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May 1, 2025

Mr. Steve Kahl  
Director of Administration/Executive Secretary  
North Dakota Public Service Commission  
600 East Boulevard, Dept. 408  
Bismarck, ND 58505-0480

**PUBLIC DOCUMENT – NOT  
NOT PUBLIC (OR PRIVILEGED)  
DATA HAS BEEN EXCISED**

**Re: In the Matter of Otter Tail Power Company’s Reliability Report and  
Major Service Interruption Summary  
Case No. PU-25-  
Annual Report**

Dear Mr. Kahl:

Otter Tail Power Company (Otter Tail Power) submits this Annual Report pursuant to ND Admin. Code § 69-09-02-06, Subd. 5 and 6. This Annual Report presents our North Dakota reliability statistics for the year 2024 and includes a breakdown of our major event day as defined and identified statistically by Otter Tail Power. 2024 reporting is from our new Outage Management System (OMS) implemented in December of 2022, instead of our Interruption Monitoring System (IMS) utilized for our last two annual reliability reports. The OMS records interruptions at the customer level unlike the IMS which recorded at the feeder level.

The Institute of Electrical and Electronics Engineers (IEEE) standard 1366 indices describe system average interruption frequency index (SAIFI), system average interruption duration index (SAIDI), and customer average interruption duration index (CAIDI). State and customer service center (normalized) results are shown later in this report. All interruptions (non-normalized) utilized in the indices calculations are included in the attached Excel spreadsheet (Attachment 1).

Also included is Otter Tail Power’s Major Service Interruption Summary (Attachment 2) that has been provided to the Commission since 2005.

1 PU-25-177 Filed 05/01/2025 Pages: 6  
2024 Reliability Report and Major Service  
Interruption Summary - Redacted

Otter Tail Power Company  
Rod Jensen, P.E. Senior Reliability Engr

## **Otter Tail Power Company's Reliability Monitoring Process**

As indicated, Otter Tail Power utilizes our OMS for 2024 reporting. This system utilizes Interactive Voice Response (IVR) call-in data from customers to record interruption location, size, and restoration status. The OMS records interruptions at the customer level unlike our last two reports showing data at the feeder level.

Otter Tail Power has upgraded and continues to improve its reliability monitoring processes. In addition to our OMS implementation, Otter Tail Power continues to implement Advanced Metering Infrastructure (AMI) and OMS integration throughout the system with completion planned in 2025. With these reliability monitoring improvements, Otter Tail Power captures more interruption data than our past system, thus impacting our IEEE indices reported, i.e. SAIDI, SAIFI, CAIDI. These indices have and will continue to show increases in reporting indices due to increased granularity. Momentary average interruption duration index (MAIFI) is not included in our 2024 report and will not be available until our 2025 report as a result of our AMI implementation.

These changes in 2024 and future indices increases will not be a sign of decreasing reliability observed by customers, rather, the increase in interruption data will better assist Otter Tail Power engineering and operations staff as they look to use the information to inform future reliability improvement investment decisions.

## **Otter Tail Power Company's Interruption Normalization Process**

As discussed above, Otter Tail Power previously utilized an Interruption Monitoring System (IMS) for our previous two annual reliability reports. The IMS incorporated the IEEE 2.5 beta method process to normalize reliability data as it had the required data history (4+ years) to calculate the major event day (MED) threshold. Our OMS does not have adequate history, thus, a statistical look at the data available was conducted. For 2024 interruption normalization, Otter Tail Power identified ten minutes as the major event day (MED) threshold. In the future, when sufficient annual history is acquired, Otter Tail Power will utilize the IEEE 2.5 Beta process for interruption normalization.

After applying the MED of ten minutes for 2024 across Otter Tail Power's system, one day met the criteria to be considered a MED, October 5, 2024.

- On October 5, 2024, Otter Tail Power experienced a severe weather event in North Dakota involving strong winds, 50-60 mph, with gusts more than 75 mph. Subsequent interruptions, due to equipment damage, trees in the lines, etc. resulted in 13.9 minutes of SAIDI in the entire system. This weather event impacted predominantly Otter Tail Power's North Dakota customers only. Rugby and Devils Lake customer service centers (CSC) accounted for over 1.6 million customer minutes.

Below is a table showing 2024 North Dakota Normalized results for the state and our four Customer Service Centers along with Otter Tail Power's Key Performance Indicator Goals for our entire service territory. For a complete view of all 2024 interruptions, customers impacted, and their durations, see the Attachment 1 spreadsheet (non-normalized included).

**2024 Normalized results**

2024 State/Customer Service Center	ASAI <sup>1</sup> *	CAIDI	SAIDI	SAIFI
ND CSC Total	99.9731	119.199	141.664	1.1885
Devils Lake	99.9759623	123.0940451	126.688222	1.02919839
Jamestown	99.9763184	108.7867569	124.811381	1.1473029
Rugby	99.9773714	98.28596313	119.261457	1.21341277
Wahpeton	99.9685467	130.1877474	165.771003	1.27332242
2024 OTP System KPI Goals	NA	108.5	155.08	1.43

*\*ASAI – Average Service Availability Index*

**Major Service Interruption Summary**

In August 2005, Otter Tail Power agreed to provide the North Dakota Public Service Commission with service interruption information that entailed interruptions within North Dakota affecting 500 or more customers for one hour or longer. Starting in 2022, we are including this annual summary of these reported events with our Annual Reliability Report rather than submitting it in a separate informational filing.

In 2024, there were 14 events that met the reporting criteria described above or were considered significant enough to be reported. Each event is described in Otter Tail Power's Major Service Interruption Summary included with this filing as Attachment 2.

An electronic copy of this filing is being sent to the North Dakota Public Service Commission at [ndpsc@nd.gov](mailto:ndpsc@nd.gov).

