seconds	(E) Percent Answered within 20 seconds <sup>1</sup>
January-2012	4,518	37	653	3,828	84.73%
February-2012	4,119	11	410	3,698	89.78%
March-2012	4,178	8	364	3,806	91.10%
April-2012	4,151	12	375	3,764	90.68%
May-2012	4,555	22	497	4,036	88.61%
June-2012	4,252	16	500	3,736	87.86%
July-2012	4,982	70	966	3,946	79.21%
August-2012	4,581	20	529	4,032	88.02%
September-2012	4,199	46	688	3,465	82.52%
October-2012	5,229	97	933	4,199	80.30%
November-2012	4,093	35	615	3,443	84.12%
December-2012	3,759	33	457	3,269	86.96%
Total	52,616	407	6,987	45,222	85.95%

<sup>1</sup>Column (D) / Column (A) = Percent answered within 20 Seconds

**Figure 13**



## **X. REPORTING EMERGENCY MEDICAL ACCOUNT STATUS 7826.1800**

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**Minnesota Rule 7826.1800, Reporting Emergency Medical Account Status, requires utilities to provide a report that includes the number of customers who requested emergency medical account status under Minnesota Statutes, section 216B.098 subdivision 5, the number whose applications were granted, and the number whose applications were denied and the reason for each denial.** In compliance with this rule, Otter Tail reports that during 2012, Otter Tail had 20 Minnesota customers request emergency medical account status. Otter Tail granted this status to all 20 customers.

## **XI. REPORTING CUSTOMER DEPOSITS 7826.1900**

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**Minnesota Rule 7826.1900, Reporting Customer Deposits, requires utilities to provide a report on the number of customers who were required to make a deposit as a condition of receiving service.** In compliance with this rule, Otter Tail reports that 847 customers were required to make a deposit as a condition of receiving service during 2012. The number of deposit requests decreased by 20 when compared to 2011.

## XII. REPORTING CUSTOMER COMPLAINTS 7826.2000

Minnesota Rule 7826.2000, Reporting Customer Complaints, requires utilities to provide a detailed report on complaints by customer class and calendar month. In compliance with this rule, Otter Tail provides the following information on complaints the Company received during 2012.

**A & B. The number and percentage of complaints alleging billing errors, inaccurate metering, wrongful disconnection, high bills, inadequate service, and the number involving service extension intervals, service restoration intervals, and any other identifiable subject matter involved in five percent or more of the customer complaints.**

**Table 20**

<b>Complaint Type</b>	<b>Total</b>	<b>Percent of Total</b>
Alleged billing errors	7	11%
Inaccurate metering	1	2%
Wrongful disconnection	6	10%
High bills	4	7%
Inadequate Service	4	7%
Service extension	1	2%
Service restoration	4	7%
Other	34	56%
	61	100%

\*Other – this category contains any complaints not included within the various complaint sections in our Customer information System. The types of complaints included in the “Other” category include such things as property damage, tree trimming, and area and street light issues.

**C. The number and percentage of complaints resolved upon initial inquiry, within ten days, and longer than ten days.**

**Table 21**

<b>Resolved by</b>	<b>Total</b>	<b>Percentage</b>
<b>(1) Resolved on Initial Inquiry</b>	<b>47</b>	<b>72.44%</b>
<b>(2) Resolved within 10 days</b>	<b>2</b>	<b>2.65%</b>
<b>(3) Resolved in greater than 10 days</b>	<b>12</b>	<b>24.91%</b>
<b>Total</b>	<b>61</b>	<b>100.00%</b>

