

MONTANA-DAKOTA UTILITIES CO.

Before the Public Service Commission of North Dakota

Docket No. PU-22\_\_\_\_

Direct Testimony

Of

Daryl Anderson

1 **Q. Please state your name and business address.**

2 A. My name is Daryl Anderson and my business address is 400 North  
3 Fourth Street, Bismarck, North Dakota 58501.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am the Director of Electric Distribution Services for Montana-  
6 Dakota Utilities Co. (Montana-Dakota).

7 **Q. Please describe your duties and responsibilities with Montana-**  
8 **Dakota.**

9 A. My responsibilities include oversight and management of the  
10 electric distribution operations and engineering support services, including  
11 electric operations systems, metering, engineering systems, and electric  
12 distribution standards and procedures.

13 **Q. Please outline your educational and professional background.**

14 A. I hold an Associated Science Degree in Engineering from Minot

1 State College and a Bachelor of Science in Electrical and Electronics  
2 Engineering from North Dakota State University. My work experience at  
3 Montana-Dakota includes six years as an Electrical Engineer working at  
4 various District locations, twelve years working as the Electric  
5 Superintendent in the Rocky Mountain Region, and seven years as the  
6 Director of Distribution Engineering with both gas and electric utility  
7 responsibilities. I assumed my current position in 2015. Prior to my work  
8 at Montana-Dakota I worked five and a half years as an Electric Engineer  
9 for a combination gas and electric utility located in Iowa.

10 **Q. Have you testified in other proceedings before regulatory bodies?**

11 A. Yes, I have testified before the Wyoming and Montana Public  
12 Service Commissions.

13 **Q. What is the purpose of your testimony?**

14 A. The purpose of my testimony is to provide information regarding  
15 Montana-Dakota's Outage Management System (OMS) benefits, planned  
16 deployment timeline, and to provide an understanding and support for the  
17 increased costs involved to operate an Outage Management System at  
18 Montana-Dakota. I will also provide testimony on budgeted Capital  
19 Expenditures for purchases and replacements of Electric Distribution  
20 Transformers.

1 **Q. Please briefly describe an Outage Management System.**

2 A. An Outage Management System is a system comprised of  
3 hardware and software that is configured and integrated with many data  
4 sources that are specifically designed to manage electrical outages for a  
5 utility. The overall goal of an OMS is to increase service reliability and  
6 safety for customers and employees in Montana-Dakota's service territory.

7 **Q. What has Montana-Dakota done to prepare for the deployment of an**  
8 **Outage Management System?**

9 A. An Outage Management System is dependent on many other  
10 system deployments and processes within a utility in order for the system  
11 to be functional or even possible. These systems were not specifically  
12 installed for the purpose of an OMS, however they have the additional  
13 benefit of critical input to an OMS deployment. Critical system  
14 deployments necessary for an OMS are as follows at Montana-Dakota:

15 A) **GIS** – installed in 2003 – a geographical mapping system was  
16 deployed at Montana-Dakota and has been diligently improved to a  
17 point to provide the necessary input to support an OMS.

18 B) **Mobile Order System** – installed in 2005 – A Mobile Order  
19 system allows for employees to receive outage orders in a real time  
20 environment including emergency outage orders.

1                   **C) Automated Meter Reading (AMR)** – installed in 2005 –  
2                   Automated meter reading and especially the Fixed Network for real  
3                   time reading is critical in providing meter power loss information to  
4                   the OMS system. Montana-Dakota electric meters are  
5                   approximately 95% communicating with the Fixed Network System.

6                   **D) Distribution SCADA** – installed from 2017-2023 - Electric  
7                   Distribution SCADA is an ongoing project to deploy Supervisory  
8                   Control and Data Acquisition to the Distribution systems at  
9                   Montana-Dakota and is expected to be fully deployed in 2023.  
10                  SCADA provides a real time input to an OMS for confirmation of  
11                  power loss at various points of the Distribution System Network.

12                  **E) Distribution Management System (DMS)** – installed in 2017 –  
13                  A Distribution Management System (DMS) was deployed at  
14                  Montana-Dakota in 2017. This is an essential software platform  
15                  that is used by an Electric Distribution Dispatcher to manage daily  
16                  operations of the Electric Distribution System (EDS). This is a  
17                  critical system deployment for an OMS to work properly.

18                  Each of these systems having been deployed are capable of  
19                  providing the necessary information and support to successfully deploy an  
20                  OMS.

