

Minnesota Public Utilities Commission
Staff Briefing Papers

Meeting Date: **December 4, 2014***Agenda Item #7

Companies: Otter Tail Power Company

Docket No. E017/M-14-279

In the Matter of Otter Tail Power Company's ("Otter Tail") 2013 Annual Safety, Reliability, Service Quality Report, and Proposed Annual Reliability Standards for 2014.

Issues: Should the Commission Accept Otter Tail's Safety, Reliability, Service Quality Reports for 2013 and Its Proposed Annual Reliability Standards for 2014?

Should the Commission accept Otter Tail's proposed annual reliability standards for 2014?

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Relevant Documents

Commission Order Approving Reports,
Setting 2013 Reliability Standards, and
Setting Filing Requirements Docket No. E017/M-13-253 January 13, 2014

Otter Tail Power's Initial Filing
2013 Safety, Reliability and Service Quality
Standards Report and Proposed
SAIFI, SAIDI, and CAIDI Indices for 2013..... April 1, 2014

Comments of the Minnesota Department of Commerce
Division of Energy Resources. July 8, 2014

Reply Comments Otter Tail Power Company. July 17, 2014

Reply Comments Otter Tail Power Company - Amended.July 18, 2014

The attached materials are workpapers of the Commission Staff. They are intended for use by the Public Utilities Commission and are based upon information already in the record unless noted otherwise.

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Statement of the Issues

Should the Commission accept Otter Tail's Safety, Reliability, and Service Quality Reports for 2013?

Should the Commission accept Otter Tail's proposed annual reliability standards for 2014?

Background

Minnesota Statute §216B.029, Standards for Distribution Utilities stipulates that the Commission shall adopt standards for safety, reliability, and service quality for distribution utilities.

Minnesota Rules Chapter 7826 were developed as a means for the Commission to establish safety, reliability, and service quality standards for electric distribution utilities and to monitor the performance of each utility as measured against those standards. There are three main annual reporting requirements set forth in the rule. These are:

1. The annual safety report (Minnesota Rules Part 7826.0400);
2. The annual reliability report (Minnesota Rules Parts 7826.0500, subp.1 and 7826.0600, subp. 1); and
3. The annual service quality report (Minnesota Rules Part 7826.1300).

These rules became effective on January 28, 2003. On April 1, 2013, Otter Tail filed its annual Electric Safety, Reliability, and Service Quality Performance Report and its request for approval of proposed reliability standards.

Reliability Report

Minnesota Rules part 7826.0500 require Otter Tail's reliability report to include, among other requirements:

- A. the utility's SAIDI for the calendar year, by work center and for its assigned service area as a whole;
- B. the utility's SAIFI for the calendar year, by work center and for its assigned service area as a whole;
- C. the utility's CAIDI for the calendar year, by work center and for its assigned service area as a whole;
- D. an explanation of how the utility normalizes its reliability data to account for major storms; and

- E. an action plan for remedying any failure to comply with the reliability standards set forth in part 7826.0600 or an explanation as to why noncompliance was unavoidable under the circumstances.

Recognizing that not all utilities would have the complete information required by the rules available for the first year the reports were due on April 1, 2003, the rules allowed for more limited initial reporting requirements. Utilities were required to file historical data and proposed reliability standards for SAIDI, SAIFI, and CAIDI, and the Commission established performance standards based on those initial reports.

Reliability Definitions:

SAIDI means the System Average Interruption Duration Index and measures the average customer minutes of interruptions per customer. It is derived by dividing the annual sum of customer minutes of interruption by the average number of customers served during the year.

$$\text{SAIDI} = \text{Total Customer Minutes of Sustained Outages} \div \text{Number of Customers}$$

SAIFI means the System Average Interruption Frequency Index and measures the average number of interruptions per customer per year. It is derived by dividing the total annual number of customer interruptions by the average number of customers served during the year.

$$\text{SAIFI} = \text{Total Number of Sustained Customer Interruptions} \div \text{Number of Customers}$$

CAIDI means Customer Average Interruption Duration Index and is measured by the average customer minutes of interruption per customer interruption. It approximates the average length of time required to complete service restoration.

$$\text{CAIDI} = \text{Total Customer Minutes of Sustained Outages} \div \text{Total number of Sustained Customer Interruptions} = \text{SAIDI} \div \text{SAIFI}$$

Interruption means an interruption of electricity service to a customer greater than five minutes in duration.