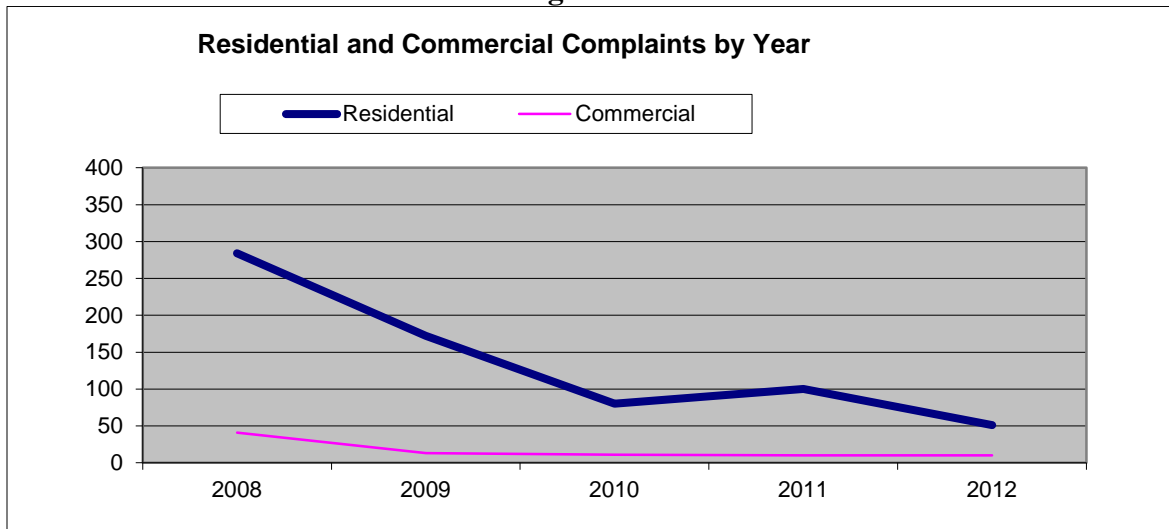
**D. The number and percentage of all complaints resolved by taking any of the following actions: (1) taking the action the customer requested; (2) taking an action the customer and the utility agree is an acceptable compromise, (3) providing the customer with information that demonstrates that the situation complained of is not reasonably within the control of the utility or (4) refusing to take the action the customer requested.**

**Table 22**

Action	Total	Percent of Total
Taking the action the customer requested	23	32.17%
Taking an action the customer and the utility agree is an acceptable compromise	14	23.57%
Providing the customer with information that demonstrates that the situation is not reasonably within the utilities control	10	15.90%
Refusing to take the action the customer requested	14	28.36%
<b>Total</b>	<b>61</b>	<b>100.00%</b>

**Figure 14** below is a graph showing complaints by customer class for the previous five years.

**Figure 14**



**E. The number of complaints forwarded to the utility by the Commission’s Customer Affairs Office for further investigation and action.**

Otter Tail received 4 customer complaints in 2012 that were forwarded from the Commission’s Consumer Affairs Office, all of which have been resolved. The number of complaints received in 2012 was unchanged when compared to 2011.

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**Otter Tail provides the following information as ordered by the Commission Order dated June 5, 2009 in Docket E999/CI-08-948.** The Commission ordering paragraph 1. A. required that beginning on April 1, 2010, and annually thereafter, utilities shall file reports on past, current, and planned smart grid projects, with a description of those projects, including: total costs, cost effectiveness, improved reliability, security, system performance, and societal benefit, with their electric service quality reports. In compliance with the Commission Order, Otter Tail provides information on Smart Grid projects in **Attachment 2**. Otter Tail also filed this report in Docket E999/CI-08-948.





Outage Reporting Fax and Email form	
Your Name:	Maureen Stay
CSC in which outage occurred :	Crookston
State where the outage occurred:	MN
Substation Name (or Bus#):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
Breaker Number (or Feeder):	South OCR 2
Number of customers that were affected?	564
Approximate outage start date/time:	<b>Date</b> <b>Time</b>
	March 23, 2012 2:18 AM
Approximate restoration date/time:	<b>Date</b> <b>Time</b>
	March 23, 2012 3:34 AM
Outage location (be specific):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
Outage cause (Give a brief description):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]

Additional Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



Outage Reporting Fax and Email form	
Your Name:	Collin Kremeier
CSC in which outage occurred :	Morris
State where the outage occurred:	MN
Substation Name (or Bus#):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
Breaker Number (or Feeder):	Appleton East Feeder
Number of customers that were affected?	742
Approximate outage start date/time:	<b>Date</b> <b>Time</b>
	June 17, 2012 8:20 PM
Approximate restoration date/time:	<b>Date</b> <b>Time</b>
	June 18, 2012 5:00 AM
Outage location (be specific):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
Outage cause (Give a brief description):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]