1 **Q. Specific to Montana-Dakota, what is involved with an Outage**  
2 **Management System deployment?**

3 A. The deployment plan would include an OMS software/hardware  
4 package that would add onto the company's existing SCADA/DMS  
5 software platform. In 2017, Montana-Dakota deployed a SCADA and  
6 DMS software/hardware system from Open Systems International (OSI).  
7 The new software addition to be implemented, OMS from OSI, is designed  
8 to be integrated to the existing SCADA/DMS modular system. The new  
9 software provides for the functionality of an Outage Management System.  
10 Deployment will require integration into the previously identified systems  
11 already in place at the Company, as well as field software deployed for  
12 worker interaction and communications with the new OMS system. The  
13 cost of the system additions allocated to the North Dakota Electric  
14 jurisdiction is \$2,146,511 and is shown in Statement B, Schedule B-2,  
15 page 9 as PF-316300.

16 Additional staffing will be required to fully utilize the OMS.  
17 Additional staffing related to the implementation and ongoing utilization of  
18 the OMS are as follows:

- 1 • System Support Engineer: An Operations Technology (OT)
- 2 position is required to support the software, hardware, and
- 3 communications within the SCADA/DMS/OMS systems.
- 4 • System Administrator: An Information Technology (IT) position is
- 5 required to support the security, user administration, and
- 6 maintenance of the SCADA/DMS/OMS systems.
- 7 • System Operators: A staff of Distribution Dispatchers is required
- 8 to operate a 24/7/365 Distribution Dispatch Desk within the
- 9 existing Montana-Dakota Electric Systems Operations
- 10 Department. Montana-Dakota has historically had decentralized
- 11 dispatching within its Field Operation's District work force. A
- 12 central Dispatcher for Distribution will need to be set up at
- 13 Montana-Dakota to run the DMS software and interact with
- 14 workers to keep the Electric Distribution Network real time with
- 15 switching and Field Operations changes within the network.
- 16 The Company plans to add four System Operators for this
- 17 function.
- 18 • Business Analyst: This position will manage the daily operation
- 19 of the OMS system, including daily outage reviews, Quality
- 20 Assurance/Quality Control, data analysis, and reporting.

1                   • Promotions: The expanded responsibilities of a central OMS  
2                   deployment and staffing will require supervisory promotions  
3                   within existing departments.

4                   The labor and benefits cost related to the additional positions and  
5                   promotions, allocated to the North Dakota Electric jurisdiction, equates to  
6                   \$176,372 in 2022 and \$443,150 in 2023.

7                   In summary, deployment at Montana-Dakota includes the  
8                   software/hardware system additions, staff support additions, and a central  
9                   Distribution Dispatcher incorporated into the existing operations dispatch  
10                  department.

11 **Q.    What are the goals that Montana-Dakota is expecting to meet with  
12        this OMS deployment?**

13 A.       Montana-Dakota has identified four high level improvements that  
14        are expected to be achieved with the deployment of an Outage  
15        Management System.

16                  **1) Provide for an Outage Reliability Statistic and Failure/Cause**  
17                  **Database** – With the OMS based on a mapping network, the  
18                  company can achieve an outage and cause database that allows  
19                  information on outage reliability down to system level,  
20                  device/component level, or individual customer level. This data

1 can be used to make better decisions on system maintenance,  
2 replacements, and reliability improvements in general.

3 **2) Provide for a Field Operations Outage Management Toolset**

4 **to manage large storm events** - Large Storm Events are  
5 historically difficult for a utility to manage. The OMS software and  
6 maps are expected to provide tools necessary for local Field  
7 Operations employees to track system damage, repair, and repair  
8 follow-up items in an on-line central map-based interactive format.

9 It is expected that better and more organized response will improve  
10 outage response and a more proactive organized follow up with  
11 customer damage situations especially in the large storm events.

12 **3) Internal Operations Outage Map and Outage Status – The**

13 OMS deployment will provide a more real time outage map for use  
14 by the Field Operations teams. With the Electric Distribution  
15 Network managed real time by a dispatcher and system information  
16 integrated into the OMS, along with interaction by Field Operations  
17 employees as to device status and outage status, all employees will  
18 have better insight into the causes of an outage and will produce a  
19 quicker and safer response to emergency and outage events.

