



*A Division of MDU Resources Group, Inc.*

400 North Fourth Street  
Bismarck, ND 58501  
(701) 222-7900

February 22, 2018

Mr. Will Rosquist  
Utility Division  
Montana Public Service Commission  
1701 Prospect Avenue  
Helena, MT 59620

RE: Annual Electric Reliability Report-2017  
ARM 38.5.8619

Dear Mr. Rosquist:

Montana-Dakota Utilities Co., a Division of MDU Resources Group, Inc. herewith submits an original and ten copies of its Annual Report of Montana Electric Reliability Indices pursuant to ARM 38.5.8619.

The Reliability Indices provided in this report include the System Average Interruption Frequency Index (SAIFI), the System Average Interruption Duration Index (SAIDI) and the Customer Average Interruption Duration Index (CAIDI) for the state of Montana and by major district served by Montana-Dakota in Montana for calendar year 2017. Historical data for calendar years 2016 and 2015 is also included. All indices in this report include outage data for both the distribution system and the transmission system and the SAIDI and CAIDI indices are reported in minutes.

A graphical presentation of the SAIFI, SAIDI and CAIDI indices for 2015-2017 is provided in Attachment A, pages 1 and 2 with a categorization of the causes associated with service interruptions in 2015 through 2017 shown on Attachment A, page 3.

A comparison of all outages by cause is provided in Attachment A, page 3. The increase in 2017 is attributed to an increase in planned outages on the transmission system associated with tree trimming activities, transformer and regulator replacements and other maintenance activities. There was an increase in distribution planned outages as well for maintenance activity however, the distribution outages affected very few customers and only for a short period of time. The increases in the other category is a result of more accurate reporting by region personnel. Wildlife and vehicle related outages also increased in 2017.

Montana-Dakota's system did experience five storms in the Glendive district and one storm in the Wolf Point district that were classified as major storm events in 2017 where more than 10% of a major town's circuits were affected. The storm related outages in the Glendive district occurred on 3/7, 5/15, 6/24, 7/10, and 8/31 with the duration of the outages ranging from 11 minutes to up to 4 hours and 31 minutes. The Wolf Point district's one major storm event

occurred on 3/7/17, with a duration of 2 hours and 17 minutes. An explanation of storm related outages not classified as major storm events is provided in Attachment B, page 2.

Please contact me with any questions regarding this report

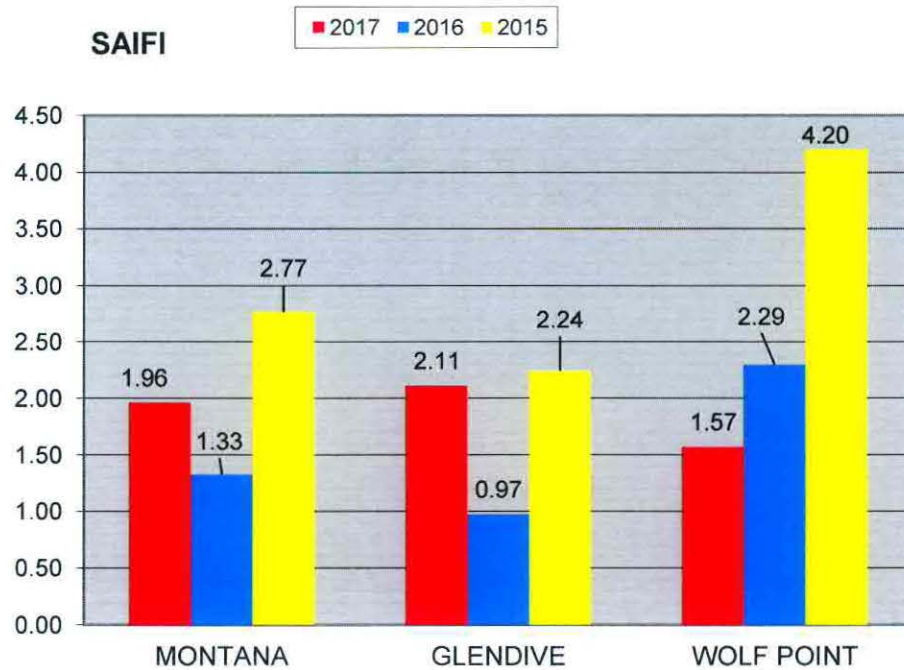
Sincerely,

A handwritten signature in dark ink, appearing to read "Tamie A. Aberle". The signature is fluid and cursive, with the first name "Tamie" being the most prominent part.