Additional Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



<b>Outage Reporting Fax and Email form</b>	
<b>Your Name:</b>	Tom Johnson
<b>CSC in which outage occurred :</b>	<b>Fergus Falls</b>
<b>State where the outage occurred:</b>	<b>MN</b>
<b>Substation Name (or Bus#):</b>	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
<b>Breaker Number (or Feeder):</b>	North
<b>Number of customers that were affected?</b>	549
<b>Approximate outage start date/time:</b>	<b>Date</b> <span style="float: right;"><b>Time</b></span>
	July 2, 2012 <span style="float: right;">11:58 PM</span>
<b>Approximate restoration date/time:</b>	<b>Date</b> <span style="float: right;"><b>Time</b></span>
	July 3, 2012 <span style="float: right;">3:19 AM</span>
<b>Outage location (be specific):</b>	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
<b>Outage cause (Give a brief description):</b>	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]

Additional Comments: There were a few isolated customers out of power until approx. 7:30 A.M.

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## **Fyhrie, Jessica**

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**From:** Ross, Christine  
**Sent:** Wednesday, July 04, 2012 9:52 PM  
**To:** 'consumer.puc@state.mn.us'  
**Cc:** Stay, Maureen; Kremeier, Leon; Matetich, Darren; Regulatory; Ross, Christine; Bucher, Matt; Kling, Cris; Helland, Mark; Hoff, Stephanie; Luning, Becky  
**Subject:** RE: Otter Tail Power Company Major Service Interruption notice! The outage affected approximately 6,070 in the Bemidji, Cass Lake and Wilton areas.

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

**Note re: Major Service Interruption notice for the Bemidji, Cass Lake, and Wilton MN areas.**

**Originally this outage affected approximately 6,070 in the Bemidji, Cass Lake and Wilton areas.**

**As of 9:30pm on July 4<sup>th</sup>, 2012 there are approximately 30 Bemidji customers without power and approximately 100 to 150 Cass Lake customers out of power.**

**The workers are wrapping things up for the night and plan to begin the restoration process again in the morning at 5:30am.**

**Thank you**

**Christine Ross- After-hours contact person for Bemidji/Crookston area)**

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**Subject:** Otter Tail Power Company Major Service Interruption notice! The outage affected approximately 6,070 in the Bemidji, Cass Lake and Wilton areas.

Good afternoon,

Around 7:00 p.m. on July 2, 2012, a severe storm system went through the Bemidji, Cass Lake, and Wilton areas within Otter Tail Power Company's Minnesota service territory. This storm system interrupted electric service to approximately 6,070 of Otter Tail Power Company's customers in these areas. Otter Tail Power Company has dispatched several crews and linemen to the storm affected areas and has been restoring electric service to customers as quickly as possible.

As of 4:20 p.m. on July 3, 2012, service has been restored to approximately 4,890 customers. There are currently 1,180 customers that are still without power. We anticipate electric service will be restored to the majority of the remaining customers by sometime this evening. There will be isolated customers who have damage to customer owned equipment, which will need to be fixed by an electrician before Otter Tail Power Company can restore service to these customers. We will provide updates on the restoration efforts as they become available.

**Ron Spangler Jr.**  
Rate Case Manager

## Fyhrie, Jessica

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**From:** Fyhrie, Jessica  
**Sent:** Thursday, July 12, 2012 3:44 PM  
**To:** staff, cao (PUC) (consumer.puc@state.mn.us)  
**Cc:** Regulatory; Kremeier, Collin; Erstad, Sue  
**Subject:** Otter Tail reporting major service interruptions

It has been brought to our attention that a couple of emails reporting major service interruptions from earlier this week may not have made it through to the Minnesota Public Utilities Commission's Consumer Affairs Office. After further investigation it appears that we had a little technical difficulty with the form used to report major service interruptions. We apologize for the delay in reporting these interruptions, which are described below. Please contact me if you have any questions.