If you have any questions regarding this filing, please contact me at 218-739-8552 or at [rjensen@otpc.com](mailto:rjensen@otpc.com).

Sincerely,

/s/ ROD D. JENSEN, P.E.  
Rod D. Jensen, P.E.  
Senior Reliability Engineer

lcd  
Enclosures

[PROTECTED DATA BEGINS...]

Attachment 1  
is CONFIDENTIAL  
in its Entirety

...PROTECTED DATA ENDS]

## Major Service Interruption - Annual Summary (Outage Report) 2024 Report

### Background

In August 2005, Otter Tail Power Company (Otter Tail Power) agreed to provide the North Dakota Public Service Commission with service interruption information that entailed interruptions within North Dakota (ND) affecting 500 or more customers for one hour or more.

Event	Location	Customers	Start Time	End Time	Duration	Cause
1	Casselton	289	01/07/2024 06:41	01/07/2024 08:31	1:49:53	A broken wire between Casselton and Amenia.
	Davenport	142	01/07/2024 06:41	01/07/2024 07:46	1:05:14	
	Casselton	22	01/07/2024 06:41	01/07/2024 10:03	3:22:08	
	Casselton	304	01/07/2024 06:41	01/07/2024 08:30	1:49:37	
	Amenia	70	01/07/2024 06:41	01/07/2024 09:59	3:18:15	
2	Calvin	130	02/08/2024 13:17	02/08/2024 15:13	1:55:36	Ice buildup on lines paired with wind during a storm caused the outages.
	Rock Lake	501	02/08/2024 13:17	02/08/2024 15:13	1:55:39	
	Bisbee	2	02/08/2024 13:17	02/08/2024 15:13	1:55:31	
	Bisbee	1	02/08/2024 13:17	02/08/2024 15:13	1:55:28	
	Olmstead	1	02/08/2024 13:17	02/08/2024 15:13	1:55:26	
3	Fort Totten	6	03/03/2024 18:47	03/03/2024 22:06	3:18:59	Caused by phases slapping together due to fifty mph high winds. No equipment repair was needed.
	Fort Totten	42	03/03/2024 18:47	03/03/2024 20:25	1:38:04	
	Sheyenne	3	03/03/2024 18:47	03/03/2024 22:38	3:50:25	
	Sheyenne	190	03/03/2024 18:47	03/03/2024 22:38	3:50:13	
	St. Michaels	28	03/03/2024 18:47	03/03/2024 20:26	1:28:03	
	New Rockford	355	03/03/2024 18:47	03/03/2024 20:06	1:18:11	
	New Rockford	569	03/03/2024 18:48	03/03/2024 20:06	1:18:03	
New Rockford	145	03/03/2024 18:48	03/03/2024 20:06	1:18:00		
4	Jamestown	639	03/09/2024 18:07	03/09/2024 19:58	1:50:39	Cable fault.
5	Garrison	892	03/14/2024 07:41	03/14/2024 11:31	3:50:11	Planned outage to repair a pole on the main line that had been damaged by fire.
	Garrison	1	03/14/2024 07:41	03/14/2024 09:44	2:03:20	
6	Milnor	554	04/15/2024 08:30	04/15/2024 10:31	2:00:45	Broken arrestor laying on the metal cross arm. Due to rain it went to ground and opened the breaker at the substation.
7	Glenburn	340	04/17/2024 21:29	04/17/2024 22:31	1:02:03	Due to high winds, an insulator broke causing a pole to be damaged.
	Lansford	217	04/17/2024 21:29	04/17/2024 22:31	1:02:06	
7	Berlin	29	04/26/2024 00:50	04/26/2024 02:21	1:31:27	Broken switch handle that fell against the phase.
	LaMoure	522	04/26/2024 00:50	04/26/2024 01:59	1:09:40	
	Verona	92	04/26/2024 00:50	04/26/2024 02:00	1:04:40	
8	Surrey	552	05/31/2024 11:43	05/31/2024 12:49	1:06:02	Unknown.
	Deering	89	05/31/2024 11:43	05/31/2024 12:49	1:06:02	
9	Jamestown	572	06/18/2024 00:50	06/18/2024 02:05	1:15:25	Failure of arrestors due to lightning from the storm that went through the area.
	Jamestown	1116	06/18/2024 00:50	06/18/2024 02:05	1:15:24	
10	Gwinner	531	09/03/2024 01:40	09/03/2024 06:08	4:28:00	Rotted tree came down on the line which caused breakers to open all the way back to the substation.
11	Bottineau	664	09/19/2024 13:35	09/19/2024 15:05	1:29:15	Boom of a crane truck caught a main feeder line. The impact took down several lines and a power pole.

Event	Location	Customers	Start Time	End Time	Duration	Cause
12	Harvey	529	10/05/2024 16:56	10/05/2024 18:00	1:04:46	Trees on the lines due to strong winds in the area.
13	Rogers	48	10/05/2024 15:33	10/05/2024 16:43	1:10:32	A wire came down between Cooperstown and Binford due to the strong winds in the area.
	Dazey	21	10/05/2024 15:33	10/05/2024 16:43	1:10:30	
	Binford	166	10/05/2024 15:33	10/05/2024 17:28	1:55:51	
	Shepard	12	10/05/2024 15:33	10/05/2024 16:43	1:10:40	
	Walum	113	10/05/2024 15:33	10/05/2024 16:43	1:10:31	
	Cooperstown	537	10/05/2024 15:33	10/05/2024 16:43	1:10:34	
	Walum	113	10/05/2024 15:33	10/05/2024 16:43	1:10:31	
14	Rolla	544	10/30/2024 04:06	10/30/2024 08:00	3:53:22	Planned outage to change out a broken pole.