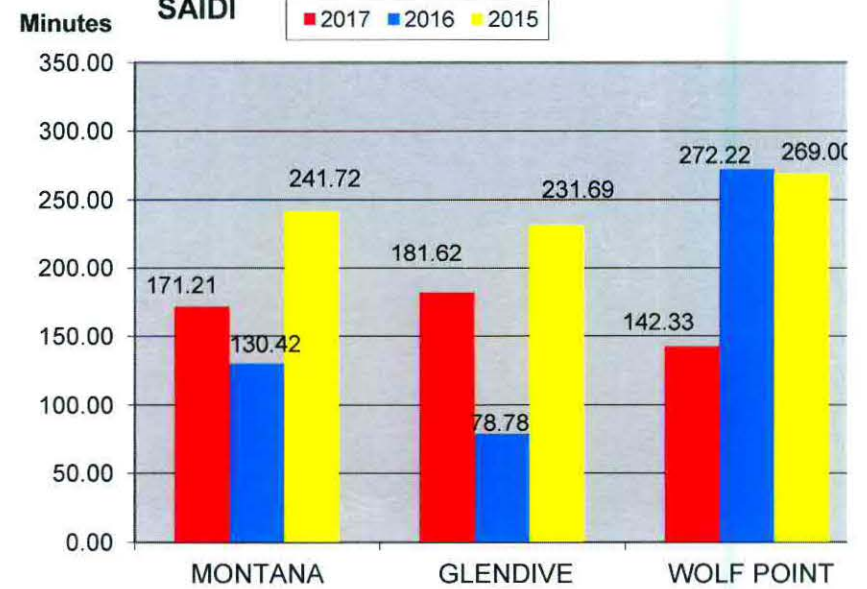
Tamie A. Aberle  
Director of Regulatory Affairs

**MONTANA-DAKOTA UTILITIES CO.  
RELIABILITY INDEX WITH IDENTIFIED STORM EVENT(S)  
ELECTRIC UTILITY-MONTANA  
2015-2017**