**[SECURITY DATA BEGINS...**

Location:

**...SECURITY DATA ENDS]**

Date: July 8, 2012

Interruption time: 5:11pm

Cause: Osprey built a nest causing outage

Customers affected: 575

Duration of interruption: 1 hour 13 minutes

**[SECURITY DATA BEGINS...**

Location:

**...SECURITY DATA ENDS]**

Date: July 9, 2012

Interruption time: 9:18 am

Cause: Underground fault

Customers affected: 827

Duration of interruption: Otter Tail did some switching to get the customers back on but discovered by doing so caused a voltage issue, so at 10:00am Otter Tail took another outage to fix the issue, by 12:00 noon 95% of the customers were back on and service was restored to the remaining 5% by 4:00pm on July 9, 2012.

Thanks!!

Jess

**Jessica Fyhrie | Otter Tail Power Company**  
**Tariff Specialist, Tariff Application and Compliance**

| Office (218) 739-8395

| Email: [jfyhrie@otpc.com](mailto:jfyhrie@otpc.com)

This e-mail may include confidential or privileged information. If this is not intended for your use, please destroy immediately and contact the sender of this message.

## Fyhrie, Jessica

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**From:** Emery, Jana  
**Sent:** Friday, July 20, 2012 12:35 PM  
**To:** 'Consumer.Puc@state.mn.us'  
**Cc:** Regulatory  
**Subject:** Otter Tail Power Major Service Interruption Bemidji, Minnesota

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

### **[SECURITY DATA**

At 0:00:32 (32 seconds after midnight) an outage occurred which affected customers served from the **BEGINS...**  
**...SECURITY DATA ENDS].** Because of recent storm damage in the Bemidji area, extensive line patrol was done before the breaker was closed back in. The outage affected 1013 customers for 4 hours, 29 seconds.

Jana Emery  
Regulatory Filing Coordinator  
Otter Tail Power Company  
(218)739-8879  
[jemery@otpc.com](mailto:jemery@otpc.com)

**Confidentiality Notice:** *This e-mail may include confidential or privileged information. If this is not intended for your use, please destroy immediately and contact the sender of this message.*



Outage Reporting Fax and Email form	
Your Name:	Barry Peterson
CSC in which outage occurred :	Bemidji
State where the outage occurred:	MN
Substation Name (or Bus#):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
Breaker Number (or Feeder):	OCR 1 and OCR 2
Number of customers that were affected?	637
Approximate outage start date/time:	<b>Date</b> <b>Time</b>
	August 5, 2012 1:00 PM
Approximate restoration date/time:	<b>Date</b> <b>Time</b>
	August 5, 2012 2:17 PM
Outage location (be specific):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
Outage cause (Give a brief description):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]

Additional Comments: \_\_\_\_\_

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Outage Reporting Fax and Email form	
Your Name:	Maureen Stay
CSC in which outage occurred :	<b>Bemidji</b>
State where the outage occurred:	<b>MN</b>
Substation Name (or Bus#):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
Breaker Number (or Feeder):	Mall OCR #15
Number of customers that were affected?	712
Approximate outage start date/time:	<b>Date</b> <b>Time</b>
	August 12, 2012 4:27 PM
Approximate restoration date/time:	<b>Date</b> <b>Time</b>
	August 12, 2012 6:45 PM
Outage location (be specific):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
Outage cause (Give a brief description):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]

Additional Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## Fyhrie, Jessica

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**From:** Fyhrie, Jessica  
**Sent:** Monday, August 20, 2012 10:15 AM  
**To:** staff, cao (PUC) (consumer.puc@state.mn.us)  
**Cc:** Stay, Maureen; Regulatory  
**Subject:** Otter Tail Power Company Major Service Interruption notice! The outage affected 712 customers for 0 Days 1 Hours 13 Minutes.

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

**[SECURITY DATA  
BEGINS...**

**...SECURITY DATA ENDS]**

Location: **BEGINS...**  
Date: August 20, 2012  
Interruption time: 7:05 a.m.  
Cause: squirrel  
Customers affected: 712  
Duration of interruption: all service was restored by 8:18 a.m.

Please let me know if you have any questions or concerns.