Major Service Interruption means an interruption of service at the feeder level or above and affecting 500 or more customers for one or more hours.

Storm-normalized data means data that has been adjusted to neutralize the effects of outages due to major storms.

Since 2003, the Commission has adopted measures to make the annual reports more comprehensive and useful for the Commission and the utilities. Staff has been focused especially on measures that will lead to improved service quality and reliability and that will allow improvements to be monitored.

On January 13, 2014, in Docket No. E-002/M-13-253, the Commission ordered, in regard to the reliability report due April 1, 2013, that Otter Tail shall include:

- a. a description of the policies, procedures, and actions that it has implemented, and plans to implement, to assure reliability, including information demonstrating proactive management of the system as a whole, increased reliability, and active contingency planning.
- b. 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.
- c. a report on the major causes of outages for major event days.

The Department's July 8, 2014 comments provide a thorough summary and analysis of Otter Tail's filing, most of which will not be repeated here. Staff will focus primarily on the Reliability portion of Otter Tail's report.

In its January 13, 2014 Order, the Commission set Otter Tail's 2013 reliability standards at the following levels:

Work Center	SAIDI	SAIFI	CAIDI
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

Otter Tail's reliability report provided the following information regarding Otter Tail's 2013 reliability performance:

Customer Service Center	SAIDI		SAIFI		CAIDI	
	Standard	Performance	Standard	Performance	Standard	Performance
Bemidji	70.64	90.57	1.26	1.11	56.06	81.43
Crookston	69.33	37.60	1.19	0.58	58.26	65.24
Fergus Falls	66.97	108.98	1.11	1.29	60.33	84.29
Milbank	75.29	127.03	1.82	0.74	41.48	170.94
Morris	55.78	117.51	1.01	1.44	55.23	81.33
Wahpeton	57.24	45.24	1.13	1.28	50.65	35.88
MN Total	64.95	93.51	1.13	1.16	57.48	80.86

When compared to 2012, Otter Tail's 2013 Minnesota reliability performance realized an improvement in its SAIFI. SAIDI and CAIDI both saw increases for the year. In 2013, Otter Tail's Minnesota customers experienced 301 sustained interruptions, compared to 384 in 2012, thus supporting the improvement in our frequency indices. The June 20-22, 2013 weather events had very large impact on the Company's year-end results and narrowly missed exclusion during the application of the 2.5 Beta Storm Normalization Process. Reliable service is a top priority of the Company and improvements in reliability will happen over longer periods of time and must be done cost effectively.

The results for 2013 reveal that Bemidji, Fergus Falls, Milbank, and Morris customer Service centers (CSC) did not meet the 2013 SAIDI reliability standards set by the Commission. In addition, the Fergus Falls CSC was the only CSC to not meet the 2013 SAIFI reliability standards set by the Commission. Also, Otter Tail pointed out that Bemidji, Crookston, Milbank, and Morris CSC did not meet the 2013 CAIDI reliability standards set by the Commission.

Otter Tail reported the following in regard to outages and weather related outages for each work station as follows:

Work Station	Number of Interruptions	Interruptions Related to Weather	Percent of Interruptions-Weather Related
Bemidji	50	4	8.00%
Crookston	42	4	9.52%
Fergus Falls	84	36	42.85%
Milbank	6	6	100.00%
Morris	112	62	55.35%
Wahpeton	6	4	66.67%
Total	300	116	38.67%

Storm Normalization Methodology

Back 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).

Action Plan to Improve Reliability

OTP provided detailed information regarding its failure to meet the two-thirds of its 2013 reliability goals. The Company missed goals in all six work centers, or customer service centers (CSCs), three of which were hit with severe or extreme weather conditions. Specifically, OTP's Fergus Falls CSC, Milbank CSC, and Morris CSC were all hit by several bands of bad weather June 20-22 that brought 70 mph winds, two-inch diameter hail, and six inches of rain. Some transformers failed for various reasons including lightning strikes. In one instance, an underground feeder failed. Overall, OTP stated that the Company's failure to meet its goals was due to events outside of its control. As to feeder issues, the Company discussed the operational changes made or are being considered, to address them.