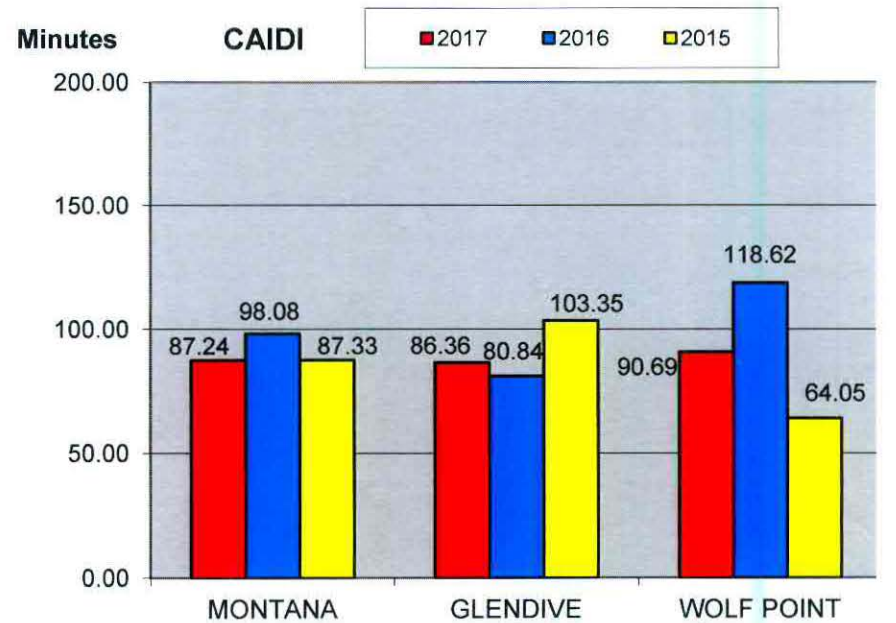
**SAIFI**



**SAIDI**



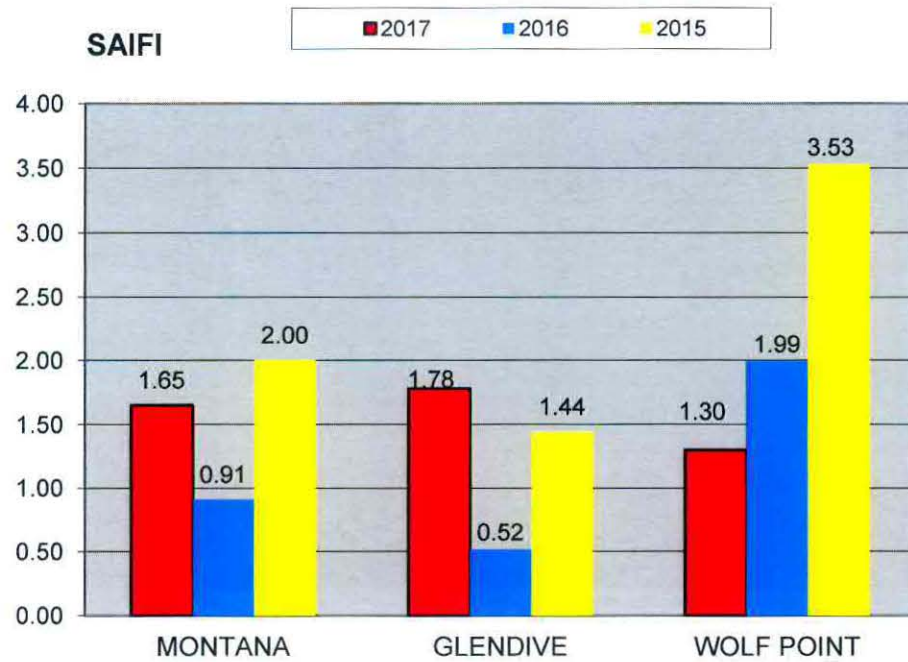
**CAIDI**



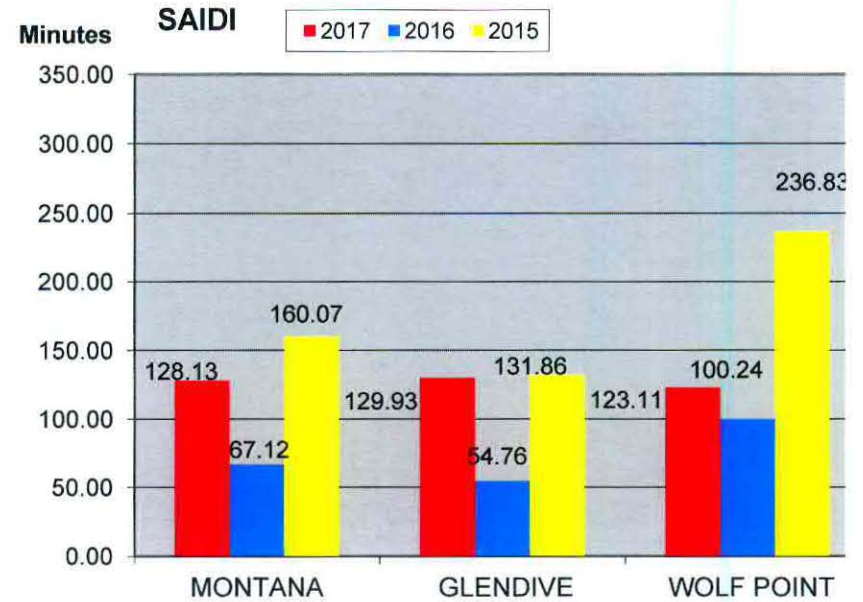


**MONTANA-DAKOTA UTILITIES CO.  
RELIABILITY INDEX WITHOUT IDENTIFIED STORM EVENT(S)  
ELECTRIC UTILITY-MONTANA  
2015-2017**