Thanks!!

Jess

**Jessica Fyhrie | Otter Tail Power Company**  
Tariff Specialist, Tariff Application and Compliance

Office (218) 739-8395  
Email: [jfyhrie@otpc.com](mailto:jfyhrie@otpc.com)

This e-mail may include confidential or privileged information. If this is not intended for your use, please destroy immediately and contact the sender of this message.



Outage Reporting Fax and Email form	
Your Name:	SUZANNE ERSTAD
CSC in which outage occurred :	Fergus Falls
State where the outage occurred:	MN
Substation Name (or Bus#):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
Breaker Number (or Feeder):	OTTERTAIL - NORTH FEEDER
Number of customers that were affected?	549
Approximate outage start date/time:	<b>Date</b> <b>Time</b>
	November 7, 2012 1:33 PM
Approximate restoration date/time:	<b>Date</b> <b>Time</b>
	November 7, 2012 3:03 PM
Outage location (be specific):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]
Outage cause (Give a brief description):	[SECURITY DATA BEGINS... ...SECURITY DATA ENDS]

Additional Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION**

**Docket No. E999/CI-08-948**

**Otter Tail Power Company's  
2012 Smart Grid Investments  
and  
Information Report**

**April 1, 2013**

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## **Past, Current and Planned Smart Grid Technology at Otter Tail Power Company**

The Minnesota Public Utilities Commission (“Commission”) Order dated June 5, 2009, in Docket No. E999/CI-08-948 included the following requirement at ordering paragraph 1.A.:

“Beginning on April 1, 2010 and annually thereafter, utilities shall file reports on past, current, and planned smart grid projects, with a description of those projects, including: total costs, cost effectiveness, improved reliability, security, system performance, and societal benefit, with their electric service quality reports.”

In the same Order the Commission adopted the following definition of smart grid:

“A Smart Grid encompasses information and control technology to improve the reliability, security, and efficiency of the electric grid. A smart grid allows deployment and integration of distributed and renewable resources, “smart” consumer devices, automated systems, and electricity storage and peak-shaving technologies.”

Otter Tail Power Company (“Otter Tail” or “the Company”) has used technology to improve employee productivity and customer service for many years. Smart grid investments occur in many aspects of the Company’s work. Otter Tail’s philosophy supports the smart grid concept, as stated in the Company’s mission:

*“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
- Protective Relaying
- Power Profiler
- Interruption Monitoring System
- Mobile Data Pilot Project
- Bill Analyzer
- Opower Energy Reporting
- Fleet Tracking
- Geographic Information System (GIS)

### **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 1980's 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, commercial demand control, and irrigation systems.

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. Because it was originally designed to reduce winter capacity needs and Otter Tail is now participating in MISO, which is summer peaking the RDC rate is under evaluation.

Otter Tail has nearly 40,700 meters installed associated with demand response tariffs and has demonstrated over 100 MW of control during the coldest days in the winter, or approximately 12-15 percent of the Company's on peak capacity needs. Winter demand response total capacity is based on the load management system tests and varies by month and season. Otter Tail accredited through MISO 90 MW of demand response capacity for January and 15 MW of demand response capacity for the 2012 summer season, June through September. Otter Tail's internal costs directly related to marketing and sales to grow demand response participation are approximately \$1 million each 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 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 a customer based on when electricity is used and or controlled. Table 1 below presents the rates, tariff sections, and average number of customers by state currently provided by Otter Tail. As shown, there are on average 1,135 customers on Time of Use Rates and 713 of these are Minnesota customers.

<b>Table 1</b>						
<b>Time of Use 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>
General Service Time-of-Use	10.03 MN, SD; 10.04 ND	41	1	0	42	3rd revision dated 1974
Large General Service - Time of Day	10.05	27	1	3	31	1981
Standby Service - Option A Firm	11.01	0	1	0	1	1993
Irrigation Service	11.02	198	34	11	243	1994
Real Time Pricing Rider	14.02	0	1	0	1	1978
Fixed Time of Delivery Service	14.07	447	297	73	817	1996
<b>Total Time of Use</b>		<b>713</b>	<b>335</b>	<b>87</b>	<b>1,135</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 average number of customers by state that are participating for each tariff. Otter Tail’s direct control demand response consists of 40,679 average customers across the Company’s service territory, of which 18,870 are in Minnesota.