Commission Consideration of OTTER TAIL's Proposed 2014 Reliability Standards

Both Otter Tail and the DOC agree to set Otter Tail's performance standards for 2014 SAIDI, SAIFI, and CAIDI at the 2013 levels previously established for Otter Tail.

Work Center	SAIDI	SAIFI	CAIDI
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
MN Total	64.95	1.13	57.48

DOC

As noted above, the Department provided a thorough summary and analysis of Otter Tail's Electric Safety, Reliability and Service Quality Performance Report and Petition. First, OTP did not have trouble meeting the majority of its goals until 2010. In fact, most of the Company's goals were generally trending downward (becoming harder to achieve) until 2010. Second, there has been slight improvement in 2012 performance over 2010 and 2011. In 2012, Otter Tail met nine out of eighteen of its goals, or 50 percent, including all of its goals in the Fergus Falls and Wahpeton CSCs.¹ The 2012 improvement was not maintained in 2013. As noted above, OTP indicated that its failure to achieve its 2013 reliability goals was primarily due to weather and other issues out of its control.

OTP's proposed goals for SAIDI, SAIFI, and CAIDI are based on 5-year average performance levels. While OTP's proposed 2014 goals are generally higher (easier to achieve) than 2013 goals,

¹ Since 2006, OTP has met 55% of its standards. This compares to 37% for IPL, 73% for MP, 58% for NWECC, and 57% for Xcel over similar periods.

the proposed goals would still exert pressure on the Company to perform better, in general, than it did in 2013. However due to OTP's declining performance trend over the last several years, OTP's goals have been set each year at levels that have been easier to achieve, all else equal, and thus the ability of goals set at the 5- year average to put pressure on the Company to improve performance has diminished.

As such, the Department recommends that the Company's goals be frozen at the 2013 levels until performance improves.

Otter Tail Reply

Otter Tail emphasizes the importance of reliable service throughout the organization. Recognizing the number of reliability indices that were not met in 2013 and considering reliability performance in recent years, Otter Tail has continued to add processes to track and improve reliability. These efforts have been effective and will continue to improve reliability. The sensitivity of reliability results to a particular storm event highlighted by considering the outages that occurred over June 20-22, 2013.

The west central and southwest central Minnesota portion of Otter Tail's service territory experienced several bands of bad weather from June 20-22 that had a significant impact to Otter Tail's reliability indices. These weather systems saw 70 mph winds, 2 inch diameter hail, and left parts of the region with six inches of rain. Back-to-back storms delivered a one-two punch that allowed enough time for only partial restoration. These storm systems caused 47 SAIDI minutes in 2013. Consequently, although these weather events caused significant outages, the events did not meet the criteria of the IEEE 2.5 beta method to be excluded as a major event day. Otter Tail offers Table 1 which illustrates the impact the June 20-22 weather system had on the Company's reliability indices. Had the weather system on June 20-22 been excluded, Otter Tail would have met fourteen of the eighteen reliability indices for 2013 instead of just six. Such results would impact the trends that may not otherwise reflect the efforts undertaken.

To be clear, Otter Tail is not requesting to depart from applying the IEEE 2.5 beta method or to have these days excluded from the 2013 results, and Otter Tail accepts the Department's recommendation to set Otter Tail's 2014 SAIFI, SAIDI and CAIDI Standards at the 2013 levels. This information and analysis is provided to deliver additional perspective and demonstrate that the 2013 results do not indicate a lack of effort to improve reliability performance. The Company is taking effective steps to achieve improved reliability.

Staff Analysis

Staff appreciates the effort by Otter Tail in its 2013 Annual Safety, Reliability and Service Quality Reports which continues to provide informative data that promotes focused decision making as it relates to reliability. Staff believes that Otter Tail's April 1, 2014 filing of its Safety, Reliability, and Service Quality Reports for 2013 complies with the applicable rules and Commission Orders.

The DOC examined all the factors required by the rules. Staff will concentrate its comments on the

reliability factors. Staff believes the DOC did an outstanding job in analyzing and reviewing the information contained in the submitted annual reports and will not repeat those efforts here. Staff concurs with the findings by DOC.

The purpose of the reliability statues is to assure the Commission that reasonable standards of reliability performance are being properly measured and maintained. Further, since the reliability reporting is a relatively new reporting requirement, it is incumbent upon each utility to report the required data in a format that is consistent, from one reporting year to the next.