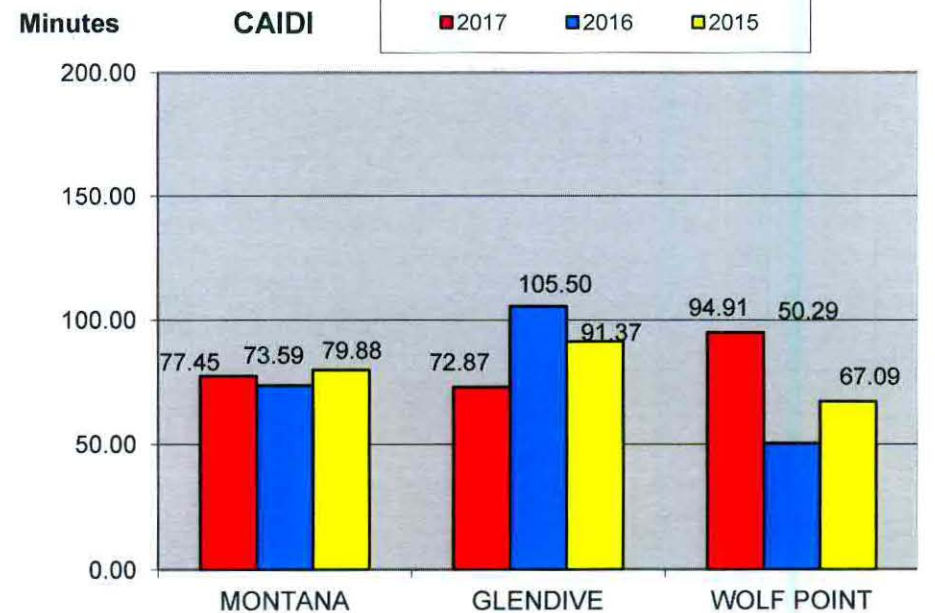
**SAIFI**



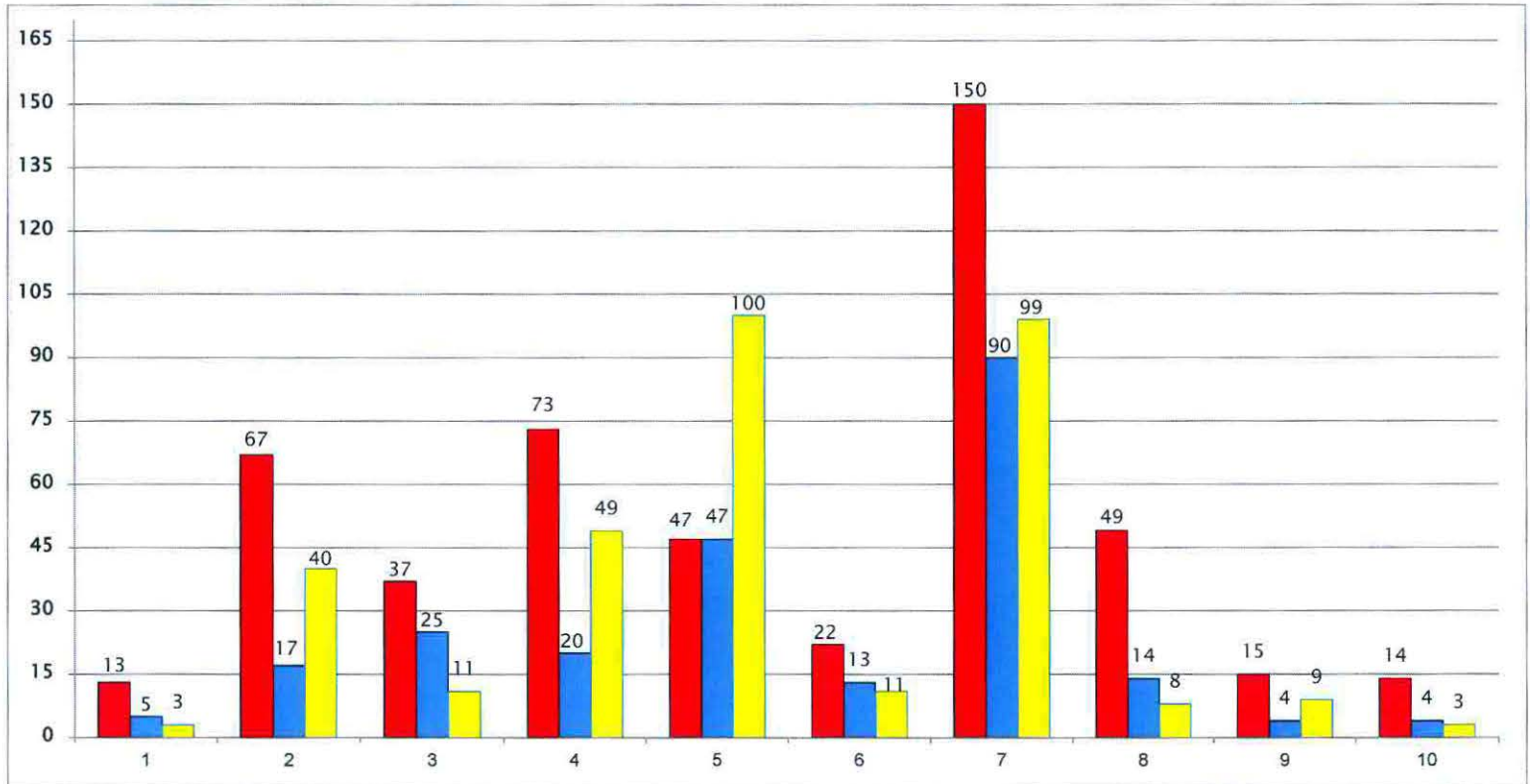
**SAIDI**



**CAIDI**



**MONTANA-DAKOTA UTILITIES CO.  
ELECTRIC UTILITY MONTANA  
OUTAGES BY CAUSE  
2015-2017**



**Distribution and Transmission Outages:**

	2017	2016	2015
1) Customer	13	5	3
2) Equipment	67	17	40
3) Other	37	25	11
4) Planned	73	20	49
5) Storms	47	47	100
6) Trees/Vegetation	22	13	11
7) Unknown	150	90	99
8) Wildlife	49	14	8
9) Vehicle Collision	15	4	9
10) Improper Construction/Dig In	14	4	3
	487	239	333

**MONTANA-DAKOTA UTILITIES CO.  
ANNUAL ELECTRIC RELIABILITY REPORT-MONTANA  
CALENDAR YEAR 2017  
MONTANA RULE 38.5.8619**

	<b>Montana</b>			<b>Glendive District</b>			<b>Wolf Point District</b>		
<b>Reliability Index with Identified Storm Event(s)</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>
SAIFI (System Average Interruption Frequency Index)	1.96	1.33	2.77	2.11	0.97	2.24	1.57	2.29	4.20
SAIDI (System Average Interruption Duration Index)	171.21	130.42	241.72	181.62	78.78	231.70	142.33	272.22	269.00
CAIDI (Customer Average Interruption Duration Index)	87.24	98.08	87.33	62.47	80.84	103.35	90.69	118.62	64.06

	<b>Montana</b>			<b>Glendive District</b>			<b>Wolf Point District</b>		
<b>Reliability Index-Without Identified Storm Event(s)</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>
SAIFI (System Average Interruption Frequency Index)	1.65	0.91	2.00	1.78	0.52	1.44	1.30	1.99	3.53
SAIDI (System Average Interruption Duration Index)	128.13	67.12	160.07	129.93	54.76	131.86	123.11	100.24	236.83