The Company received approval of the commercial air conditioning cycling option associated with the Air Conditioning Control Rider in Minnesota and began rollout in 2012. The Company

has also contracted with National Economic Research Associates (NERA) to conduct an evaluation of our existing interruptible portfolio and to recommend new rates measured from the perspective of measured load relief in the context of the change from a winter peak to a summer peak focus. Results of the study are anticipated in second quarter 2013.

<b>Table 2</b>						
<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	8,646	6,539	2,276	17,461	Before 1970 – with subsequent revisions
Controlled Service, Interruptible Load, CT Metering Rider (“Large Dual Fuel”)	14.04	196	274	30	500	1980s – with subsequent revisions
Controlled Service, Interruptible Load, Self Contained Metering Rider (“Small Dual Fuel”)	14.05	5,959	6,780	920	13,659	
Controlled Service Deferred Load Rider (“Thermal Storage”)	14.06	834	702	180	1,716	
Residential Service-Controlled Demand	9.02	2,409	3,496	429	6,334	
Air Conditioning Control Rider	14.08	825	117	67	1,009	2006
<b>Total Direct Control</b>		<b>18,869</b>	<b>17,908</b>	<b>3,902</b>	<b>40,679</b>	<b>NA</b>

### **Electricity Meters**

As of December 31, 2012, Otter Tail had 169,827 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 which 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 which 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.



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 450 meters that are read remotely and, of these, 103 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 2012 was \$101,965 for equipment, 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. Otter Tail has no Advanced Metering Infrastructure (“AMI”) or two-way capable meters. The Company has been actively investigating AMR/AMI technology and evaluating the potential costs and benefits of a system wide investment.

<b>Table 3</b>		
<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	450	.26%
AMR – drive or walk by (mobile)	60	.04%
Manually read meters	169,317	99.70%
Total Meters	169,827	100%

**Protective Relaying**

The first “smart” protective relays were developed and installed in the mid 1980’s. Otter Tail was involved with the first installation on high voltage transmission lines of the devices designed by Schweitzer Engineering Labs (“SEL”). These devices provided system data during faults, giving personnel information on fault location. The SEL relays also provide sub-cycle information about the fault that enables engineers to review the fault record and evaluate whether the relay tripped the breaker properly. This information is used by the Company’s System Operations department to isolate the faulted line section quickly and reduce outage duration on the Company’s transmission system.

Before the use of the SEL fault locating relays, each time a line tripped, it required a long process of switching and re-energizing the line section by section to determine which section of the transmission line experienced the fault.

The technology used for remote communication to protective relays in Otter Tail's substations has improved greatly since the mid 1980's, allowing advance monitoring of the transmission grid by Otter Tail and the Midwest Independent System Operator ("MISO").

Otter Tail has been participating in the North American SynchroPhasor initiative by installing special relays and related communications in one substation in 2010, two substations in 2011, and five substations in 2012. This reliability project is being coordinated by MISO for the region. Otter Tail incurred costs of \$208,000 in 2012 and will continue with the initiative in 2013 by installing equipment at six more substations. These costs were reimbursed to Otter Tail by the Department of Energy through MISO's coordination.

Synchrophasors are precise grid measurements now available from monitors called Phasor Measurement Units ("PMU"). PMU measurements are taken at high speed, typically 30 observations per second compared to one observation every four seconds using conventional technology. Each measurement is time-stamped according to a common time reference. Time stamping allows synchrophasors from different utilities to be time-aligned (or "synchronized") and combined together providing a precise and comprehensive view of the entire interconnection. Synchrophasors enable a better indication of grid stress and can be used to trigger corrective actions to maintain reliability.

### **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 \$9,500 for 2012.

### **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 725 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 (GPRS and 1XRTT).