When Minnesota Rules, Chapter 7826 first went into effect in 2003, the Commission recognized that utilities would not have complete information to implement performance standards. The Commission required utilities to file historical data in regard to SAIDI, SAIFI, and CAIDI, and the Commission established performance standards based on those initial reports. Staff agrees that using a five year rolling average provided a useful baseline of information for the reports.

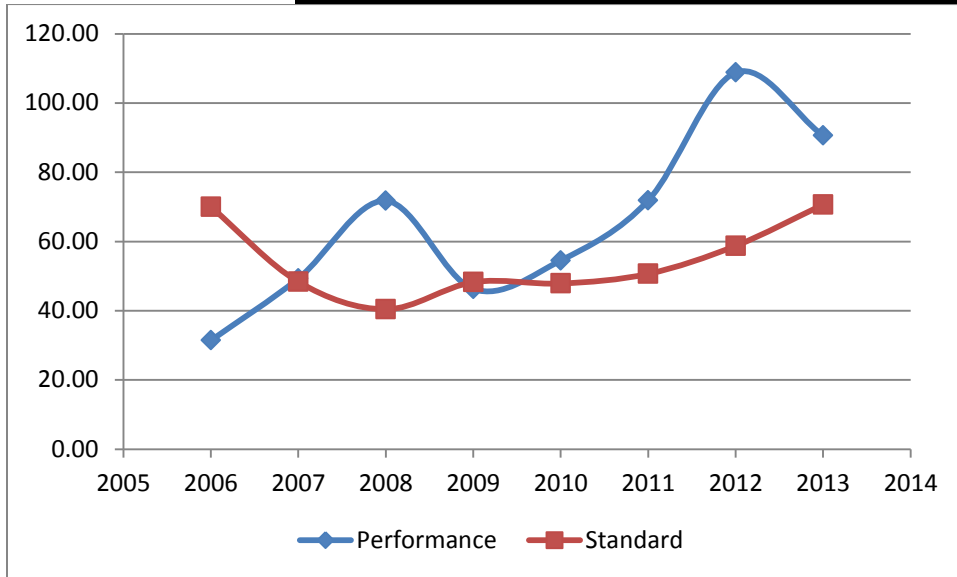
DOC recommended and Otter Tail agreed that the Commission adopt the following for 2014 reliability standards:

Work Center	SAIDI	SAIFI	CAIDI
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
MN Total	64.95	1.13	57.48

OTP's Past Performance

Staff has compiled the graphs below which depict Otter Tail's past performance versus standards since 2006 for the Bemidji CSC:

Bemidji CSC SAIDI Performance and Standards



The Bemidji CSC experienced 52 sustained interruptions in 2013, resulting in a SAIDI of 90.6 minutes compared to the goal of 70.64. The greatest impact to SAIDI results in the Bemidji CSC were due to a bypass disconnect failure, on May 23rd, at the Bemidji 25th Street Substation. This one event caused twelve sustained interruptions impacting 4829 customers.

The graphs below depict Otter Tail’s past performance versus standards since 2006 for the Crookston CSC:

Crookston CSC SAIDI Performance and Standards



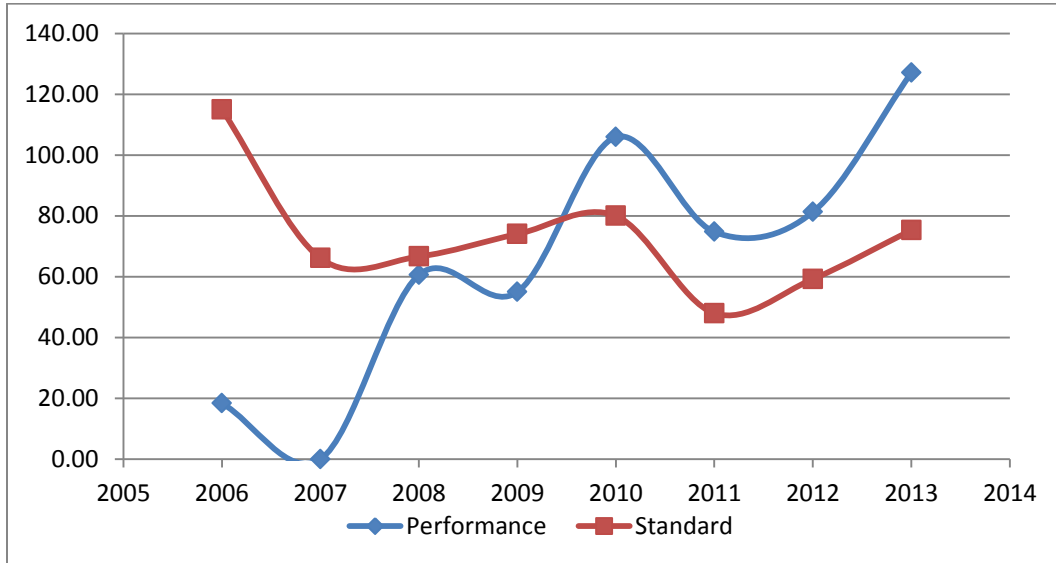
The Crookston CSC significantly beat the SAIDI standard set by the Commission by approximately 33 minutes.

Fergus Falls CSC SAIDI Performance and Standards



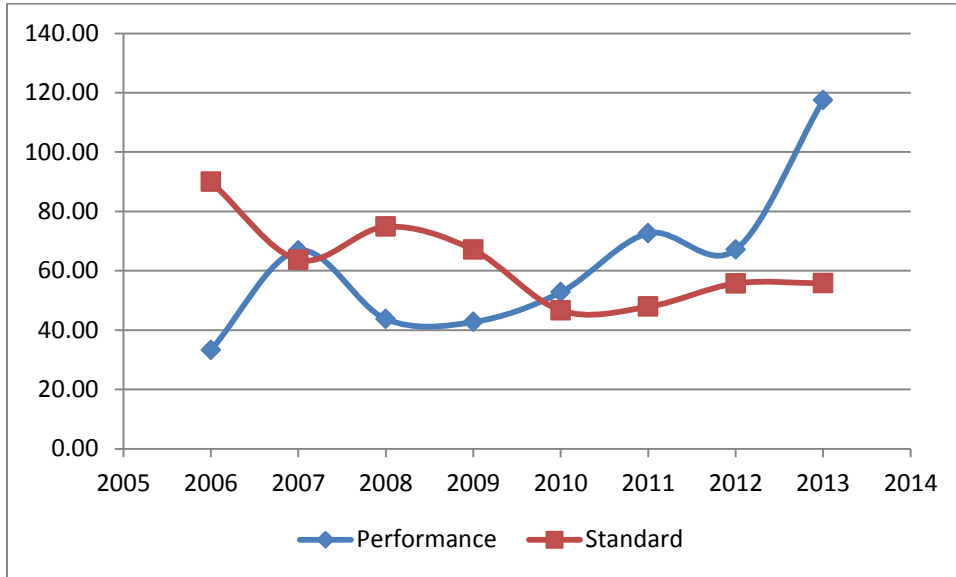
The Fergus Falls CSC experienced 85 sustained interruptions in 2013 resulting in a SAIDI of 109 minutes compared to the goal of 67. Of the interruptions, 29 were due to several bands of bad weather that west central and southwest central Minnesota experienced June 20 – 22. These weather systems saw 70 mph winds, 2 inch diameter hail, and left parts of the region with six inches of rain. These storm systems caused 47 SAIDI minutes in 2013. Another high impact event occurred on November 27, when the Battle Lake Town Substation caught on fire, causing five sustained interruptions, impacting 1138 customers.

