MONTANA-DAKOTA UTILITIES CO.

Before the South Dakota Public Utilities Commission

Docket No. EL23-___

Direct Testimony

Of

Daryl Anderson

Q. Please state your name and business address.

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

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

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

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

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

Q. Please outline your educational and professional background.

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

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

A. Yes, I have testified before the Wyoming, Montana, and North Dakota Public Service Commissions.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide information regarding Montana-Dakota's Outage Management System (OMS) benefits, planned deployment timeline, and to provide an understanding and support for the increased costs involved to operate an Outage Management System at Montana-Dakota.

Q. Please briefly describe an Outage Management System.

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

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

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

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

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

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

D) **Distribution SCADA** – installed from 2017-2023 - Electric Distribution SCADA is an ongoing project to deploy Supervisory Control and Data Acquisition to the Distribution systems at Montana-Dakota and is expected to be fully deployed in 2024. SCADA provides a real time input to an OMS for confirmation of power loss at various points of the Distribution System Network.

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

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

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

A. The deployment plan would include an OMS software/hardware package that would add onto the Company's existing SCADA/DMS software platform. In 2017, Montana-Dakota deployed a SCADA and DMS software/hardware system from Open Systems International (OSI). The new software addition to be implemented, OMS from OSI, is designed to be integrated to the existing SCADA/DMS modular system. The new software provides for the functionality of an Outage Management System. Deployment will require integration into the previously identified systems already in place at the Company, as well as field software deployed for worker interaction and communications with the new OMS system.

Q. Will the OMS deployment require additional staff?

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

- System Support Engineer: An Operations Technology (OT) position is required to support the software, hardware, and communications within the SCADA/DMS/OMS systems.

- System Administrator: An Information Technology (IT) position is required to support the security, user administration, and maintenance of the SCADA/DMS/OMS systems.
- System Operators: A staff of Distribution Dispatchers is required to operate a 24/7/365 Distribution Dispatch Desk within the existing Montana-Dakota Electric Systems Operations Department. Montana-Dakota has historically had decentralized dispatching within its Field Operation's District work force. A central Dispatcher for Distribution will need to be set up at Montana-Dakota to run the DMS software and interact with workers to keep the Electric Distribution Network real time with switching and Field Operations changes within the network. The Company plans to add four System Operators for this function.
- Business Analyst: This position will manage the daily operation of the OMS system, including daily outage reviews, Quality Assurance/Quality Control, data analysis, and reporting.
- Promotions: The expanded responsibilities of a central OMS deployment and staffing will require supervisory promotions within existing departments.

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

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

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

1) Provide for an Outage Reliability Statistic and Failure/Cause Database – With the OMS based on a mapping network, the Company can achieve an outage and cause database that allows information on outage reliability down to system level, device/component level, or individual customer level. This data can be used to make better decisions on system maintenance, replacements, and reliability improvements in general.

2) Provide for a Field Operations Outage Management Toolset to manage large storm events - Large Storm Events are historically difficult for a utility to manage. The OMS software and maps are expected to provide tools necessary for local Field

Operations employees to track system damage, repair, and repair follow-up items in an on-line central map-based interactive format. It is expected that better and more organized response will improve outage response and a more proactive organized follow up with customer damage situations especially in the large storm events.

3) Internal Operations Outage Map and Outage Status – The OMS deployment will provide a more real time outage map for use by the Field Operations teams. With the Electric Distribution Network managed real time by a dispatcher and system information integrated into the OMS, along with interaction by Field Operations employees as to device status and outage status, all employees will have better insight into the causes of an outage and will produce a quicker and safer response to emergency and outage events.

4) Outage Information for External Customers and Reporting – The OMS will provide for better and more real time maps presenting information on outages to inform the customers involved in a power outage event. Since the OMS interacts with the Company's employees as a real time communications system for response, more information will be known about the current status

of an outage and expected outage repair times that can be relayed to customers.

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

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

1) Providing a real time Distribution System Map to Company employees as an additional safety benefit for system operations.

2) Provide 24/7/365 monitoring of the Distribution SCADA system by a system Dispatcher will provide quicker response times for abnormal events and outages.

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

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

More specific to the customer:

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

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

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

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

Q. How would an Outage Management System assist Montana-Dakota during ice storms or other periodic large storm events that affect South Dakota customers?

A. The Outage Management System will provide an electronic patrol toolset for Montana-Dakota's Field Operations Group that allows for the central OMS system to track damages and damage repair from the line patrols. All employees at the Company would see the same map-based

tracking of damages, damage repair, reporting, and resolution of outages in a real time environment. This system also allows for employee's in other areas of the Company the ability to help manage a large outage event from a remote location not affected by the outage event. Customer outages would be tracked in real time and with less confusion since interactive outages would be seen in real time on one mapping system. Customer outage numbers would be real time and seen by all operating employees. Confusion over what areas or certain customers without power should be eliminated or greatly reduced. Follow-up work for customers with damaged facilities or after storm follow-up maintenance damages would be available to be tracked and managed after the storm event. The customer based outage map would be more accurate with less confusion over the existing outage map display. Finally, the Outage Management System would have all reliability statistics and outage information available for further review and reporting after the event.

Q. What is the expected schedule for deploying an Outage Management System at Montana-Dakota?

A. The OMS system, including the hardware and software deployment, within the third quarter of 2023. The additional supporting staff and Electric Distribution Dispatchers will also be in operation by the

fall of 2023 to support the operations deployment of the system. It is expected that each Field Operations District will be trained and start interacting with the software and dispatcher in staged time periods. Full deployment of the system to be in full operation across the Montana-Dakota Districts will be completed by the end of the year 2023.

Q. What are the costs of the project?

A. The cost of the Outage Management System allocated to the South Dakota Electric jurisdiction is $3,965 for the hardware (FP-322075) and $115,404 for the system software (FP-316300) and is shown in Rule 20:10:13:56, Schedule D-2, page 4 and 5. The costs related to the additional positions needed for the OMS are $37,757. This is comprised of $33,134 of labor found on Rule 20:10:13:81, Schedule H-1, page 5, and benefit increases of $5,623 found on Rule 20:10:13:81, Schedule H-1, page 10.

Q. Does this complete your direct testimony?

A. Yes, it does.