Web based analysis and application tools allow reporting, alarm notifications and graphical status updates. As of 2012, all service representatives receive interruption alarms when feeders they are responsible for, experience an outage. Otter Tail's reliability engineer uses the IMS for reporting reliability indices and for further analysis as he works with the Company's Area Engineers to propose projects to improve reliability. These devices are also utilized for power quality analysis at some of Otter Tail's industrial and commercial customer locations to aid in the investigation of power quality issues and allow for alarm notifications to be sent directly to customers.

In 2009 Otter Tail added a graphical mapping tool which integrates IMS data with Google mapping on which each feeder is shown as a black dot. The dot changes to red when an interruption occurs, yellow for a momentary interruption that has been restored, and green for a sustained interruption that has been restored. This tool has provided an overall view of the status of the Otter Tail system in real time.

The Google mapping is available for use by front line customer service employees along with management and engineering employees who have found this information helpful in response to customer interruption questions and for restoration of service.

Otter Tail has since completed work on a project that provides interruption information to all customers on Otter Tail's web site. After working closely with the vendor to finalize details necessary to ensure the product operates as intended, Otter Tail made the interruption information available to customers in the first quarter of 2011.

Operating costs associated with the IMS for 2012 were for maintenance and communications. Maintenance dollars dealt with the replacement of defective devices. Costs totaled \$105,000 and are detailed below:

2012 IMS Maintenance:	\$40,000
2012 IMS Communications:	\$65,000

### **Mobile Data Pilot Project**

In mid-2008, Otter Tail began a Mobile Data Pilot Project to a few field Service Representatives in the Milbank Customer Service area ("CSC") and in 2009 this pilot was expanded to a few Service Representatives in the Morris CSC. In 2010 Otter Tail completed the roll out of the Mobile Data System to the entire service territory to allow Service Representatives to directly access needed information in ways that they have not had the opportunity before.

The goal of this project is to improve productivity and efficiency while enhancing customer satisfaction by providing Service Representatives with “real time” information with the use of a mobile computer in Company vehicles.

In 2013, we’ll be looking for ways to enhance the technology (hardware) that our Service Representatives are using. We have been piloting the use of a Smartphone in one of our locations and will be reviewing the possibility of combining that technology with a tablet, essentially replacing the current laptop with these two technologies. The Smartphone would give our Service Representatives even quicker access to e-mail, which in turn allows them to better manage their workload by providing quicker access to their service orders. In addition to the quick access to e-mail, the Smartphones are providing other tools previously unavailable to the Service Representatives, such as voice recognition for completion of orders, GPS capability for the eventual roll-out of a geographic information system, and quick access to the internet, to name a few. The potential inclusion of a tablet would also give the Service Representatives an even more portable device than the laptops currently are, aiding with efficiency.

Data available from the Mobile Data System will include:

- Company email
- Customer Information Systems (the Company’s billing system)
- Customer Service Guide
- Load management real time control information
- Interruption monitoring system
- Ability to display and update maps and prints of Otter Tail’s electrical system
- Otter Tail Power Company website
- Bill Analyzer, and other on-line tools

Another potential step that may occur in the near future is a similar roll-out of our mobile data system to our field crews. We are currently piloting laptops in crew vehicles in our Bemidji Customer Service Center and those individuals have indicated some positive feedback, namely with the ability to quickly retrieve system mapping information online, giving them the most updated maps available.

### **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.

Home 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.

In 2010 and again in 2012 Otter Tail contracted with Integral Analytics to conduct measurement and verification of energy savings associated with Bill Analyzer usage. The 2010 evaluation indicated that Bill Analyzer saved an average 296 kWh's 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's per participant or approximately 3 percent of their energy use.

The Bill Analyzer program was part of the Company's Minnesota Conservation Improvement Program Energy Feedback Pilot for 2011-2013. Bill Analyzer and Opower (discussed in section XI. below) are included in the Energy Feedback Program portfolio with a combined cost of \$322,019 for 2012 through CIP. The 2013 CIP budget for Bill Analyzer and Opower is \$391,400.

### **Opower Energy Reporting**

Otter Tail has contracted with Opower to procure its patented Home Energy Reporting System for use with Minnesota residential customers as a part of a pilot program included in the company's CIP portfolio. The Home Energy Reporting System is a vetted energy efficiency program that leverages large-scale consumer engagement to drive measurable, predictable, and sustainable demand reduction.