1                   **4) Outage Information for External Customers and Reporting –**

2                   The OMS will provide for better and more real time maps  
3                   presenting information on outages to inform the customers involved  
4                   in a power outage event. Since the OMS interacts with the  
5                   Company's employees as a real time communications system for  
6                   response, more information will be known about the current status  
7                   of an outage and expected outage repair times that can be relayed  
8                   to customers.

9   **Q.    What additional benefits are expected with the deployment of the**  
10 **Outage Management System including those specific to the**  
11 **customers?**

12 A.           There are many benefits to the Outage Management System  
13 deployment in addition to the previously stated goals. Additional benefits  
14 to the company include:

- 15                   **1)** Providing a real time Distribution System Map to company  
16                   employees as an additional safety benefit for system operations.
- 17                   **2)** Provide 24/7/365 monitoring of the Distribution SCADA system  
18                   by a system Dispatcher will provide quicker response times for  
19                   abnormal events and outages.

1                   **3)** Outage and reliability data can provide for better prioritization  
2                   and determination of future resources to improve reliability and  
3                   safety.

4                   **4)** Monitoring of crew locations in an after-hours setting helps  
5                   support the safety of the workers at Montana-Dakota, especially in  
6                   storm related events.

7                   More specific to the customer:

8                   **5)** Improvement in overall power reliability and outage response  
9                   times to customers in general.

10                  **6)** Improvement in localized power reliability and outage response  
11                  times due to a network, location, and individual customer level  
12                  database that can be used to look beyond general response and  
13                  reliability numbers to identify and address localized issues.

14                  **7)** Improvement in customer communications of electric outage  
15                  events. This can be in the form of maps, outage status, expected  
16                  response times, IVR, news reports, social media, etc. Information  
17                  will be available to customers and employees for existing outage  
18                  events in a more timely and efficient manner.

19                  **8)** Better information will provide the Company the opportunity to  
20                  prioritize costs and resources.

1 **Q. Would an Outage Management System have assisted Montana-**  
2 **Dakota during the ice storm that effected North Dakota on the**  
3 **weekend of April 23, 2022?**

4 A. The Outage Management System would have provided an  
5 electronic patrol toolset for the Field Operations Group that would have  
6 allowed for the central OMS system to track damages and damage repair  
7 from the line patrols. All employees at the company would see the same  
8 map based tracking of damages, damage repair, reporting, and resolution  
9 of outages in a real time environment. Customer outages would be  
10 tracked in real time and with less confusion, since interactive outages  
11 would be seen in real time on one mapping system. Customer outage  
12 numbers would be real time and seen by all operating employees.  
13 Confusion over what areas or certain customers without power should be  
14 eliminated or greatly reduced. Follow-up work for customers with  
15 damaged facilities or after storm follow-up maintenance damages would  
16 be available to be tracked and managed after the storm event. The  
17 customer based outage map would be more accurate with less confusion  
18 over the existing outage map display. Finally, the Outage Management  
19 System would have all reliability statistics and outage information available  
20 for further review and reporting after the event.

1 **What is the expected schedule for deploying an Outage Management**  
2 **System at Montana-Dakota?**

3 A. The OMS system, including the hardware and software  
4 deployment, is expected to be installed and operating by June 2023. The  
5 additional supporting staff and Electric Distribution Dispatcher will also be  
6 in operation by mid-year 2023 to support the operations deployment of the  
7 system. It is expected that each Field Operations District will be trained  
8 and start interacting with the software and dispatcher in staged time  
9 periods. Full deployment of the system to be in full operation across the  
10 Montana-Dakota Districts will be completed by the end of the year 2023.

11 **Q. Please explain how Montana-Dakota budgets for Capital**  
12 **Expenditures for Electric Distribution Transformers?**

13 A. Montana-Dakota uses a central budget funding project for the  
14 purchasing of all Distribution Transformers for use within the Company's  
15 service territory. This funding project is forecasted and budgeted using  
16 two-year actual costs while factoring for growth and inflation. Outside of  
17 normal growth and maintenance for Electric Distribution Transformers,  
18 specific replacement projects or special project considerations have been  
19 budgeted separately in rare cases. There are no existing special case  
20 budget items currently for these units at Montana-Dakota. The Company

1           has included plant additions \$1,659,090 for 2022 and \$1,696,459 for 2023  
2           for Electric Distribution Transformers.

3   **Q.    Does this complete your direct testimony?**

4   **A.            Yes, it does.**