Milbank CSC SAIDI Performance and Standard



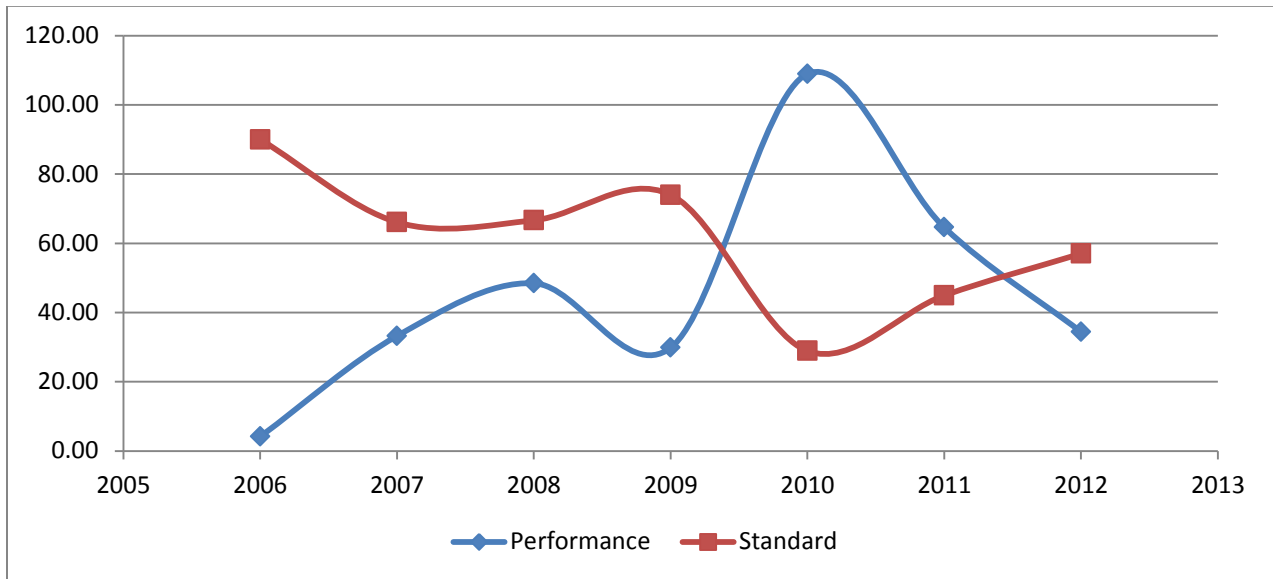
The Milbank CSC experienced six sustained interruptions in 2013, all occurring on June 21st. These interruptions were due to the same storm system that hit the Fergus Falls CSC as described above. This one event pushed SAIDI results for Minnesota customers served out of the Milbank CSC, to 127 minutes, compared to a target of 75.5 minutes. This event caused severe damage to both distribution and transmission systems in the area. There were no other sustained interruptions occurring in 2013 that impacted Minnesota customers within the Milbank CSC.

Morris CSC SAIDI Performance and Standard



The Morris CSC experienced 115 sustained interruptions in 2013, resulting in a SAIDI of 117.5 minutes compared to a goal of 56 minutes. The severe storm systems on June 21st, described above, accounted for 42 of these interruptions. These storms left nine towns without power in the early morning and by noon crews had restored power to most towns. Later that day, another severe storm system took out a major portion of transmission in the area, leaving 27 towns without power. Overall, the storm events on June 21st contributed 73 minutes towards SAIDI results.

Wahpeton CSC SAIDI Performance and Standard



In 2013, Otter Tail beat the performance standard by 12 minutes in the Wahpeton CSC.

Commission Options

- I. Whether the Commission should accept Otter Tail’s Reports on 2013 Results?
 - A. Accept Otter Tail’s April 1, 2014 safety, reliability and service quality reports, as complying with Minn. Rules, Chapter 7826 and relevant Commission orders.
 - B. Do not accept Otter Tail’s April 1, 2014 safety, reliability and service quality reports, as complying with Minn. Rules, Chapter 7826 and relevant Commission orders.

II. Whether the Commission should Accept Otter Tail's proposed reliability standards for 2013?

- A. Accept the 2014 reliability standards recommended by the DOC and agreed upon by Otter Tail to freeze the standards at the 2013 levels indicated below:

Work Center	SAIDI	SAIFI	CAIDI
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
MN Total	64.95	1.13	57.48

- B. Accept the reliability standard originally proposed by Otter Tail for 2014.

III. Additional Issues for Reports due April 1, 2015

The Commission could adopt all, some, or none of the following:

- A. Continue to require Otter Tail to augment their next filing to include a description of the policies, procedures and actions that it has implemented, and plans to implement, to assure reliability, including information on how it is demonstrating pro-active management of the system as a whole, increased reliability and active contingency planning;
- B. Continue to require Otter Tail to incorporate into 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;
- C. Continue to require Otter Tail to report on the major causes of outages for major event days.

Recommendation

Staff recommends I A, II A, III A, B, and C.