The Home Energy Reporting System is based on a software platform that combines energy usage data with customer demographic, housing, and geographic information data to benchmark energy use and develop specific, targeted recommendations that educate and motivate consumers to reduce their energy consumption.

Home Energy Reports are delivered through direct mail to selected residential customers. The reports provide specific, personalized, evaluative information and recommendations to motivate recipients to reduce their energy consumption.

Otter Tail sent out the first reports to customers in June of 2011. In 2012 a total of 28,286 Minnesota residential customers received reports. Results for 2012 showed energy savings of 163 kWh per participant household.

The Opower project is part of the Company's Minnesota Conservation Improvement Program for 2013. Bill Analyzer (see Bill Analyzer section above) and Opower are included in the Energy Feedback Pilot program with a combined budget of \$391,400 for 2013.

### **Fleet Tracking**

Otter Tail owns many vehicles that are used by employees for the purposes of servicing our electrical system. A sample group of these vehicles have been equipped with a fleet tracking device as part of a three year pilot project to provide real time geospatial information on Company vehicles. Vehicles selected for the pilot included some vehicles that are assigned to Otter Tail field meter technicians, communications specialists, and electrical technicians. Overall, 27 vehicles (19 in Minnesota) have been upgraded with this capability for purposes of the pilot study.

The Company anticipates that fleet tracking will enhance reliability by assisting in dispatch decisions to optimize the Company's responses to service interruptions. Fleet tracking will also enhance safety by providing the ability to know the current location and identification of staff when they are in the field working on Otter Tail's electrical system. The ability to track Company vehicles is also an additional tool for managers to manage staff, decrease operation and maintenance expenses, and optimize work allocation. Otter Tail will continue to evaluate the benefits, challenges, and usefulness of the fleet tracking service over the course of the pilot project. Upon successful pilot completion, the Company will look to expand the implementation of fleet tracking throughout the system and integrate it with several key activities and systems at Otter Tail, specifically:

- System operations' dispatch activities,
- A potential outage management system,
- The evolving GIS, and
- Customer service applications for premise visits.

### **Geographic Information System (GIS)**

Otter Tail is in the process of developing a Geographic Information System to track and manage Company assets. In 2012, the Company pursued converting nearly 4,000 maps from an AutoCAD format to GIS and the conversion of these maps was completed in January 2013. Also in 2012, Otter Tail developed applications in anticipation of a fully developed GIS for use in future ground line inspections, line patrols, and vegetation management activities. These GIS development activities in 2012 cost \$170,352. Mapping services from the GIS are expected to be published for Company use in the first half of 2013 and will displace the previous CAD mapping service.

The goal of the GIS is to enhance communication with employees and customers, leverage existing data systems to track and manage the Company's assets more efficiently, and provide geo-spatial information of the Company's assets along with related attributes and detail. The GIS will ultimately provide a single, interactive map for asset information thereby eliminating inefficiencies related to having information in disparate locations. Because maps will be electronic and linked to the GIS, data will be more current than the existing paper maps.

Spatial business intelligence through the GIS is expected to provide a platform for data management, strategic planning and analysis, and engineering and operational support. Longer-term, the Company envisions the GIS as a foundational tool for automating work flow management, distribution automation and outage management, and providing enhanced situational awareness.

For 2013, the new GIS will be improved to identify and track eligible units of property for every circuit for use in tax reporting.

## CERTIFICATE OF SERVICE

**RE: In the Matter of Otter Tail Power Company 2012 Annual Safety, Reliability and Service Quality Report and Proposed SAIFI, SAIDI and CAIDI Reliability Standards for 2013**  
**Docket No. E017/M-13-\_\_\_**

I, Jana Emery, hereby certify that I have this day served a copy of the following, or a summary thereof, on Dr. Burl W. Haar 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  
Annual Report**

Dated this **1st** day of **April, 2013**

/s/ JANA EMERY  
Jana Emery  
Regulatory Filing Coordinator  
Otter Tail Power Company  
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