CAIDI (Customer Average Interruption Duration Index)	77.45	73.59	79.88	72.87	105.50	91.38	94.91	50.29	67.09

**Outages caused by Major Storms/Events:**

**Glendive District: Five storms classified as major storm events in 2017**

1. On 3/7/17 affecting 556 customers in Fairview, MT for approximately 2 hours.
2. On 5/15/17 affecting 469 customers in Wibaux and Phillip for approximately 11 minutes.
3. On 6/24/17 affecting 202 customers in Savage and Fletcher for 30 minutes.
4. On 7/10/17 affecting 870 customers in Miles City for 2 hours.
5. On 8/31/17 affecting 1829 Sidney customers for 1 hour and 41 minutes, and 1768 customers where affected for 4 hours and 31 minutes.

**Wolf Point District: One storm classified as a major storm event in 2017**

1. On 3/7/17 affecting 239 customers in Bainville and 651 Culbertson customers for 2 hours and 17 minutes.

Montana-Dakota Utilities Co.  
Electric Utility – Montana  
Outage Data Information  
2017

The following storm outages, while not classified as a major storm events by definition, did affect reliability indices in calendar year 2017.

Specific storm related outages on the transmission system not classified as a major storm event affecting distribution substations included:

Baker-Pine B

- 7/16/17-Storm related weather and wind

Baker-Fertile PR

- 7/16/17-Storm related weather and wind

Baker-Gas City

- 7/16/17-Storm related weather and wind

Forsyth – Rosebud

- 4/21/17-Storm related weather and wind

Miles City – Rosebud

- 4/21/17-Storm related weather and wind

Plentywood-Poplar

- 8/8/17-Storm related weather and wind